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PAINT, PAINTING AND FINISHING

CARBOLINEUM WOOD PRESERVING CO.

(INCORPORATED)

Manufacturers of Avenarius Carbolineum

Carbolineum Building, 528 West Highland Street
MILWAUKEE, WIS.

Product

The original and genuine CARBOLINEUM registered in U. S. Pat. Off. No. 14048, is always sold with inventor's name added, as: Avenarius Carbolineum. The arrow trade-mark makes identification easy.

AVENARIUS
TRADE MARK
CARBOLINEUM
Preserves Wood Everywhere

Origin

In 1876, when the late Richard Avenarius invented Carbolineum, and originated wood preservation by simple surface treatment, the public did not take it seriously, having in mind the plentiful timber supply then available. Now, however, preservation of wood is a necessity, due to the cost of lumber and the long life required of wood used in modern construction.

Avenarius Carbolineum

A thin heavy oil ready for immediate use. Will not evaporate or deteriorate.

Its cost *is reasonable* and far less than lead or oil paints. The covering capacity is as great or greater than the best oil paints.

Wood Preservation at Construction Site—The wood preserving can be done at the point of construction by simply applying Avenarius Carbolineum with a brush, mop, sprayer or a few minutes' submersion of the lumber.

Always Uniform in Quality—Avenarius Carbolineum preserves wood against dry-rot and premature decay. It is especially prepared for the purpose and always produced in only *one standard grade of uniform quality*. Thus, results in the future will positively satisfy as heretofore; and the present-day user is assured of adding at least 100% to the life of any wood.

No Increase in Fire Risk—It contains no volatile ingredients and does not increase fire-risk.

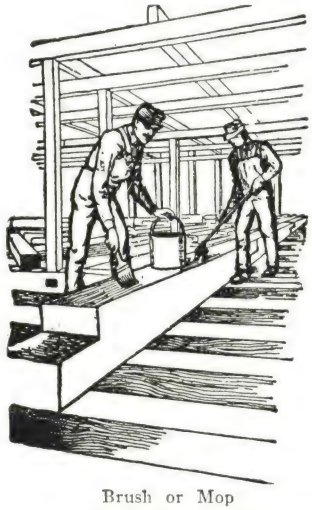
Appearance—*The Rustic Nut Brown Stain* makes it well suited for dwellings and other wooden structures, also for half timber work in place of paint.

Wood in Concrete Construction—Concrete supplies ample moisture; airtight construction is impossible—an ideal condition for growth of ever present decay fungi, causing rot and dry-rot—thus a preservative is essential, and there is none better than Avenarius Carbolineum.

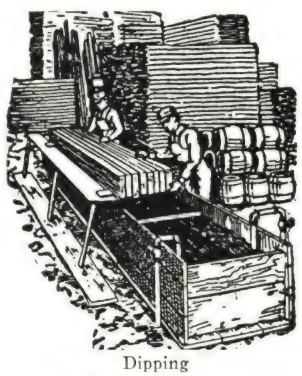
Against Termites (White Ants)—Termites which are a menace in many localities will not attack or destroy wood treated with Carbolineum.



Spraying



Brush or Mop



Dipping

Methods of Applying Avenarius Carbolineum

Reputation

Avenarius Carbolineum has established its reputation for highest quality and uniformity. Its preservative value is no theoretical conclusion, but is based on actual results. References can be supplied by us from nearly every locality in the United States.

COST AND COVERAGE, BRUSH AND SPRAY APPLIED

Lumber	Cost per 1000 sq. ft., 2 coats		Coverage, sq. ft. per gal.	
	Brush	Spray	Brush, 1 coat*	Spray, 2 coats
Dressed.....	$ 5.00	$ 5.00	350	250
Rough.....	8.00	9.00	250	150
Shingle roof..	13.00	15.00	100	75

*For second coat, one-quarter to one-third as much required.

COST AND COVERAGE, DIPPED

Cost per 1000 ft., b. m. $6.00 to $12.00*	Coverage				
	Timber, in.			Boards, in.	
Size	6x6	4x4	2x4	1x4	1x2
Gallons required	6	8	10	12	14

*According to size and correspondingly larger or smaller surfaces.

Specifications

A wood preservative known as Avenarius Carbolineum, manufactured by the CARBOLINEUM WOOD PRESERVING CO., Milwaukee, Wis., shall be used on .....

It can be used in its natural state when the temperature is above 70° F., otherwise when quick penetration is desired or on damp or partly seasoned wood, it shall be heated to 100° to 150° F. and applied hot. (Boiling point about 500° F., heating causes no danger with reasonable precautions.)

(Specify method of applying.)

Brush or Mop—After lumber is trimmed or framed, apply Avenarius Carbolineum liberally with a wire bound or rubber set long handle brush or mop. Saturate well at all cross cuts, mortises, tenons and knotty spots. In old wood, where decay has already started, decayed parts should be removed before applying oil.

Spraying—(When a large amount of surface or wood in structure already erected is to be treated, the spraying method can be used best.) Avenarius Carbolineum is to be applied with any efficient spraying or paint machine.

Dipping—(When the treatment of a large amount of lumber comes in consideration, this method is the most economical.) After trimming timber or lumber, immerse it in Avenarius Carbolineum. 1-in. lumber to be submerged about two minutes. Add two minutes for each additional inch of lumber thickness.

Free Samples

Upon request we will be glad to send a liquid sample of the preservative or a sample of board which has been treated. No obligation.

Warning

There is only one original and genuine *Carbolineum*, the invention of Richard Avenarius, known as Avenarius Carbolineum. Any other use of this name is a deliberate attempt to confuse and mislead the public.

IN NEW YORK 1887-1925 — IN KENILWORTH SINCE 1919

PROTEXOL CORPORATION

SUCCESSOR TO CARBOLINEUM WOOD PRESERVING CO., INC.

OFFICE AND WORKS
37 Market Street
KENILWORTH, N. J.

TELEPHONE
Roselle 4-1900

Products and Services

FIREPROOFING by the MAX BACHERT (ELECTRIC) PROCESS to New York Building Department requirements.

COMBINED PRESERVATIVE and FIREPROOFING TREATMENTS for Structural Timber, especially timber roofs.

PRESSURE TREATMENTS by all STANDARD SALT PROCESSES as zinc chloride, sodium fluoride or fluorphenol.

WOOD PRESERVATIVES to standard specifications of the American Wood Preservers Association.



GRADE-MARK

Protexol, Neosote and Osco represent the highest grades produced from anthracene oil for brush, spray or open tank treatments; Creosote Oil to recognized specifications; a gallon or a tank car. Protexide, the colorless and odorless preservative.

Fireproofing, dyeing and wood preservation require a specialized knowledge of the structure of wood, causes of decay, antiseptics, chemicals that act as fire retardants and means for effecting satisfactory treatments.

This organization acts as Consultants on matters pertaining to timber treatments.

Facilities for Treatment

The equipment includes two pressure cylinders or retorts and eight 12,000-ft. capacity dry kilns. Investigation and inspection of works is invited. Treatments are warranted to pass the requirements of New York City as tested by Columbia University. References and literature upon request.

Fireproofing and Flameproofing

Fireproofing is a term used to describe the complete impregnation of wood under pressure with chemicals so that shavings from the interior will not receive, sustain or transmit flame.

Flameproofing is a term used to designate impregnations with more limited quantities of chemicals. Such treatments are recommended for temporary wooden structures as for fairs or expositions, for scaffolding, contractor's shanties or hod hoist towers. Specify Protexol Flameproofing.

For interior woodwork of fine residences, schools, churches, libraries, museums or art galleries it is recommended that fireproofing by the Bachert Process be specified.

Flameproof preserved wood is offered for structural requirements. This combines in one treatment chemicals that will prevent decay with fireproofing chemicals precipitated in the wood in an insoluble form; suitable for interior or exterior work. Specify Pyresote Process.

Fireproofed wood is practically stainless and can be given any desired finish with stains, waxes, varnishes or paint. The gluing properties of wood are not affected.

Principles of Fireproofing—The basic principle of fireproofing wood is to prevent the spread of a fire. The aim is to increase the resistance which such wood offers to burning. It is not to be assumed that such wood will endure indefinitely an increasing attack of flame without charring or disintegrating. Wood properly fireproofed will not receive, sustain or transmit flame. All flame existing will be only that of the extraneous substance. When flame or intense heat is applied to fireproofed wood, the wood will char at the point of contact, but it will not burst into flame and the destructive effect of the heat will be confined to the point of contact with the flame. Thus, the fireproofing of wood aims at the permanent elimination of the property of inflammability from wood.

Combustion is controlled by injecting into the wood chemicals which upon decomposing give off non-combustible gases which mix with the inflammable gases given off by heated wood and render them non-combustible. Other chemicals give protection by fusing or forming a glasslike coating over the fibers of the wood, while a third class of chemicals used gives up waters of crystallization which are gradually released as the wood is heated during a fire. These chemicals which are injected into the wood must be so precipitated in the wood that they will remain fixed until liberated by heat.

An interesting case proving the permanency of the Bachert Fireproofing Process is that of the R. G. Dun Building in New York City erected in 1897. In 1926, or 29 years after its erection, a fire broke out in the building adjoining on the north. The fire attacked the wooden window frames and sash on some ten or twelve stories, but the fire was not communicated to the Dun Building since the fireproofed wood, while decomposing, did not ignite.

The Bachert Electric Fireproofing Process was adopted by the United States Navy for battleships, cruisers, torpedo boats, etc., on July 25th, 1895.

Tests—Tests for permanence were made on duly authenticated specimens in accordance with the Rules for Testing Fireproofed Wood approved and adopted by the Bureau of Standards and Appeals, New York City, which require for the shavings test a temperature of 800°, and for the timber test a temperature of 1700° F., with results noted below:

Building	Wood		Shavings Test		Timber Test		Unburned area, %	Required %
	Species	Age, yrs.	Flame	Glow, sec.	Flame	Glow, sec.		
Belmont Hotel	Red oak	24	none	none	none	5	63	55
Commercial Cable Building	Mahogany	33	none	none	none	2	67	55
Hotel McAlpin	Red oak	18	none	none	none	3	85	55
R. G. Dun Building	Red oak	33	none	none	none	2	77	55

Wood Preservation

Preservative Experience—For over 50 years Protexol quality applied by brush, spray or open tank has been successfully used for the surface treatment (brush, spray or open tank) of timber to prevent decay and the attack of insects. Protexol (protects all) represents value demonstrated by actual time tests—by results.

It is the "standard" wood preservative for surface treatments established by practice.

Cost of Surface Treatments—This, while variable, will run from 1¢ to 1½¢ per sq. ft. of surface area. Brush treatments will add approximately 1% to the cost of a completed wooden structure. Spray treatments will run about $1.00 per gallon applied or 1¢ per sq. ft. for the best grade of Protexol Wood Preservative. Open tank treatments vary in cost according to the desired absorption and grade of preservative employed from 4% to 10% of the total cost of a complete wooden structure or 10% to 15% of the timber used.

Notes on Grade and Amount of Preservative to Be Used—This must be varied with the conditions of exposure and the quality and characteristics of the timber used. The desired protection against decay-producing influences is a further factor. How small a surface a gallon can cover rather than how much determines the protection afforded.

Since the permanence of oils in treated wood is generally considered a sound basis for comparison of value, it is suggested that the same factor be used in determining the amount of preservative and the treatment to be specified for similar conditions of exposure.

It should be understood that where it is desired to use lower grade preservatives consideration should be given to the use of a greater quantity. In brush treatments, this is accomplished by specifying three to four brush coats. In open tank treatments these results can be obtained by variations in time and temperature of the hot and cold baths.

It is always well to bear in mind that the smaller the absorption of the preservative, the more important its permanence since the rate of evaporation of the lighter oils is greatest from the outer portions of the wood. Complete specifications on request.

THE BUTCHER POLISH CO.

Manufacturers of Floor Polish and Floor Wax

84 Broad Street
BOSTON, MASS.

Products

BUTCHER'S BOSTON POLISH, a hard wax finish; BUTCHER'S LIQUID WAX; BUTCHER'S No. 3 REVIVER.

Also, Butcher's Weighted Floor Polishing Brushes and the Butcher Everyday Polisher.

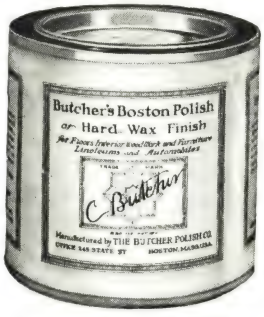
Scope and General Information

The products of this company, having been on the market for nearly fifty years and having given throughout that period consistent satisfaction, have become recognized as standard by architects, interior decorators and painters.

This is particularly true in the case of large institutions, hospitals, colleges, etc., that employ superintendents whose purchases are based on experience.

Butcher's Boston Polish, a Hard Wax Finish

Butcher's Boston Polish is a perfectly transparent finish for floors, interior woodwork, furniture and linoleum.



Butcher's Boston Polish or Hard Wax Finish Can
(1-lb. size)

It preserves the natural color and beauty of the wood, and as it is not brittle it will not scratch or deface, nor will it become soft and sticky.

It has the reputation of being one of the best floor polishes made, one without objectionable features, and is especially adapted for hardwood floors, bowling alleys and linoleum.

It is manufactured from pure materials perfectly blended so that it has great density and lasting qualities.

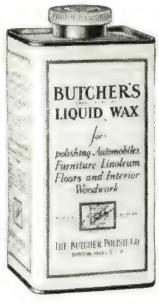
Its extreme density and high melting point result in a hard coating of considerable body, which can not be obtained with polishes manufactured with soft waxes and cheap highly volatile solvents.

Covering Capacity—After surface has been properly filled, 1 lb. of Butcher's Boston Polish will cover 300 sq. ft.

Butcher's Liquid Wax

Butcher's Liquid Wax is used for repolishing floors, furniture or interior woodwork and is particularly adapted to the maintenance of linoleum as recommended by linoleum manufacturers.

After the floors, or other woodwork, have been properly finished with Butcher's Boston Polish and require freshening up, dampen a cloth or mop with Butcher's Liquid Wax, rub over the surface and polish at once by rubbing with a dry, soft cloth.



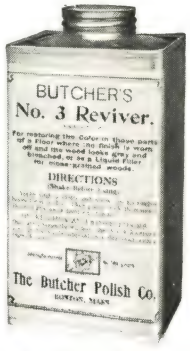
Butcher's Liquid Wax Can
(¼-gal. size)

Butcher's No. 3 Reviver

Floors of hard pine, maple, or other close grained woods will not take a filler. For such floors apply a coat of Butcher's No. 3 Reviver, which will give a warm and even color to the wood. It should be left overnight to dry and then treated with Butcher's Boston Polish according to the directions given herewith.

To restore the color of the parts of the floor where the finish is worn off and the wood looks gray and bleached, dampen a cloth with the Reviver and rub over the defaced portions; let it remain 24 hours to dry; then polish with Butcher's Boston Polish according to directions.

For kitchen, store, and piazza floors that need to be washed often, lay on a thin coat of Butcher's No. 3 Reviver, with an ordinary varnish brush, or dampen a cloth and go over as directed above, rubbing off well before leaving to dry. Repeat when the wood begins to look gray and worn.



Butcher's No. 3 Reviver Can
(¼-gal. size)

Covering Capacity—1 gal. will cover about 2000 sq. ft. of surface.

General Specifications

Do not specify "or equal" as this only leads to the use of inferior grades. Experience in actual use should be the determining factor in specifying a wax polish.

Floors (without Varnish)—***(a) Open Grain Woods, Oak and Others***—The floors shall first be filled with a paste filler satisfactory to the architect, allowed to dry and thoroughly rubbed off.

After 24 hours a coat of Butcher's Boston Polish or Hard Wax Finish shall be spread evenly over the floor with a cloth and allowed to dry for ½ hour. The floor shall then be polished with an approved electric polishing machine or a long handled weighted brush (25-lb.) rubbing first across the grain and then with the grain.

Just before the floors are put in use a second coat shall be applied and finished as the first.

Note: In addition to the filler a thin coat of shellac may be laid on and sandpapered slightly before applying the finish coat of wax.

(b) Close Grained Wood (Hard Pine, Maple, etc.)—The floors shall first receive a coat of Butcher's No. 3 Reviver applied with a cloth and allowed to dry for 24 hours.

Then apply Butcher's Boston Polish as above.

Varnished Floors—Insert varnish specification, then specification for 1 coat of Butcher's Boston Polish.

Interior Woodwork and Standing Finish—Specifications similar to the foregoing, except that after applying Butcher's Boston Polish it shall be polished with a brush of the stiffness of a shoe brush and afterwards with dry soft cloths.

Kitchen and Piazza Floors—Shall be finished with a thin coat of Butcher's No. 3 Reviver laid on with a varnish brush.

Territory

Butcher's products are for sale everywhere by paint and hardware dealers and department and drug stores.

CONTINENTAL CAR-NA-VAR CORPORATION

(FORMERLY CONTINENTAL CHEMICAL CORPORATION OF WATSEKA, ILL.)

Compounds for Conditioning and Maintaining All Types of Floor Surfaces

BRAZIL, IND.

BRANCH OFFICES

*BOSTON
CHICAGO
CLEVELAND
*DALLAS
*DENVER
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*ST. LOUIS, MO.
TOLEDO
*TORONTO, CAN.
*WASHINGTON, D. C.

*Warehouse stocks. Also warehouse stocks in Atlanta, Ga. and Cincinnati, Ohio

Car-Na-Var Combines Varnish Gums and Waxes in Liquid Form

Filler and finish (stain when wanted) in one, applied with mop for all floors, except rubber and certain soft composition floors. See Specifications.

CAR-NA-VAR TRADE MARK REG. U.S. PAT. OFF. THE PERFECT FLOOR TREATMENT

Approved by leading floor manufacturers, including cork, linoleum, tile, wood, magnesite, cement, etc. Car-Na-Var is an ideal treatment for old or new floors permitting low maintenance costs for keeping the floors in the best of condition at all times.

(1) It has about twice the endurance of floor wax and polishes easier.
(2) It is resilient—will never become brittle as does varnish.
(3) It instantly and completely unites with previous Car-Na-Var coatings—eliminating the "lap" which is inevitable in varnish repairs.
(4) Dries almost immediately; applied, polished, ready for traffic in hour.
(5) It gives a non-slippery, glossy finish resembling varnish.
(6) It is a permanent part of the floor—penetrates very deeply.
(7) It is made in "Natural" (stainless) and popular colors, including:

Dark oak	Mahogany	Walnut	Mission (transparent black)
Light oak	Maroon	Olive green	Malachite (bright green)
Golden oak	Cherry		Ebony

COVERING CAPACITY OF ONE GALLON OF CAR-NA-VAR

Hard wood (unfilled)	1st coat— 900 to 1200 sq. ft. 2nd coat—1500 to 2500 sq. ft. 3rd coat—2500 to 3000 sq. ft.
Soft wood (unfilled), terrazzo, magnesite, faience tile, flexstone, linoleum, marbleloid—3 coats	1st coat— 800 to 1000 sq. ft. 2nd coat—1000 to 1500 sq. ft. 3rd coat—1500 to 2500 sq. ft.
Cork, cement, composition—3 coats	1st coat— 500 to 1000 sq. ft. 2nd coat— 800 to 1500 sq. ft. 3rd coat—1000 to 2500 sq. ft.
Mastic—2 coats	1st coat— 900 to 1200 sq. ft. 2nd coat—2500 to 3500 sq. ft.
Painted, varnished, shellacked—1 coat	1 coat—2500 to 3000 sq. ft.

Note: Where any of the above floors have been previously "filled" with regular "filler," shellac or good floor wax, the capacity of the first coat will equal that indicated for the third, and one coat will often suffice.

Rubber-Var

Fills, preserves, waterproofs and finishes rubber tile, terrazzo and soft composition floors. See Specifications.

RUBBER-VAR TRADE MARK REG. U.S. PAT. OFF. FOR TREATING RUBBER FLOORS

Is the same as Car-Na-Var, except the thinners which are harmless to rubber, asphalt, etc. Rubber-Var has great wearing qualities. Is applied with a mop, drying almost as fast as it is applied. It takes a high non-slippery finish when polished.

COVERING CAPACITY OF ONE GALLON OF RUBBER-VAR

New rubber	1st coat—4000 to 5000 sq. ft. 2nd coat—5500 to 6000 sq. ft.
Old rubber	1st coat—3000 to 3500 sq. ft. 2nd coat—4000 to 5000 sq. ft.

Luster-Var

Liquid made of wax and gum requiring no polishing. *See specifications.*

LUSTER-VAR FLOOR TREATMENT

Dries hard and bright within 10 or 15 minutes after application. A filler, preservative and finish adapted for rubber tile, terrazzo, asphalt, linoleum, painted and varnished wood. Easily applied with mop and maintained by dry cleaning method.

Nu-Tro-Fil

Filler, neutralizer and preservative for pine, oak, maple, cement, asphaltic and other floors. See Specifications.

NU-TRO-FIL

A liquid emulsion of creamy consistency having a solid content of 17% or more of vegetable oil, varnish gum and wax. A forerunner for Car-Na-Var and will take the place of floor oil, yet not darken floor and repairs do not show worn places. Dries hard and bright and does not collect dirt. Economical in cost.

COVERING CAPACITY OF ONE GALLON OF NU-TRO-FIL

Wood .....1500 to 2500 sq. ft.	Composition ..1000 to 2500 sq. ft.
Cement .....1200 to 2000 sq. ft.	Tile .....2000 to 2500 sq. ft.
Linoleum ....1500 to 3000 sq. ft.	

De-Ter-Go

DE-TER-GO WONDER CLEANER

A rubber floor treatment, approved by leading rubber floor manufacturers. See Specifications.

Also for cleaning rubber, tile, terrazzo, cement, wood and oil soaked floors. Contains no soap, soda ash, sal soda, caustics, acids, ammonia or abrasives.

Specifications for Cleaning, Filling and Finishing Different Types of Floors with Guaranteed Tri-C Products or Equals

Specification A. New Wood Floors—Filler and Preservative—(1) Contractor or subcontractor shall cause to be removed all supplies, materials, rubbish, etc.

(2) Floors shall be scraped and sandpapered; cleaned surfaces shall then be treated with one coat of a product having a creamy consistency and containing not less than 17% solids of varnish gum, waxes and linseed oil; that will not check, crack or peel, and that dries within an hour; then buff with weighted pad, clean "00" steel wool, or electric floor polishing machine until floor has a dull luster that is not sticky or gummy.

(3) If grain raises unusually, treated floor shall be brought to a smooth even surface with sandpaper.

(4) Use Paragraph 26.

(5) This product must be "Tri-C Nu-Tro-Fil," filler and preservative as manufactured by the CONTINENTAL CAR-NA-VAR CORPORATION of Brazil, Indiana, or an approved equal.

Specification B. Wood Floors—Sealing and Finishing—(6) Use Paragraphs 1 and 2.

(7) Floor is now to be treated with two coats of a product containing 10% (or more) solids of varnish gum and waxes (and stain if requested) and of such a nature and consistency as to permit quick drying when applied with a lambs wool mop; it must spread evenly and thinly, must dry within an hour after application and when polished take a high, hard, non-slippery sheen and not leave a sticky or gummy surface. Product must not check, crack or peel, nor show marks of overlapping when applied for repairing spots or lanes when worn by unusual foot traffic.

(8) After each application, product when dry is to be polished with a weighted brush or pad, clean "00" steel wool, or electric floor polishing machine until a high luster is obtained.

(9) Use Paragraph 26.

(10) Material to be used shall be "Car-Na-Var" (Natural, or Light Oak, Dark Oak, Walnut, Cherry, Mahogany, Maroon, Bright Green, Olive Green or Mission) Sealer and Finisher, as manufactured by the CONTINENTAL CAR-NA-VAR CORPORATION of Brazil, Indiana; or an approved equal.

(11) Wood floors shall be treated with a product containing.....
.....
(Color of Stain).

Specification C. Linoleum Floor Covering Sealer and Preservative—(12) Use Paragraphs 1 and 19.

(13) Clean floor shall then be mopped with clean water and dry mopped to remove any streaks. Then let dry.

(14) Use Paragraphs 7, 8 and 26.

(15) Cleaner shall be "Nu-Tro-Fil" and finish shall be "Car-Na-Var" Natural, as manufactured by the CONTINENTAL CAR-NA-VAR CORPORATION of Brazil, Indiana; or their approved equals.

Specification D. Cement, Magnesite, Quarry Tile, Cork—(16) Use Paragraphs 1, 19, 20, 7, 8 and 26.

(17) Cleaner shall be "Nu-Tro-Fil" and finish shall be "Car-Na-Var" manufactured by the CONTINENTAL CAR-NA-VAR CORPORATION of Brazil, Indiana; or their approved equals.

Specification E. Travertine, Terrazzo, Troweled Asphalt or Asphaltic Tile Floors—Filler and Preservative—(18) Contractor or subcontractor shall cause to be removed all supplies, materials, rubbish, etc., and remove all stains; then seal and clean the floor after all trades have finished.

(19) Cleaner must be of creamy consistency containing not less than 17% solids of varnish gum, waxes and linseed oils. One quart of the product to be diluted with 10 qts. water. After floor is mopped or scrubbed, the surplus solution, dirt, etc., is to be removed with squeegee.

(20) Floor shall not be rinsed but when dry shall be polished with weighted brush, clean "00" steel wool, or electric floor polishing machine.

(21) The clean filled floor when dry shall be treated with two coats of a product containing 10% or more solids of varnish gum and waxes, and of a nature and consistency that permit quick drying when applied with a mop or similar device; it must spread evenly and thinly and dry within an hour after application, and when polished take a high, hard, non-slippery sheen and not leave a sticky or gummy surface. The product must not check, crack or peel, nor show marks of overlapping when applied for repairing spots or lanes when worn by unusual foot traffic. Each application of the product when dry is to be polished with a weighted brush or pad, or clean "00" steel wool, or electric floor polishing machine until a high luster is obtained.

(22) Use Paragraph 26.

(23) Materials to be used shall be "Nu-Tro-Fil," cleaner and filler; and "Rubber-Var" sealer and preserver as manufactured by the CONTINENTAL CAR-NA-VAR CORPORATION of Brazil, Indiana; or their approved equals.

Specification F. Rubber Tile Floors—Sealer and Preservative—(24) The contractor or subcontractor shall cause to be removed all supplies, materials, rubbish, etc., and remove all stains, including the glue or cement; then clean the floors after all trades have finished, using two to four ounces of a powdered cleaner to a 12-gal. pail of water. After floor is mopped or scrubbed, the excess solution and dirt shall be removed with a squeegee, floor rinsed and dry mopped, eliminating all streaks.

(25) Use Paragraph 21.

(26) The manufacturers of such product must furnish gratis complete directions for use of the material and, when requested to do so, have their representative instruct the foreman in charge in the proper method of application.

(27) Cleaner used shall be "De-Ter-Go" and sealer and preservative shall be "Rubber-Var" as manufactured by the CONTINENTAL CAR-NA-VAR CORPORATION of Brazil, Indiana; or their approved equals.

HILLYARD CHEMICAL CO.

SHINE-ALL SALES CO. DISTRIBUTOR

EXECUTIVE OFFICES

ST. JOSEPH, MO.

BRANCH OFFICES AND WAREHOUSES IN FOLLOWING CITIES

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BUFFALO, N. Y.	DETROIT, MICH.	JERSEY CITY, N. J.	NEW ORLEANS, LA.	ST. LOUIS, MO.	

The Company

HILLYARD CHEMICAL CO. are expert floor maintenance and sanitation authorities.

Shine-All

Shine-All is a cleanser, polish and preservative for every floor surface. While the primary qualities and uses of Shine-All are as a cleanser, it also contains a light filler which produces a polish and also acts as a preservative through the protective surface finish it leaves. Shine-All is liquid in nature, not a heavy sticky soap, but an efficient chemical agent neutral in character and free from caustic, alkali, soda, lye or abrasives. Shine-All is recommended for use on all types of floor coverings and is not injurious to the hands.

Faience, Matte Finish, Quarry Tile, etc.

All tile with rough finish or of semivitreous character which should not be washed with acid to remove the cement from the face may be treated with Shine-All as a preventive of cement stains. Shine-All will eliminate the unsightly appearance of efflorescence.

Specifications—Tile should be treated wih a solution of pure Shine-All, a product manufactured by the HILLYARD CHEMICAL CO., of St. Joseph, Mo. The Shine-All is to be applied before the joints are grouted to protect the tile from becoming stained. Follow detailed directions of manufacturer.

Tile, Marble, Terrazzo

The use of Shine-All should be specified in the final cleaning of such flooring surfaces as of above materials. Shine-All will remove all grease and traffic stains, leaving a light protective finish which will prevent further staining of such floor surfaces. Among the tile, marble and terrazzo contractors, Shine-All has an extensive patronage caused by the savings in labor costs in cleaning to be effected through its use.

In the case of Terrazzo floors, Shine-All gives a positive finish, sealing the pores of these floors, and preventing their staining.

Specifications—*Terrazzo*—When work has been completed and is ready for final cleaning, a solution of 1 part of Shine-All (manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo.) to 16 parts of water shall be used. This solution is to be applied freely and permitted to remain on floor for 15 to 20 minutes. Floors should then be thoroughly dried. Follow detailed directions of manufacturer.

Linoleum, Cork, Asphaltic Tile and Composition Floors

Resilient floor manufacturers (names on application), have found that Shine-All is not only a cleanser of a strictly neutral character, but also that the filler compound in it will, through continuous use, build up a protective sheen on such floor coverings, enhancing their beauty and affording protection to the surface of the floors. It may be specified for use in the place of wax on extensive areas where heavy traffic would not permit the use of wax because of excessive costs.

Specifications—Upon completion of the laying, all cement stains should be carefully removed with 3% solution of sodium hydroxide and a solution of 1 part Shine-All (manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo.) to 12 parts water should be used for initial cleaning and floors should be thoroughly dried. This operation is to be repeated with a clean solution of same proportions as given above and after final drying, the floors should then be buffed with weighted brush or polishing machine.

Special Gymnasium Floor Finish (Non-slip)

Produces a tough, lustrous non-slippery surface. Easy to maintain. Extra durable, eliminates annual refinishing or treatment.

Specifications—Clean floor thoroughly with Shine-All; if previously treated with oil clean with Renovator. After drying, apply 1 coat Premier Wood Filler according to manufacturer's directions. Allow 12 hours for drying of filler after which apply first coat of Special Gymnasium Finish flowing on with good grade varnish brush. Allow 18 to 24 hours for drying then apply second coat. Shine-All, Renovator, Premier Wood Filler and Special Gymnasium Finish are manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo. Follow detailed directions of manufacturer.

Hillyard Method of Wood Floor Maintenance

To keep wood floors clean, dustless and attractive, after cleaned and filled, maintain with automatic dustless floor brush dampened with Trackless Dressing. Only necessary to clean by washing once a year.

Specifications—The wood floors to be treated with Hillyard Method. Floors are first to be thoroughly cleaned with Shine-All and allowed to dry for 24 hours, after which 1 coat of Hillyard's Premier Wood Filler is to be applied according to manufacturer's directions. Allow 12 hours for the drying of the filler, after which Hillyard's Trackless Floor Dressing is to be applied. Shine-All, Premier Wood Filler and Trackless Floor Dressing are manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo. Follow detailed directions of manufacturer.

Onex-Seal (Sealing and Waterproofing Concrete, Terrazzo, Tile, etc.)

Seals, polishes, waterproofs and stops efflorescence. Produces tough trackless finish easy to maintain. Emphasizes color in floors and protects against heavy traffic.

Specifications—Clean floor with Shine-All. Apply Onex-Seal with automatic brush. Distribute evenly with brush or electric waxer. Allow to dry 5 minutes then polish with dry brush or with machine equipped with dry polishing brushes. Shine-All and Onex-Seal are manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo. Follow detailed directions of manufacturer.

Diamond Floor Finish

Produces a tough, lustrous finish on wood floors. Quick drying and easy to apply. The smooth, non-slippery surface is easier to maintain and gives a lighter, cleaner surface.

Specifications—Clean floor thoroughly with Shine-All; if previously treated with oil clean with Renovator. After drying apply 1 coat Diamond Floor Finish manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo. Allow to dry thoroughly (several hours) then apply second coat. On new floors apply 1 coat Hillyard's Wood Primer before applying Diamond Floor Finish. Follow detailed directions of manufacturer.

Liquid and Paste Waxes

Hillyard's Liquid and Paste Waxes produce a superhard lustrous surface. Only hard waxes used in manufacture—no paraffin—hence they make floor waterproof, acid and alkali resistant.

Specifications—Apply Hillyard's Wax (manufactured by HILLYARD CHEMICAL CO., St. Joseph, Mo.) with cheesecloth or wool applicator. Allow to dry and then polish with electric polishing machine or weighted hand polishers. Follow detailed directions of manufacturer.

Literature

"Modern Floors—Their Maintenance." A treatise covering maintenance of every floor. Write for your free file copy. Also "Modern Maintenance," handy reference manual treating all maintenance problems.

SCOFIELD, EVANS & COMPANY

Manufacturers of Floor Preservatives

Commercial Trust Building
PHILADELPHIA, PA.

DISTRIBUTORS

EASTERN AND MIDDLE WESTERN TERRITORY: C. J. Phillips Company, 508 South Dearborn Street, CHICAGO, ILL.
PACIFIC COAST TERRITORY: Continental Building Specialties, Inc., 408 South Spring Street, LOS ANGELES, CAL.

Products

REPELLO, a Permanent Preservative Treatment for floors of wood, concrete, composition, terrazzo and linoleum.

REPELLO
TRADE-MARK

Repello

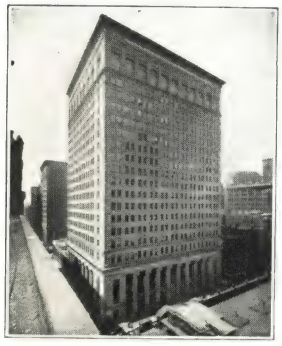
Repello is a mixture of processed organic oils having no chemical effect upon any material to which it is applied. Its action is entirely mechanical as it fills the pores or voids, and remains an elastic and cohesive binder for years. This elasticity is essential to withstand traffic, to prevent penetration of dirt and injurious materials and to stop disintegration of floor when exposed to the action of the elements.

On Wood Floors—One application is sufficient for the life of the floor. Penetration is complete and the wood becomes so well filled that the finish remains even though part of wood be worn away.

Repello will penetrate entirely through an inch of maple flooring in about twenty hours, and leaves a permanent finish in the wood itself. A floor so treated will not stain or lose its finish.

Repello prevents warping, checking, dusting and splintering, because it is waterproof and prevents the disintegration of the natural wood resins. It leaves no film on the surface, but becomes a part of the wood itself and completely fills the pores. By keeping out dampness and moisture which are necessary to the life of fungi it prevents dry-rot.

By preventing the grain of wood from raising, it insures a permanently smooth surface and finish.



Illinois Merchants Bank Building, Chicago, Ill.
GRAHAM, ANDERSON, PROBST & WHITE, Architects
Maple and cork tile floors treated with Repello

Repello in oak floors prevents the formation of discolored areas through the wearing out of the usual surface coatings and the subsequent action of air and water.

It prevents slivering and splintering; is one of the few materials which will make a pine floor resist the action of weather. When applied to wood sleepers, it prevents the usual rotting of the sleepers due to absorption of moisture from the concrete in which sleepers are embedded.

On Concrete Floors—No other known treatment penetrates more deeply than Repello. This penetration varies, depending on the density of the concrete, usually between ¼ and ½ in. It hardens the concrete to the full depth of its penetration by filling the tiny voids of the concrete with a tough elastic binder. The hardening and dustproofing qualities result from the same action which occurs in an asphalt pavement—the elastic binder holds the grit resulting from traffic until it gets so hard that it glazes over.

Repello renders a concrete floor waterproof, oilproof and alkaliproof. It protects the floor from the action of fatty and other organic acids which result from the decomposition of oils and greases.

On Composition Floors—Dusting and disintegration of composition floors is prevented because of the waterproof binder deposited in voids of the floor.

On Terrazzo Floors—Prevents dusting and disintegration of the cement binder in terrazzo.

On Linoleum and Cork Carpet—Applied to linoleum and cork carpet, it penetrates the entire body of the fabric. When so treated they do not become brittle and the life is increased.



Phoenix Knitting Co. Works, Milwaukee, Wis.
LOCKWOOD, GREENE & CO., Architects

Repello Specifications

All concrete floors, after they have had their proper set [All wood floors after being properly planed and sanded] and approved by the architect, are to be treated with Repello to be furnished and applied by the manufacturers, SCOFIELD, EVANS & COMPANY, Commercial Trust Building, Philadelphia, Pa., or their authorized agents.

A Few Representative Installations and Customers

Olympia Fields Country Club, Matteson, Ill.
F. W. Woolworth Company
Sears Roebuck & Company
International Tailoring Company, Chicago, Ill.
National Cash Register Company, Chicago, Ill.
American Seating Company, Grand Rapids, Mich.
General Baking Company
Tower Garage, Chicago, Ill.
Sinclair Auto Service Corp., Chicago, Ill.
Montefiore Hospital, Pittsburgh, Pa.
Toledo City Hospital, Toledo, Ohio
Hotel Stevens, Chicago, Ill.
Board of Trade, Chicago, Ill.
Famous Players-Lasky Company, Chicago, Ill.
Pacific Mutual Life Building, Los Angeles, Calif.
Atchison, Topeka & Santa Fe Ry. Co.
Chicago, Burlington & Quincy R. R. Co.
Chicago & North Western Ry. Co.
Massachusetts Institute of Technology, Cambridge, Mass.
University of Michigan, Ann Arbor, Mich.
Minneapolis Arena, Minneapolis, Minn.
First Presbyterian Church, River Forest, Ill.
Corpus Christi Church, Newport, Ky.
G. C. Kuhlman Car Co., Cleveland, Ohio
American Brass Company, Torrington, Conn.
State University of Iowa, Iowa City, Iowa

VESTAL CHEMICAL LABORATORIES, INC.

Manufacturers of Products for the Treatment and Maintenance of Hardwood Floors

HOME OFFICE
ST. LOUIS, MO.

NEW YORK OFFICE, 385 Gerard Ave.

CHICAGO OFFICE, 230 E. Ohio St.

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PITTSBURGH, PA. | SAN FRANCISCO, CAL. | WASHINGTON, D. C.

For Vestal Products for the Treatment and Maintenance of Terrazzo, see Manufacturers' Index

Approved and Recommended by The Maple Flooring Mfrs. Ass'n

PYRA-SEAL—PYRA-COTE TREATMENT AND FINISH

Seals and Preserves Maple, Birch, Beech and Pine Floors

Although all types of floors are being used in modern school buildings and other institutions, hardwood, particularly maple, is used most. The big problem in the past has been the maintenance of such floors so as to retain their beauty and general satisfaction. We are becoming more and more "floor conscious." We expect beauty as well as service. No part of the building gets such rough usage as the floor. Serious thought, therefore, should be given to the proper treatment and care of wood floor areas.

Depreciation begins when the floor is laid and continues at a rapid rate unless properly treated with a good preservative. Neglect means expensive replacement, resulting in such losses as labor, material and time. Wood floors are bound to show the effects of improper treatment and care. Moisture will penetrate and the result is warping, splintering and eventually disintegration.

In schools, offices, stores, clubs and similar types of buildings, where the floors receive hard wear and are expected to appear attractive in keeping with their surroundings, the use of a good seal and service finish is advisable. A good service finish is one that will surface-seal the pores of maple and pine, keep out the dirt, resist oil stains and prove non-slippery—a finish that will not mar easily or flake off and is easy to clean and maintain at a low cost without scrubbing.

Pyra-Seal is such a finish and has the endorsement of the Maple Flooring Manufacturers Assn. Pyra-Seal gives a permanent, attractive, clear floor, easily maintained by waxing.

Our Research Laboratories have developed Pyra-Cote, a hard finish liquid wax containing certain resins and gums that produce a non-slip, tough, wear-resisting finish.

Floors that have been Pyra-Sealed should be given two applications of Pyra-Cote. Floors finished by this method are attractive and can be maintained at a minimum of time and labor. The ideal finish for schools.

Coverage—Pyra-Seal covers approximately 500 to 600 sq. ft. per gal. one coat and Pyra-Cote 1200 to 1500 sq. ft.

Daily Care—Such floors require only sweeping with a Vestal Buffing Mop. This mop picks up and holds the dust. Floors treated with the above method do not require daily mopping or scrubbing. Eliminates the use of sweeping compounds, floor brooms, and reduces maintenance costs.

Specifications—Maple, and All Close Grain Woods

Preparation of Floors—New floors, or newly sanded old floors, should be kept free from traffic until properly sealed. The contractor shall sweep all wood floor surfaces with a stiff broom to remove all dust and shall protect all finished wood floors with an improved building paper until such time as the floor finishing or painting contractor shall be ready to receive them.

Application—Apply two thin coats of Pyra-Seal with brush or Vestal Lambswool Applicator, allowing 24 hours between coats for drying. When floor is thoroughly dry (48 hours after final coat of Pyra-Seal) apply two applications of Pyra-Cote, each coat to be thoroughly burnished in and polished. Polish with a weighted brush, or an electric floor machine is preferable. Pyra-Cote is to be applied with a Vestal Lambswool Applicator.

Note: The above method is also recommended for oak floors.

VESCO-SEAL—FOR GYMNASIUM FLOORS

Care of Gymnasium Floors—Gymnasium floors should be properly sealed to avoid stains and to preserve the wood. At the same time, a gymnasium floor requires a special type of seal that, first of all, must give plenty of traction, and second, must provide a durable, elastic finish.

Our Laboratories have developed Vesco-Seal, a seal that penetrates and seals the surface and produces a very tough and durable finish. Floors finished with Vesco-Seal withstand the jars and jolts to which a gymnasium floor is subjected and do not mar or craze. It produces an attractive gym floor that is easily maintained.

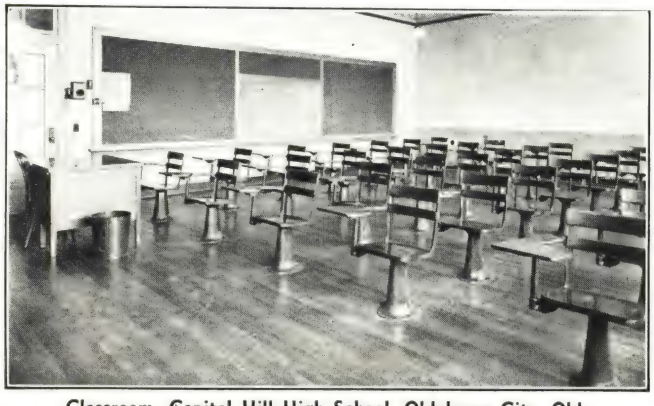
Coverage—Approximately 500 sq. ft. per gal.

Daily Care—Sweep with special gymnasium mop treated with Vesco-Lite. This buffing mop picks up all the dust, cleans and polishes in one operation.

Specifications for Maple, Beech or Birch, in Gymnasiums

After floors have been thoroughly sanded and swept free from all dust, one coat of Vesco-Seal is to be applied with either a brush or a Vestal Lambswool Applicator.

When Vesco-Seal has thoroughly oxidized or completely dried, paint on boundary lines.



Classroom, Capitol Hill High School, Oklahoma City, Okla.
Floors treated with Pyra-Seal Pyra-Cote Treatment



Gymnasium, University of Michigan, Ann Arbor, Mich.
Floor treated with Vesco-Seal Treatment

ESTABLISHED 1835

THE AMERICAN CRAYON COMPANY

Manufacturers of "Permatite"—A Penetrating Varnish (An "Old Faithful" Product)

SANDUSKY, OHIO

BRANCH OFFICES

NEW YORK, N. Y., 200 Fifth Avenue — DALLAS, TEX., Santa Fe Building — SAN FRANCISCO, CALIF., 116 New Montgomery Street

"PERMATITE"—THE PERFECT FINISH FOR EVERY HARD SERVICE CONDITION

Products

"PERMATITE"—the modern Wood Sealer and Finish for floors, trim and furniture.

Also manufacturers of "Trazatite," a terrazzo sealer and finish; and "Filtite," a cement sealer and finish; also "Old Faithful" Crayons, Water Colors, Pencils, Inks, Pastes.

Research and Approval

The different hardwood flooring associations have made separate researches to develop a good heavy duty, hard service floor finish. Old methods used in the past were originally designed for vertical surfaces, such as trim, doors, etc., and have never been satisfactory when receiving direct wear to which floors are subjected. The flooring associations wanted a finish that would stand the scuffing of heels without cracking and scaling off. Furthermore, traffic lanes through doors, etc., always presented a problem, the idea being to find a finish that could be patched in these places of excessive wear without resanding and refinishing the entire floor.

It was recognized that there was real need for such a finish suitable for hardwood floors in schools, stores, factories, offices, clubs and similar types of buildings where the floors receive excessive wear and are expected to appear attractive in keeping with their surroundings. "Permatite" met these conditions.

"Permatite" is the original and only emulsified penetrating varnish free from wax that dries bone dry and which may be polished by friction, or that has a record of successful use for a period of seven years.

The remarkable quality possessed by "Permatite" of bringing out the full beauty of the grain and the fact that it need never be refinished, but can be repolished with one application of "Permatite" as often as wear requires, are some of the reasons for its universal acceptance.

These associations approved of "Permatite":

Maple Flooring Manufacturers' Association—their circular, "Heavy Duty Finishes," June, 1930.

Oak Flooring Manufacturers' Association of the United States—their Data Sheets No. 16 and No. 19, 1930.

The Southern Oak Flooring Industries—their Data Sheet D-5101 and booklet "How to Lay Oak Floors," June, 1931.

"Permatite" Qualities

Because of its fire resisting qualities, its ability to withstand hard usage, the ease with which it may be maintained or repaired, and being non-slippery, it finds favor for schools, public buildings, apartment houses and stores, as well as for the finest residences.

"Permatite" has real value as an under or back coating for it has great resistance to moisture—in fact, four times that of an equal number of coats of linseed oil.

"Permatite" will not show laps. It produces a finish which is most easily cleaned—fine steel wool removes spots and all surface accumulations, leaving the finish in its original condition, uninjured.



Interior View of Gymnasium, Kent State College, Kent, Ohio
Finished with "Permatite"



Interior View of Goddard & Goddard Co., Cutters for Milling Machines, Detroit
Finished with "Permatite"

Cost of Application

For the reason that the use of "Permatite" either colored or uncolored, does away with the necessity of a stain coat and of a shellac coat, and for the added reason of its economy of application, the cost of finishing with "Permatite" is less than for a first class job finished in any other way.

Covering Capacity—"Permatite" spreads an average conditions 300 sq. ft. per gallon, with 3 applications. A filler may be added to the "Permatite" for the first application.

General Directions for Applying "Permatite"

Close-grained Wood—*First Application*—Stir well and apply with wide brush or mop. Buff within 20 minutes to 1 hour with No. 2 steel wool until fairly dry. This will remove the surplus. Allow 18 hours to dry.

Second Application—Stir well and apply as before. Buff within 20 minutes to 1 hour with No. 2 steel wool until fairly dry. This will remove the surplus. Then buff to a sheen with steel wool.

Note: Buffing may be done by machine or by hand. *Surplus material must be removed from the surface in order to obtain a good job.*

Open-grained Wood—Open-grained wood needs an additional application.

Color—Color shall be as directed by the owner or architect. Before proceeding with the work, the contractor shall present to the architect, and have approved, a finished sample of the color and kind of work he proposes to reproduce.

Back Coating—All unexposed woodwork, including back and sides of standing trim, both exterior and interior, and the underside, ends and sides of all flooring, before erection, are to be given a full and undiluted coat of "Permatite."

Application of "Permatite" to New Floors

Absorbing Capacity of Floors—The absorbing capacity of the floor may be determined by trying out a small spot in a corner. If all of the undiluted "Permatite" penetrates into the wood after 15 minutes, it need not be thinned. If there is a little surplus left on the surface after 15 minutes, thin the "Permatite" with pure gum turpentine not in excess of 1 pt. per gal.

Number of Applications—Oak, pine, gum and open-grained woods need three applications. Maple, birch and close-grained woods need two applications.

Wiping Off Excess—On some woods, such as unfilled oak, soft pine and gum, there may be no surplus after the first application. On close-grained woods, such as maple, birch and edge-grain pine, there may be surplus and this must be wiped off. *Surplus must be removed within 20 minutes to 1 hour after all applications to obtain a first class job.*

Adding Oil Stains and Fillers—Either dry Silex (soaked in turpentine) colors ground in oil or hardwood paste filler may be added to the material for the first application, if required. Thin the paste filler or oil colors with an equal volume of turpentine before adding to the "Permatite."

Drying—"Permatite" dries entirely by evaporation and rooms or buildings must be well ventilated or drying will be slow. "Permatite" is a semiemulsion and should always be stirred well both before and during its application. Allow 18 hours between applications.

Caution—Cold weather will cause "Permatite" to appear heavy. Do not thin it in this condition, but put the can in a warm place until it flows freely. It ignites very slowly, but it is well to remember not to place a can over an open flame with the top on and never let it boil over. *Keep "Permatite" well stirred when applying.*

Application of "Permatite" to Old Floors

Floors Previously Stained—"Permatite" may be used on wood previously stained with aniline or oil stains. It may also be used on wood that has previously been filled with paste filler.

Old Finish to Be Removed—All previous varnish, shellac, wax and paint finishes must be removed and the floor must be perfectly clean. Oiled floors must be scrubbed.

Bleaching—Bleaching floors that have become dark and discolored should be done by dissolving 1½ lbs. oxalic acid in hot water, washing the floor freely with this solution, and then allowing it to dry without removing any of the water. Twelve hours later the floor is to be washed with clean water and allowed to dry thoroughly. The floor is then ready for finishing and "Permatite" should be applied as directed for new wood.

Maintenance of "Permatited" Floors and Woodwork

Residence—Floors not receiving hard wear may be easily maintained by regular sweepings with a stiff broom and an occasional mopping with a dustless mop. Do not use such a mop without afterwards using the broom.

House Cleaning Time—It is well to give the floors an additional application of "Permatite," using the material as a polish and applying with a cloth and wiping dry with the grain at once.

Traffic Lanes and Worn Spots—Buff the spots with No. 1 steel wool until the wood is smooth and then apply "Permatite" as a polish with a cloth.

Hard Surface Floors, Such as Gymnasiums, etc.—Hard surface floors should be kept clean by the use of a stiff broom. Dustless mops may be used and the weekly use of sweeping compounds has been found advantageous. After the use of either, the dustless mop or the sweeping compound, the floor should be swept with a broom. Do not scrub these floors with water and scrubbing compounds. When scrubbing seems necessary, scrub with steel wool under a weighted mop or a buffing machine. Water is very injurious to wood floors of any kind or any finish.

Floors receiving hard wear should have a vigorous buffing with steel wool and an additional application of "Permatite" once or twice a year, according to the amount of wear or the appearance desired. When spots or traffic lanes only show wear, these spots alone will need treatment.

Woodwork—Water is not needed or advised for cleaning the trim. "Britemor" Household Cleaner or any other good polish may be used.

Some Buildings Finished with "Permatite"

High School, Fort Smith, Ark.
Public Schools, Little Rock, Ark.
State Trade School, Hartford, Conn.
Brooking's Institute, Washington, D. C.
Illinois Bell Telephone Co., Chicago, Ill.
(Branch Offices at Maryland Ave. and Sunnyside Ave.)
Davis Department Store, Rug Department (showroom floor), Chicago, Ill.
Masonic Home, Charlton, Mass.
Cranbrook Private School, Birmingham, Mich.
Cadillac Athletic Club, Detroit, Mich.
Sarah W. Fisher Children's Home, Detroit, Mich.
Goddard & Goddard Machine Shop, Detroit, Mich. (40,000 sq. ft.)
St. Agnes School, Detroit, Mich.
St. Mary's School Gym Floor, Detroit, Mich.
Cretin Catholic High School, St. Paul, Minn.
St. Paul Diocesan Teachers' College, St. Paul, Minn.
Steel Pier, Atlantic City, N. J.
Camden County Vocational School, Camden, N. J.
13 Kindergarten floors, Albany, N. Y.
Vincentian High School, Albany, N. Y.
Grand Central Palace, New York, N. Y.
St. Joseph's High School, Schenectady, N. Y.
Armory, New York National Guard, Utica, N. Y.
Goodyear Tire & Rubber Co. (gym floor), Akron, Ohio
Summit County Children's Home, Akron, Ohio
State School for Deaf, Columbus, Ohio
American Fork & Hoe Co., Geneva, Ohio
Kent State Normal College, Kent, Ohio
Ohio State Reformatory, Mansfield, Ohio
Oberlin College, Oberlin, Ohio
Ohio State Soldiers' and Sailors' Home, Sandusky, Ohio
Wittenberg College, Springfield, Ohio
Antioch College, Yellow Springs, Ohio
Dallas Athletic Club, Dallas, Tex.
Masonic Home and School for Boys, Fort Worth, Tex.
Library Building, Huntsville, Tex.
Public School, Hudson, Wis.
Central State Teachers' College, Stevens Point, Wis.
St. Norbert's College, West De Pere, Wis.

ALUMINUM COMPANY OF AMERICA

Manufacturers of "Alcoa Albron" for Aluminum Paint

2444 Oliver Building
PITTSBURGH, PA.

For our pages on Roofing, and Aluminum and its Alloys, see Manufacturers' Index

Alcoa Albron Aluminum Bronze Powder for Paint

Alcoa Albron—Alcoa Albron is a pure aluminum bronze powder composed of tiny flat flakes of Alcoa Aluminum. To be sure of obtaining a pure metallic pigment for aluminum paint, specify Alcoa Albron, made only by ALUMINUM COMPANY OF AMERICA.

Unique Characteristic of "Leafing" Gives Aluminum Paint Superior Durability and Protective Qualities—When aluminum paint is brushed or sprayed on any surface, many of the tiny flakes of aluminum, which form its pigment, rise to the surface of the paint film and "leaf"—overlap one upon another to form a continuous coat of metal protection. This leafed film has many advantages. It is highly resistant to the penetration of moisture. Being opaque to ultra-violet light, it serves as a barrier to the paint-destroying rays of the sun. These leafed metallic flakes also give aluminum paint good hiding power. One coat, which is generally sufficient for ordinary interior surfaces, will hide any under-color, even black. For surfaces exposed to the weather and where long life is required, two or more coats are recommended. A well-made aluminum paint will reflect from 60% to 70% of the light falling upon it. This is another quality attributable to the bright metallic aluminum from which it is made. It is easily kept clean, and it will withstand repeated washings. Aluminum paint is highly resistant to the action of sulfur-containing gases and is not darkened by them.

Uses—Aluminum paint may be used on practically any kind of a surface: wood, metal, concrete, plaster, brick, fabric, etc. Its light- and heat-reflecting qualities make it valuable for protecting oil storage tanks, refining equipment and other structures which are exposed to sunlight and which it is desired to keep as cool as possible. It is used on the interiors of factories, offices and lobbies, because its bright metallic sheen aids illumination and lends a modern note to interior decoration. Its resistance to moisture, acid fumes and sulfur compounds makes it applicable to interiors of laundries, textile dyehouses, bakeries and railroad roundhouses.

Aluminum Paint for Priming and Back-painting Wood—Rapid changes in the moisture content of wood are one of the chief causes of paint failure. The ability of aluminum paint to resist this rapid moisture change has been proved again and again.

In tests of all kinds and under many different conditions, the moistureproofing power of aluminum paint is among the highest obtainable with practical surface coatings. Its opaque pigment minimizes the destructive action of sunlight and greatly prolongs the useful life of the paint.

Because of its superior protective qualities, aluminum paint is especially recommended for priming as well as for back-painting wood.

Every piece of building lumber that is to be painted at all, should have a coating of aluminum paint on both sides, edges and ends.

Mill-primed Lumber—Lumber manufacturers, realizing the advantages of aluminum paint, are now priming many of their products with it at the mill.

Lumber so treated is a better building material because it is protected against moisture in transit, in the lumber dealers' yards and at the point of construction, as well as after it has been used in the building.

Where Aluminum Paint Is Obtained—ALUMINUM COMPANY OF AMERICA does not sell paint, but aluminum paint made with satisfactory vehicles and Alcoa Albron Powder may be purchased from most reputable paint manufacturers, jobbers and dealers.

Be sure the pigment portion is Alcoa Albron and is so designated.

We will be glad to direct you to the nearest source of supply if, for any reason, you cannot obtain the kind of aluminum paint you want.

Architects' and Contractors' Specifications

Pigment—*Aluminum Bronze Powder*—Pigment portion of the paint shall consist of Standard Varnish Alcoa Albron Powder manufactured by ALUMINUM COMPANY OF AMERICA.

Vehicle—*Long Oil Varnish*—Vehicle for use on steel, brick, concrete, plaster and wood not exposed to weather shall consist of a long oil varnish. It shall fulfill the following requirements: The varnish shall contain not less than 50% by weight of non-volatile oils and gums. It shall pass a 60% Kauri Reduction Test as described in Federal Board Standard Specifications No. 18. It shall be of such a consistency that when thoroughly mixed with Alcoa Albron in the proportion of 2 lbs. to the gallon of vehicle, the paint shall show satisfactory spreading qualities and shall not run or sag when applied to a smooth, vertical surface. This consistency will be between 0.5 and 1.0 poise and will correspond to Tubes A to D of the Gardner Holdt Air Bubble Viscometer. The paint shall set to touch in not less than 2 hours nor more than 6 hours and dry hard and tough in not more than 24 hours.

Varnish Vehicle for Wood (Very Long Oil Varnish)—Vehicle for use on weather-exposed wood shall consist of a *very* long oil varnish. The varnish shall contain not less than 60% by weight of non-volatile oils and gums. It shall pass a 100% Kauri Reduction Test as described in Federal Board Standard Specifications No. 18. It shall be of such consistency that when thoroughly mixed with Alcoa Albron in proportions of 2 lbs. per gallon, the resulting paint shall show satisfactory spreading qualities and shall not run or sag when applied to a smooth, vertical wood surface. This consistency will be between 0.5 and 1.0 poise and will correspond to Tubes A to D of the Gardner Holdt Air Bubble Viscometer. The paint shall set to touch in not less than 2 hours nor more than 8 hours and dry hard in not more than 24 hours.

Mixing—Aluminum paint shall be mixed on the job and only enough for one day's use shall be mixed at one time. The paint shall be mixed in the proportions of 2 lbs. of Alcoa Albron per gallon of vehicle, unless otherwise specified. A weighed amount of powder shall be placed in a suitable mixing container and a measured volume of vehicle then poured over it, and the mixture stirred thoroughly until a uniform paint is obtained. Each time any paint is removed from the mixing container, the paint shall again be thoroughly stirred to insure proper mixing. The paint shall also be suitably stirred during use.

Application—Aluminum paint may be applied with either hand brush or spray gun. If spraying equipment is employed, only sufficient pressure should be used to secure adequate atomization. Excessive pressure should be avoided. If a brush is used, care should be taken that all final brush strokes are made in the same direction in order that the particles of powder may leaf uniformly in the paint film. Excessive brushing will result in streaking and darkening, and should be avoided.

Painting Weather-exposed Steel—*Old Work*—Steel surface to be painted shall be thoroughly clean and dry. Rust, mill scale, loose paint, dirt, or other foreign matter shall be removed by scratch brushing, scraping or sand blasting. Oil and grease shall be removed with gasoline. No painting shall be done in wet or freezing weather or when there is frost or moisture condensation on the steel. All bare spots shall be touched up with a good rust-inhibitive priming paint. Two coats of aluminum paint made with a long oil spar varnish and Alcoa Albron as specified shall then be applied, allowing 48 hours drying time between coats.

New Work—New steel shall be free from rust, loosely adhering mill scale, dirt and foreign matter. Oil and grease shall be removed with gasoline. A good rust-inhibitive priming coat shall be applied and allowed to dry for 48 hours. Two coats of aluminum paint made with a long oil varnish and Alcoa Albron as specified shall be applied over the priming coat, allowing 48 hours drying time between coats.

Painting Weather-exposed Wood—*Old Work*—Surface shall be thoroughly scraped and scratch brushed to remove blistered or loosely adhering paint. Knots shall be coated with a high grade 4-lb. cut shellac. Cracks and checks shall be filled with putty. No paint shall be applied in wet or freezing weather nor within 24 hours following a rain. A first coat of aluminum paint made of Alcoa Albron and a varnish vehicle for wood (*very* long oil varnish) as specified shall then be applied. A drying time of 48 hours shall be allowed before top coats of paint are applied. If two coats of aluminum paint are specified, the second coat shall consist of the same paint as was used in the first coat. Other top coats may be used as specified.

New Work—Surface shall be clean and dry before applying any paint. No paint shall be applied in wet or freezing weather or within 24 hours following a rain. Cracks and checks, as well as countersunk nailheads shall be filled with a good putty. Knots shall be coated with a high grade 4-lb. cut shellac. A priming coat of aluminum paint shall then be applied. Paint shall consist of Alcoa Albron mixed with a varnish vehicle for wood (*very* long oil varnish) as specified. If two coats of aluminum paint are specified, the second coat shall consist of the same paint as was used in the priming coat, allowing 48 hours drying time between coats. Other top coats may be used as specified, allowing the same drying time.

Painting Wood—*Interior*—If the wood has previously been painted the surface should be sanded before any paint is applied. Aluminum paint shall consist of Alcoa Albron mixed with a long oil varnish as specified. If the work is specified to be left in the aluminum finish, two coats of aluminum paint shall be applied, allowing 48 hours drying time between coats.

Painting Brick, Concrete and Plaster—Surface to be painted shall be dry and free from all loose paint, dirt and calcimine. Paint shall consist of Alcoa Albron mixed with a long oil varnish vehicle as specified. If the surfaces are exposed to the weather, two coats of aluminum paint shall be applied. For interiors, one coat is sufficient. If the surfaces are porous, the powder content of the paint should be reduced from 2 lbs. to 1¼ or 1½ lbs. per gallon, for the first coat.

Berrycraft FINISHES

DETAILED INFORMATION *for* ARCHITECTS

LOCAL REPRESENTATIVE

BERRY BROTHERS INC.

Varnishes Enamels Lacquers

Detroit, U.S.A. *Walkerville, Canada*

BERRY BROTHERS, INC.

Manufacturers of Architectural Finishes, Paints, Stains, Varnishes, Enamels Lacquers, Bleachers of Shellac

FACTORY AND MAIN OFFICE

211 Leib Street
DETROIT, MICH.

BRANCHES

NEW YORK, N. Y., 129 26th Street (Brooklyn)
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PITTSBURGH, PA., 5707 Friendship Avenue
CHICAGO, ILL., 117-19 West Grand Avenue
CINCINNATI, OHIO, 130 West Court Street
ST. LOUIS, MO., 4363 Duncan Avenue
LOS ANGELES, CAL., 1864 West Washington Street
SAN FRANCISCO, CAL., 252-56 First Street

CANADIAN FACTORY: WALKERVILLE, ONT.

SOLD IN THE PRINCIPAL CITIES OF THE WORLD

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(1) The Company

Berry Brothers were established in 1858 and the experience of over seventy (70) years of continuous business has built an enviable reputation as manufacturers of high grade paints and varnishes. The formulas and methods of manufacture are time tested. The various brands have been well and favorably known over a period of time sufficient to guarantee their durability and reliability to the discriminating architect.

(2) Reliability

The Company's rating in Bradstreet's and Dun's is over $1,000,000—first grade of credit.

(3) Manufacturing Facilities

The plant, one of the largest in the country, is thoroughly modern in all its equipment facilities. The "mass-action" ageing or ripening facilities consist of a combined tankage capacity of one and one-half million (1,500,000) gallons.

Note: *In the manufacture, especially of varnishes, color varnishes and enamels, the ageing or ripening in the mass is essential for completion of chemical changes necessary for stability and uniformity. The results of this process cannot be produced by any artificial means. Dependent on the grade of the particular product, this ageing process must be maintained for from 3 to 12 months.*

The architect may rest assured that where essential to produce the best in quality, all materials bearing a Berry Brothers' brand are thoroughly aged in the mass before they leave the factory.

(4) Laboratory Control

More important than the manufacturing facilities is the chemical laboratory control of all products, from the purchase of the raw materials which must fulfill rigid laboratory specifications, to the control and constant inspection and supervision of all manufacturing processes. Berry Brothers maintain a group of chemical laboratories, each having a distinct function confined to a particular branch of the industry, such as the manufacture of paints, varnishes, lacquers, shellac, color varnishes and enamels, etc. Most important of these is the Laboratory of Analytical Research and Manufacture wherein new materials and methods are analyzed and formulas are perfected before a product is merchandised under the Berry Brothers name.

The various laboratories and the personnel of trained paint chemists is under the supervision of a chief chemist of wide experience.

The facilities of these laboratories are at all times accessible to the architect for advice and assistance.

(5) Architectural Finishing Department

The factory maintains a practical finishing department where samples of finish and color may be developed to meet particular needs. We solicit the opportunity to co-operate with the architect in establishing standards of quality, color, etc., to meet his requirements.

(6) How to Select Paints, Varnishes and Lacquers

Particularly in the selection of paints, varnishes and nitrocellulose products is the reputation and experience of the manufacturer of first importance. Chemical analysis is practically impossible and only in the selection of well known brands of known quality can assurance of high quality and durability be obtained.

Note: *The durability of varnish, for example, depends in addition to the careful selection of the materials, more especially on the treatment of the material and particularly treatments involving heat. Varnish and lacquer deterioriza-tion results chiefly from chemical change—the more successful the process of manufacture has been in forming stable compounds the more assurance is there that no further change will take place on exposure.*

Only those products which involve no extensive chemical change can be successfully analyzed and duplicated on a laboratory scale. Products which require high temperature or long "mass-action" ripening cannot be analyzed and so duplicated. Chemical analysis of varnish, therefore, is not possible. Metallic salts and volatile constituents can be separated and determined, and from the presence of certain inorganic compounds the use of some materials may be indicated, but these furnish little to indicate the actual quality of the varnish.

The specifying of varnish ingredients is of no practical use since in the completed product the original ingredients do not exist and different treatments of the same materials invariably yield different products.

Physical tests afford the only trustworthy means of determining quality and durability and the tests of actual use and time are the only practical guide.

Care should be exercised in selecting the right product or brand for its particular use and here the manufacturer's recommendations, backed by intimate experience, should be the guide.

(7) Local Service

In all important centers there is accessible an experienced local representative thoroughly familiar with Berry Brothers' products. His services and recommendations may be obtained not only in assisting to select materials best adapted to the particular use, but he is available to the architect, without cost, in obtaining satisfactory samples of finish and color and the practical supervision of work on the site.

(8) Technical Information

The general technical information given in this catalogue has been assembled from the data compiled and published by The American Paint and Varnish Manufacturers' Association, Inc., and may, therefore, be considered unbiased and authentic.

(A) BERRY BROTHERS ARCHITECTURAL FINISHES—DESCRIPTION

(A1) Lionoil (Clear and Colored)

Note: See (B10j) for specification application index.

General—An exclusive Berry Brothers formula resulting in a product of remarkably wide adaptability as a waterproof rust and corrosion preventive for metals and a waterproof sealer for wood, cement, brick, etc. Made of a combination of several oils and varnish gums treated at high temperatures, its adhesive, penetrating, waterproof and wear-resisting qualities recommend it for wide architectural use. While the finished surface is hard and tough, it maintains a high degree of elasticity—it will not check, peel or flake off under the severest weather conditions.

Note: Lionoil has found its staunchest advocate in the airplane industry, both here and abroad, due to its efficient protection of duralumin against deteriorating influences of dampness, sea water and even acids. It is used on steel tubular frame work, ribs, spars and wooden parts.
The largest builders of small boats, canoes, speed boats and similar craft use Lionoil as a waterproof sealer for wood both on the inside and outside of the hulls. It acts as a binder for succeeding coats of spar varnish or lacquer, and saves one coat of spar. The world's largest builder of metal boats is a large user of Lionoil.

(A1a) Lionoil Clear—A clear amber liquid (transparent).

(A1b) Lionoil Colored—Made in black and white and six attractive standard colors.

Adaptability—Exterior and interior metal, wood, cement, plaster, brick, etc.

Surface Appearance—Low velvet lustre.

Drying—Dust free in 2 hours, hard in 12 hours under proper drying conditions.

Covering Capacity—Brush applied, from four hundred (400) to six hundred and fifty (650) sq. ft. per gallon depending on surface.

Application—Lionoil Clear may be applied with a brush, or by dipping or spraying processes. On floors it may be applied with a mop. Lionoil Colored is for brush or spray application.

Cost—The "colored" costs approximately the same as pure lead and oil.

(A2) Lionoil Floor Enamel—Quick Drying (Gloss)

Note: See (B10k) for specification application index.

General—A quick drying waterproof gloss enamel with a Lionoil base (see (A1)). A rust preventative enamel for metals and a moisture-proof, durable, wear-resisting enamel for wood, cement, etc., under hard use and severe exposure.

Colors—Made in nine attractive standard colors and black and white.

Adaptability—Exterior and interior metal, wood, cement, brick, etc.

Surface Appearance—Gloss.

Drying—Dust free in one hour, hard in four hours under proper drying conditions.

Covering Capacity—Brush applied over smooth surface, four hundred (400) sq. ft. per gallon.

Application—Brush application advocated. Is free flowing and leaves no brush marks.

(A3) Lionoil Metal Trim Enamel (Semi-gloss)

Note: See (B10l) for specification application index.

General—A high grade metal enamel with a Lionoil base (see (A1)). It adheres tenaciously to bare metal or priming coat, is a rust preventive, and resists the action of water, heat and extreme cold. It dries hard where often there is difficulty with lead and oil.

(A3a) Lionoil Metal Trim Enamel—Exterior—For exterior use.

(A3b) Lionoil Metal Trim Enamel—Interior—For interior use.

Colors—Both exterior and interior, made in two standard colors, dark golden brown and telephone green. Special colors will be made on quantity orders (50 gal. or over).

Adaptability—Exterior and interior metal doors and trim, sheet metal and steel windows, steel and cast iron stairs, ornamental iron, etc.

Surface Appearance—Semi-gloss, so closely resembling baked enamel as to be commonly mistaken for it.

Drying—Dust free in two hours, hard in ten hours under proper drying conditions.

Covering Capacity—Brush applied over smooth surface, six hundred (600) sq. ft. per gallon.

Application—Brush or spray. Flows out perfectly showing no brush marks.

(A4) Berrycraft House Paint (Lionoil Processed)

Note: See (B10n) for specification application index.

General—The highest grade of paint made under the supervision of experts who know the service required. The best materials obtainable are used. The white is made of pure carbonate of lead, pure zinc (French Process) refined linseed oil and Lionoil (see (A1)). The process of grinding and mixing is of the very latest and best. The colors used are finely ground, and thoroughly mixed.

Adaptability—Made to meet present day demands and building conditions. Particularly adapted for all exterior exposed surfaces. Made to endure wind, sun, rain, snow, ice and salt air.

Colors—Made in 24 standard colors and in Outside White (Gloss).

Surface Appearance—A pleasing gloss.

Drying—Sets in 18 to 24 hours under normal drying conditions. Should not be recoated in less than 48 hours.

Covering Capacity—300 to 400 sq. ft. per gal., according to the surface to be covered.

Application—Applied with brush or spray.

(A5) Berrycraft Interior Finish (Gloss)

Note: See (B10o) for specification application index.

General—A high grade gloss finish for painting all interior surfaces. Washable, easy to apply, durable and economical.

Adaptability—For use on all woodwork, plaster, wallboard, etc.

Colors—Made in white and eight colors.

Surface Appearance—A beautiful lustre.

Drying—Sets dust free in 6 to 8 hours and dries hard in 18 hours.

Covering Capacity—Four hundred (400) sq. ft. per gal.

Application—Applied with brush or spray.

(A6) Berry Brothers Mill White (Gloss, Eggshell, Flat)

Note: See (B10m) for specification application index.

General—A smooth, light reflecting, washable, elastic finish of reasonable cost for interior brick, concrete, plaster and wood surfaces. It is made by an exclusive process and should not be confused with ordinary paint. Due to its smooth surface which resists the adherence of small dust particles to a surprising degree, Berry Brothers' Mill White remains clean much longer than a surface covered with ordinary white paint. Since it does not chip and crack a renewal coat may be applied over the old.

Color—A pure, radiant white.

Adaptability—Especially adapted to industrial buildings where light reflecting walls and ceilings save expense in artificial light and increase visibility, efficiency and cleanliness. May be used economically to advantage in other classes of buildings for similar purposes.

Surface Appearance—Gloss, Eggshell or Flat.

Drying—Dust free in four hours, hard in twenty-four hours under proper drying conditions.

Covering Capacity—Six hundred (600) square feet of wood surface and approximately four hundred (400) square feet of brick or concrete surface per gallon.

Application—Brush or spray.

(A7) Stains (Oil and Acid)

Note: See (B10p) for specification application index.

(A7a) Berrytone Penetrating Oil Stains—These stains strike deeply into the wood without raising the grain, producing a solid uniform surface. They may be brushed on, but as in all staining operations, wiping-in always produces a more uniform color tone.

Made in twelve (12) standard stains. Special stains made when required to produce special effects.

Note: Oil stains are not as permanent or as clear in tone as acid stains. Penetrating oil stains contain ingredients which will affect varnish unless sealed with a coat of pure shellac.

(A7b) Berry Brothers Acid or Water Stains—These stains penetrate deeply and are clear in tone and permanent. They should only be used on new wood. Water stains tend to raise the grain of the wood which necessitates sanding. The addition of a small quantity of denatured alcohol to acid or water stains will greatly reduce the grain raising tendency. Made in twenty (20) standards stains. Special stains made when required to produce special effects.

Note: Acid stains on veneered surfaces, especially where the veneer is thin, may affect the glue unless waterproof glue is specified, which is advocated.

(A8) Berry Brothers Paste Wood Filler (Light and Dark)

Note: See (B10q) for specification application index.

General—For filling or leveling the surface on open-grain wood under varnish or clear lacquer finish. Furnished in "Light" or "Dark" which may be colored to suit any special effect. Applied with a brush. For varnish finish, paste wood filler should be thinned or reduced with turpentine or turpentine substitute. For lacquer finish, pyroxylin paste wood filler *must* be specified or the paste wood filler reduced with lacquer thinner.

Note: Ordinary turpentine or benzine thinned paste fillers are acted upon by the solvents in the lacquer which constantly dry out the oil in the filler resulting eventually in the grain of the wood showing as though no filler had been used. Paste wood fillers thinned with pyroxylin thinner, for use with clear lacquer, creates an affinity between the two materials.

(A9) Berrycraft Liquid Wax

Note: See (B10s) for specification application index.

General—Made from the highest grade imported wax obtainable. Heavy bodied. Maximum protection for wood, cork tile, linoleum and other composition floors from the wear of heavy traffic.

Adaptability—Particularly adapted for use in offices, schools and other public buildings.

Application—Applied with brush or mop. Polishes easily with any good polisher.

(A10) VARNISHES

Note: See (B10t) for specification application index.

(A10a) Berryspar (Gloss)

General—A high grade spar varnish of unusual characteristics. It has the same wearing qualities as the regular long oil spar varnish, but with the advantage that it is quick drying. For interior use it may be rubbed. It is moisture resisting and will not turn white.

Color—Light or pale.

Adaptability—Exterior and interior wherever exposed to the elements or subject to moisture, such as exterior doors, interior of wood windows and trim, baseboards, furniture, etc.

Surface Appearance—Gloss or may be rubbed dull.

Drying—Dust free in 2 hours, hard in 8 hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A10b) Luxeberry Wood Finish (Gloss)

General—An interior cabinet rubbing varnish of the highest quality.

Color—Light or pale.

Surface Appearance—"Gloss," which may be rubbed to an eggshell finish.

Drying—Dust free in three hours, hard in eight to ten hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A10c) Liquid Granite Floor Varnish (Gloss and Dull) Also "Quick Drying" (Gloss and Dull)

General—An extremely tough and durable interior floor varnish of the highest quality. It is so elastic that the wood may dent under a blow, but the varnish will not crack. Can be rubbed.

Liquid Granite "Dull" contains no wax and is as durable as the "Gloss."

Color—Medium light.

Adaptability—Floors in the best class of work and on interior standing trim where the greatest in durability is demanded such as public and semi-public buildings, schools, etc. Advocated for stair treads, baseboards and similar parts in all classes of work where the wear is severe.

Surface Appearance—"Gloss," which may be rubbed dull. "Dull," dries flat without rubbing. "Semi-gloss," which closely resembles rubbed finish by blending Gloss (1 part) and Dull (3 parts).

Drying—Dust free in 4 hours, hard in 10 hours under proper drying conditions.

Note: Liquid Granite Floor Varnish—Quick Drying dries dust free in 1 hour and hard in 4 hours.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A11) LACQUERS (CLEAR SPRAYING)

Note: See (B10u) for specification application index

General—Berryloid Clear Lacquers are supplied at spraying consistency and are to be applied full body (unless specially otherwise specified by the manufacturer).

They produce a particularly durable, hard, transparent surface, which when applied over a dry surface will not check or crack but will expand and contract with the surface. May be applied to metal as well as wood.

Note: All clear lacquer materials must comply with the Government formulas as approved by the Bureau of Standards and must not contain less than 22% of non-volatile constituents, of which 7% must be nitrocellulose—the remainder shall consist of gums and plasticizers properly proportioned to make a balanced lacquer with easy sanding and rubbing qualities. The volatile portion of the lacquer shall be formulated to give the lacquer good spraying characteristics, free from blushing and a minimum of pebble on drying.

(A11a) No. 652 Berryloid Clear (Gloss)

A clear, transparent gloss lacquer for interior cabinet work. Can be rubbed.

(A11b) No. 653 Semi-gloss Berryloid Clear

For application over No. 652 Berryloid Clear Lacquer to eliminate the cost of rubbing and especially desirable on carved surfaces where it is impractical to rub the surface to a dull finish. Should always be applied over gloss lacquer undercoat to build sufficient foundation.

(A11c) No. 653A Eggshell Clear

Adapted to same uses as No. 653 Semi-gloss except that a dead flat effect is produced.

(A11d) No. 507 Berryloid Clear Exterior (Gloss)

A clear, transparent gloss lacquer for exterior use such as exterior doors, trim, etc., and the interior or exterior wood sash, window sills, baseboards, etc., where severe wear and con-

tact with moisture is to be encountered. It is unaffected by rain or the disintegrating action of the sun's rays. Can be rubbed.

Color—Light or pale.

Adaptability—No. 652 for the highest quality of interior cabinet work either gloss or rubbed finish; No. 653, over clear gloss lacquer to save the cost of rubbing; No. 507, for severe wear and exterior use. Adaptable for all classes of work.

Surface Appearance—No. 652 and 507, high gloss. No. 653, semi-gloss which closely resembles a rubbed surface. 653A Eggshell.

Drying—Dust free in 10 minutes, hard in one hour under proper drying conditions.

Covering Capacity—Three to four hundred (300-400) sq. ft. per gallon.

Application—Spray only, using from 60 to 80 pounds air pressure.

(A12) ENAMELS

Note: See (B10v) for specification application index.

(A12a) Berry's Enamel Undercoat (Semi-flat)

General—A triple-ground undercoat for enamels of the highest quality. It has great opacity and flows so smoothly without brush marks that it requires when properly applied little or no sanding to provide a perfect surface for the enamel.

Colors—Made in white to be colored to match the enamel coats. Can be obtained colored to match the standard enamels old ivory and rich cream or in special colors where quantity warrants (50 gals. or over).

Adaptability—As undercoats for the highest type of enamel finish.

Surface Appearance—Semi-flat.

Drying—Dust free in 3 hours, hard in 8 hours under proper drying conditions.

Covering Capacity—Five hundred (500) sq. ft. per gallon.

Application—Applied with a brush or spray.

(A12b) Luxeberry Enamel (Gloss and Eggshell)

General—A long-oil, rubbing enamel of the highest quality. Produces a smooth tilelike surface, easily kept clean.

Colors—Made in white, old ivory and rich cream.

Adaptability—Exterior and interior woodwork trim in the best class of work. Also for plaster surfaces in bathrooms, kitchens, etc.

Surface Appearance—High Gloss which may be rubbed dull. Eggshell (semi-gloss) which closely resembles a rubbed finish, without the expense of rubbing.

Drying—Dust free in 4 hours, hard in 24 hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray. It is full bodied, flows freely without brush marks.

(A12c) Berrycraft Quick Drying Enamel (Gloss)

General—A durable new process, quick drying enamel of great opacity. It is not a lacquer—has no disagreeable odor or unusual fire hazard and requires no special thinner. Berrycraft Enamel is waterproof and is unaffected by heat or cold. May be rubbed.

Colors—Made in black and white and twelve (12) attractive colors.

Adaptability—Made to meet the modern demand for speed for both exterior and interior use. Particularly adapted for apartments, hotels, etc., for both interior trim, plaster and furniture. Adaptable for use on wood, cement, metal, brick and plaster.

Surface Appearance—Gloss which may be rubbed dull.

Drying—Dust free in a few minutes, hard enough to recoat in four (4) hours under proper drying conditions.

Covering Capacity—Six hundred (600) sq. ft. per gallon.

Application—Applied with a brush or spray. Brushes on easily without brush marks or laps.

(A12d) Berry's Radiator Enamel (Flat)

Note: See (B10v4) for specification application index.

General—A special enamel designed to increase the efficiency of radiators by at least 20% without burning more fuel. Does not lose efficiency when applied over sound old finish. Wears well, is unaffected by heat and is washable. Will not chip or flake.

Note: Tests made in the Engineering Department of the University of Michigan prove that the correct radiator enamel in the proper colors, increases heat transmission. Radiators painted with flake metal pigments (aluminum, gold or bronze) stand seventh. These same finishes covered with Radiator Enamel immediately increase the radiator's efficiency. Tests also prove that flat enamel radiates more heat than gloss. The remarkable fact is that the color of the enamel, likewise plays an important part. The University tests show color efficiency in the following order: (1) Flat white enamel (2) Cream flat enamel (3) Red flat enamel (4) Green flat enamel (5) Yellow flat enamel (6) Black flat enamel (7) Aluminum flat enamel (8) Brown flat enamel (9) Bare iron flat enamel.

Color—Made in white only which may be tinted with Berrycraft Pure Colors Ground in Oil.

Adaptability—Radiation, whether exposed or concealed, exposed piping and connections.

Surface Appearance—Flat.

Drying—Dust free in 2 hours, hard in 6 to 8 hours under proper drying conditions.

Covering Capacity—Four hundred and fifty (450) sq. ft. per gallon.

Application—Applied with a brush or spray. Flows out leaving no brush marks.

(A13) PLASTER PAINTS

Note: See (B10w) for specification application index.

(A13a) Berryflat

General—An oil paint wall finish made of the best raw materials. Produces a hard, non-porous surface that wears and washes remarkably well. One (1) coat over Delitone Sealer or equal parts of Lionoil Clear and Berryflat as a sealer.

Color—Made in white only to be colored as desired with Berrycraft Pure Colors Ground in Oil.

Adaptability—Interior plaster surfaces.

Surface Appearance—Soft, lustrous eggshell which may be stippled.

Drying—Dust free in 2 hours, hard in 6 to 8 hours under proper drying conditions.

Covering Capacity—Five hundred (500) sq. ft. per gallon.

Application—Brush or spray.

(A13b) Delitone and Delitone Thinner (Semi-gloss)

General—This material comes in paste form and when used with Delitone Thinner, produces an excellent sealer for plaster surfaces. Two coats produce a tough elastic, non-porous finish.

Pencil marks, ink spots and match scratches can be easily removed from this finish without impairing its lustre. Takes an excellent stipple finish.

Its excellent appearance may be maintained for years by periodic washing.

Color—Made in white only (not blued) readily tinted to any shade with Berrycraft Pure Colors Ground in Oil.

Adaptability—Interior plaster brick and cement surfaces in the best work.

Surface Appearance—Semi-gloss. Takes an excellent stipple finish.

Drying—Dust free in 4 hours, hard in 24 hours under proper drying conditions.

Covering Capacity—Seven hundred and fifty (750) sq. ft. per gallon, first coat; six hundred (600) sq. ft. per gallon, second coat.

Application—Brush or spray.

(B) PAINTING AND FINISHING—MASTER SPECIFICATIONS

Note: *Notes in italics are explanatory or advisory only and should not be included in the specifications.*
Note: *The scope of this specification covers conditions ordinarily encountered. Select and include only those clauses which apply to the particular work supplemented by special conditions or topics not herein included. Local ordinances and trade customs should be considered.*

(B1) General Conditions

(B1a) The general conditions governing the General Contract apply to the work under this division—see pages (.....).

Note: *The American Institute of Architects' standard form of general conditions is advocated.*

(B2) Work Included

(B2a) The work included under this heading shall be the painting and finishing of the following:

Note: *Here give the general scope of the work such as exterior and interior woodwork; exterior and interior brick, concrete, stucco; exposed steel; iron and sheet metal; plaster walls and ceilings, etc.*

(B2b) The following items are furnished by the manufacturer completely finished and require no further finish under this contract.

Note: *Here list such items as vault doors, metal doors and trim, metal stall partitions, metal cabinets, special cabinet work, fixtures, etc.*

(B3) Exterior Painting Conditions

Note: *Since not only the appearance but the life of the painter's finish is materially affected by the weather conditions the following provisions are desirable. Exterior painting should only be done in dry, mild seasons.*

(B3a) Paint shall not be applied in moist or humid weather. No paint shall be applied in temperatures below 50° F. or in extreme heat.

(B4) Condition of the Building

Note: *Since not only the appearance but the life of the painter's finish is materially affected by the condition of the building, over which the painting contractor has no jurisdiction, the following provisions are desirable for the protection of this contractor. The carrying out of these provisions should be allocated under the proper contract in other specification divisions.*

(B4a) (Short Form)—

(B4a1) During the application of painter's finish effective working conditions will be maintained as to absence of dampness and humidity; uniformity of temperature (70° F.); ventilation necessary to assist drying; elimination of dust producing operations (other than sanding). The absence of fire hazards shall be maintained.

(B4b) (Detailed Form)—

(B4b1) ***Elimination of Dampness***—No interior painter's finish shall be applied until the building (particularly plaster) is thoroughly dry.

(B4b2) ***Temperatures***—A uniform temperature of approximately 70° F. will be maintained day and night during the application of painter's finish. Finish shall not be applied in summer in extreme heat or under damp, humid conditions. Paint store rooms will be maintained approximately 70° F. Painter's finish shall be at room temperature before application.

(B4b3) ***Ventilation***—Proper ventilation will be maintained to carry off the volatile gases and promote drying.

(B4b4) ***Dust Prevention***—Absence of dust (other than sanding) induced by sweeping or work by other trades will be maintained.

(B4b5) ***Fire Safeguards***—Smoking is prohibited in paint store and mixing rooms or rooms where painter's finish is being applied. All paints and finish containers shall, when not in use, be kept sealed or covered. All oily waste, rags, etc., shall be collected each day and, unless destroyed, temporarily stored in tight covered metal containers to prevent spontaneous combustion.

(B5) Scaffolding

(B5a) This contractor shall provide and erect all scaffolding, staging, etc., necessary for the proper execution of his work.

(B5b) He shall co-operate with other trades to the extent that erection of scaffolding shall not conflict with the execution of other work immediately preceding or carried in, without undue conflict, simultaneously with the painting and finishing.

(B5c) If, after due authority has been granted to erect scaffolding, it is necessary to remove parts therefore for the accommodation of others, demolition and re-erection shall be done only after allocation of the cost thereof, if any, has been equitably adjusted.

(B6) Protection

(B6a) This contractor shall furnish and lay drop cloths, so placed as, at all times, to adequately protect floors and other surfaces from spatter and droppings.

(B6b) This shall include the protection of all *(fixed furniture and equipment) (movable furniture) (specify), etc.*

(B6c) The canopies of all lighting fixtures shall be unscrewed and set away from the surface to be finished and the fixtures adequately covered and protected from injury.

(B6d) Remove all electric switch plates and similar equipment before painting and finishing and replace in as good condition as found.

(B6e) Damage done to the building, fixtures or equipment, through lack of protection, accident or carelessness incident with work under this contract shall be satisfactorily repaired or made good by replacement at this contractor's expense.

(B7) Cleaning

(B7a) At completion remove all spots, stains, oil, etc., attributable to work under this contract, from *(walls) (ceilings) (trim) (floors) (furniture) (fixtures) (hardware) (glass) (specify)* and leave in as good condition as found.

(B8) CONDITION OF SURFACES—PRELIMINARY PROVISIONS

Note: *Since not only the appearance but the life of the painter's finish is materially affected by the condition of the surfaces to be finished over which the painting contractor has no jurisdiction, the following provisions are desirable for the protection of this contractor. The carrying out of these provisions should be allocated under the proper contract in other specification divisions.*

(B8a) General

(B8a1) All surfaces to be finished under this contract shall be clean and dry.

(B8a2) Any surface not in suitable condition to receive the finish contemplated shall be reported to the architect or his authorized agent before work is commenced.

(B8a3) Application of the first coat of finish shall be construed as acceptance by this contractor of the surface to be finished.

(B8b) New Exterior Woodwork

(B8b1) Exterior woodwork is presumed to be of thoroughly seasoned stock, clean and free of surface defects.

(B8b2) Incidental minor cleaning, sanding and dusting of surfaces shall be done by this contractor that these shall be in perfect condition to receive finish.

(B8c) New Interior Woodwork

(B8c1) *(Standing woodwork trim) (wood floors) (specify)* etc., are presumed to be clean and sanded smooth, free of machine marks or surface defects and in suitable condition to receive advantageously the painter's finish under this contract.

(B8c2) Incidental necessary minor cleaning, sanding and dusting of surfaces shall be done by this contractor, that these shall be in perfect condition to receive finish.

(B8d) Old Exterior Woodwork

Note: *On the condition of the existing paint surface should depend the necessity of its complete removal or its use as a base for new finish.*

(B8d1) Remove all loose paint and dust by scraping, sandpapering, wirebrushing, dusting, etc.

(B8d2) Carefully burn off all existing paint down to the original wood surface without charring. Sandpaper where necessary to leave the surface smooth.

(B8d3) Any necessary carpenters' repairs will be done by others before new painter's finish is applied.

(B8d4) Touch up all abrasions with paint as specified for finish.

(B8e) Old Interior Woodwork

Note: *On the condition of the existing finish and the nature of the proposed new finish should depend the necessity of its complete removal or its use as a base for new finish. In the case of clear varnish it is usually advisable to remove the existing finish.*

(B8e1) Remove existing finish with paint remover down to the original wood and sand smooth.

(B8e2) Bleach the woodwork with dilute oxalic acid to restore it as nearly to its original color and condition as possible and when bone dry sand smooth.

Note: *Required only for new varnish finish.*

(B8e3) Wash existing woodwork thoroughly with soap and water to remove all dirt, grease and wax. Dry completely and sand to a smooth surface.

Note: *Required where sound existing finish remains to be refinished with enamels, paints, etc.*

(B8e4) Thoroughly rub down existing woodwork with pumice and water and completely dry.

Note: *Required in good work where sound varnish remains to be refinished with clear varnish. Cleaning with benzine is not sufficient.*

(B8e5) Any necessary carpentry will be done by others before new painter's finish is applied.

(B8e6) Touch up all abrasions with paint as specified for finish.

(B8f) New Plaster Work

(B8f1) Remove all dust and sand particles adhering to the surface by dusting, scraping and sandpapering.

(B8f2) Cut or score out all cracks that may have appeared and fill with plaster of paris or prepared patching plaster leveled smooth with a putty knife. When dry, sand smooth. Surface of crack shall match as closely as possible surrounding surface.

(B8f3) Where necessary, sand smooth ornamental plaster work, especially at joints and intersections.

(B8f4) Treat all plaster surfaces with a solution consisting of eight ounces of zinc sulphate to the gallon of clean water and allow to dry at least three (3) days. Remove all loose crystals from the surface before finishing.

Note: *Advocated on all new plaster to neutralize alkali usually prevalent. Phenopthalein applied by touching the walls at various points turns red if alkali is present.*

(B8g) Old Plaster Work

(B8g1) Remove existing *(kalsomine) (specify)* finish.

(B8g2) Wash thoroughly with soap and water or benzine to remove all dirt and grease. When dry, remove all scale, flakes, blisters, etc., by scraping and sanding. Thoroughly sand smooth the entire surface.

Note: *Use where new finish is applied over existing paint finish.*

(B8g3) Cut or score out all cracks and abrasions and fill with plaster of paris or prepared patching plaster leveled smooth with a putty knife or trowel. When dry sand smooth and shellac. Surface of crack or patch shall match as closely as possible adjacent surfaces.

(B8g4) Touch up all abrasions with paint as specified for finish.

(B8h) New Metal Work

(B8h1) Remove all dirt, grease and rust with benzine. Use sandpaper or wire brush if necessary.

(B8h2) Where fluid solder flux has been used, clean thoroughly with benzole.

(B8h3) Galvanized work shall be thoroughly washed with acetic acid (vinegar).

(B8h4) Touch up all abrasions with paint as specified for finish.

(B8i) Old Metal Work

(B8i1) Wash thoroughly with soap and water or benzine to remove all dirt and grease. When dry, remove all scale, flakes, blisters, etc., by scraping and sanding. Thoroughly sand smooth the entire surface.

(B8i2) Touch up all abrasions with paint as specified for finish.

(B9) GENERAL REQUIREMENTS

(B9a) Workmanship

(B9a1) All labor shall be performed in the best manner by skilled workmen.

(B9a2) All paint shall be thoroughly and smoothly brushed out to a uniform film without runs, sags or brushmarks.

(B9a3) Varnish and enamel shall be flowed on and carefully brushed out to a uniform film without runs, sags or brushmarks.

Note: *A number of properly applied thin coats are much more desirable than a fewer number of heavy coats.*

(B9a4) Each coat of finish shall be given sufficient time to dry hard before application of the succeeding coat.

(B9a5) Immediately prior to the application of each coat, thoroughly dust the surface clean.

(B9b) Knots, Sap, Etc.

(B9b1) Cover all knots and all sappy and resinous spots on woodwork to be painted with a coat of shellac, before priming.

(B9c) Staining

(B9c1) Stains shall be evenly applied in strict accordance with the manufacturer's specifications to produce the effect required to match in color the approved samples.

(B9c2) Before the application of acid stains, the wood shall be sponged with cold water to raise the grain. When dry, sandpaper smooth. Apply the acid stain and when dry sand lightly.

(B9d) Filling

(B9d1) All open-grain woods shall be filled to produce a level smooth surface. Allow the filler to set but before it has hardened, wipe off (across the grain) any surplus from the surface. When hard, sand lightly. Filler shall be of such color as to produce the effect required to match the approved samples.

Note: *Open-grain woods are Ash, Butternut, Chestnut, Elm, Mahogany, Oak, Rosewood and Walnut. Birch, Gumwood, Maple and Cherry, classed as close-grain woods, will take a filler where desired to accentuate the grain of the wood.*

Note: *See particularly (A8) page 3 for filler used under lacquer.*

(B9e) Puttying

(B9e1) All nail holes shall be carefully filled with putty after the first or priming coat of paint or stain. Putty on natural or stained woodwork shall be colored to match the wood or stain.

(B9f) Sanding

(B9f1) Each coat of interior finish except the last or finished coat shall, when thoroughly dry and hard, be lightly sanded smooth with fine sandpaper (0, 00, 000 or 0000 as best adapted). Dust clean after each sanding operation.

(B9g) Rubbing

(B9g1) Where so specified, the last or finished coat of varnish, lacquer and enamel *when thoroughly hard* shall be uniformly rubbed to a dull finish with 3f powdered pumice stone and water or rubbing oil. Great care shall be exercised that the finished coat shall not be rubbed through on arrises and that there be no bright flecks in depressions of mouldings, carvings, etc.

(B9h) Storage, Mixing, Etc.

(B9h1) All material shall be stored and mixed in a clean room kept at a uniform temperature (70° F.) and locked when not in use. Access at all times shall be provided to the architect or his authorized representative.

(B9h2) A sufficient number of unlabeled, clean, covered mixing and storage receptacles shall be provided to properly carry out the work under this contract. All empty receptacles shall be kept scrupulously clean.

(B9h3) Varnish, enamels, etc., shall be kept in full, tightly sealed containers. Remnants from larger cans shall be poured into smaller cans for preservation, the object being to remove air-space.

Note: *The formation of skin or crust on varnish in the can is due to surface oxidation from exposure to the air. Such exposure, even in partly filled sealed containers, permits evaporation of volatile ingredients and leads to deterioration.*

(B9h4) All brushes shall be kept clean and in perfect condition when not in use.

(a) Paint brushes when not in use shall be provided with "brush keepers" and remain suspended with bristles immersed in Lionoil or Damar Varnish.

(b) Varnish and enamel brushes when not in use shall be provided with "brush keepers" and remain suspended with bristles immersed in "brush keeper varnish."

Note: *Brush keeper varnish is a finishing varnish made without dryers and therefore practically non-drying. Varnish brushes should not be kept in linseed oil nor in turpentine nor washed with the latter. "Seedy" varnish is usually attributable to brushes washed or kept in turpentine. Proper care of brushes is of the utmost importance.*

(B9i) Samples

(B9i1) Complete samples made in accordance with the specifications under the direction of the architect shall be furnished on all work.

(B9i2) Accepted final samples shall be of the size and number required by the architect.

(B9i3) The finished work shall match the accepted samples in color and finish.

(B10) MATERIALS

(B10a) General

(B10a1) All material, unless otherwise specially mentioned, shall be of the brand designated as manufactured by Berry Brothers (hereinafter designated B. B.), or equivalent subject to the architect's approval.

(B10a2) Where specific brands are not named, materials in every instance shall be the best of their respective kinds.

(B10a3) All materials shall be delivered at the building in the original cans or containers with seals unbroken and labels attached.

(B10a4) All varnishes and enamels shall be used as they come from the manufacturer without reducing.

Note: *Varnish is a product of chemical reactions at high temperatures. Mixtures of two varnishes or the addition of thinners "in the cold" may induce separations and precipitations certain to affect the quality.*

(B10a5) No material shall be reduced except under the manufacturer's direction and then only with the stipulated reducer used in the quantity and manner recommended.

(B10a6) All paints and stains shall be of colors as selected by the architect. In all cases undercoats shall match the finished coat in color and shade. Only where specifically advocated by the manufacturer shall materials be purchased in the white for subsequent tinting or coloring.

Note: *Coloring pigments all have chemical activity which vary in considerable degree. Normal endurance and appearance can best be assured by maintaining a chemical balance between pigments, oils, driers and other ingredients as well as the careful selection of the ingredients themselves. It is advocated that wherever possible paints of the color or shade required be obtained ready to apply from the manufacturer or of the general color and shade requiring the least addition of color pigments.*

(B10b) Spraying Equipment

(B10b1) Spraying equipment shall be of type and capacity best adapted to the work, subject to the architect's approval.

(B10b2) Compressors shall be motor driven.

(B10b3) Compressor shall be set in location designated by the architect and temporary rigid piping shall be installed so as not to conflict with the work of other trades.

(B10b4) All paint carrying flexible hose, nozzles and equipment shall be thoroughly cleaned after each day's work and maintained in first class working condition.

(B10c) Brushes

(B10c1) All brushes shall be new and of the best grade, of sizes and types best adapted for the particular work.

(B10d) Apex Varnish Remover

Note: *For application see (B8e1).*

(B10e) Putty

(B10e1) Putty shall be of the best grade consisting of whiting and pure raw linseed oil.

(B10f) Linseed Oil

(B10f1) Linseed oil (raw or boiled as best adapted to the purpose) shall be pure and thoroughly settled, meeting fully the current specifications of the American Society for Testing Materials.

(B10g) Turpentine

(B10g1) Turpentine shall be pure gum spirits of turpentine meeting fully the current specifications of the American Society for Testing Materials.

(B10h) Shellac (B. B.)

(B10h1) Shellac shall consist of 4½ lbs. of Berry Brothers pure gum shellac (SDC orange or SDC white as so specified) to the gallon of pure (188 proof) denatured grain alcohol.

(B10i) Coloring Pigments (B. B.)

(B10i1) Coloring pigments shall be Berrycraft Pure Colors, ground in pure linseed oil.

(B10j) Lionoil (B. B.)

Note: *See (A1) Page 2. A rust and corrosion preventive on metals. A moisture proof sealer for wood and for stopping suction on brick, cement or stucco surfaces to be painted. For application see (B11a, d & e) (B12d) (B13a & d) (B14a & d) (B15d & e) (B17b) (B18b3 & b4) (B18c6 & c7) (B18d3) (B18e1) (B19b1, b2 & b3) (19e1) (B19h3) (B20b, d & g) (B22b1) (B22e) (B22c4 & c6).*

(B10j1) Clear

Note: *May be covered with spar varnish.*

(B10j2) Colored

(A) Priming Coat—Add one quart of "clear" to the gallon of "colored."

(B) Second Coat—Add one pint of "clear" to the gallon of "colored."

(C) Third Coat—Full body as it comes from the can.

Note: *One-half pint of Lionoil Clear added to the gallon imparts an enamel-like gloss finish.*

(B10k) Lionoil Floor Enamel Quick Drying (Gloss) (B. B.)

Note: See (A2) Page 2. For application see (B15a) (B17b) (B18b4) (B19d2) (B22b1).

(B10l) Lionoil Metal Trim Enamel (Semi-gloss) (B. B.)

Note: See (A3) Page 2. A moisture-proof rust preventive. For application see (B11c) (B12c) (B13c) (B14c).

(B10l1) Exterior

(B10l2) Interior

(B10m) Berry Brothers Mill White (Gloss) (Eggshell) (Flat) (B. B.)

Note: See (A6) Page 2. A pure white gloss, semi-gloss or flat cleanable, interior wood, brick, concrete and plaster wall and ceiling paint, particularly adapted for industrial use. For application see (B16).

(B10n) Berrycraft House Paint (for wood) (B. B.)

(B10n1) Prepared mixed paint shall be Berrycraft House Paint. The priming, second and third coats shall be applied in accordance with the directions on each can.

Note: See (A4) Page 2. Berrycraft House Paint is made of pure carbonate of lead and pure zinc oxide combined in the proper proportions with refined linseed oil and Lionoil Drier. All ingredients are carefully selected, are uniform in quality and machine mixed under ideal conditions assuring not only the maximum in protection, appearance and life, but economy. For application, see (B18b6) (B19b1, d3 & e1).

(B10o) Berrycraft Interior Finish (Gloss) for Wood, Plaster or Wallboard

(B10o1) Prepared mixed paint shall be Berrycraft Interior Finish (Gloss). The priming, second and third coats shall be applied in accordance with the directions on each can.

Note: See (A5) Page 2. For applications see (B19d4) (B19e1) (B20g).

(B10p) Stains

(B10p1) Berrytone Penetrating Oil Stains (B. B.)

Note: See (A7a) Page 3. For application see (B18c1 & d1) (B19f1 & h1) (B22c1 & d1).

(B10p2) Berry Brothers Acid Stains (B. B.)

Note: See (A7b) Page 3. For application see (B18c1 & d1) (B19f1 & h1) (B22c1 & d1).

(B10q) Paste Wood Filler (B. B.)

Note: See (A8) Page 3. For application see (B18c2 & d2) (B19f2 & h2) (B22c2 & d2).

(B10q1) Use only Pyroxylin Paste Wood Filler or Paste Wood Filler reduced with lacquer thinner under lacquer finishes.

(B10r) Berrywax (B. B.)

Note: A high grade floor wax. For application see (B22d4).

(B10s) Berrycraft Liquid Wax (B. B.)

Note: See (A9) Page 3. A heavy bodied wax for wood, cork tile, linoleum and all composition floors. For application see (B22d4).

(B10t) VARNISHES

(B10t1) Berryspar (Gloss) (B. B.)

Note: See (A10a) Page 3. A quick drying moisture-proof spar varnish for exterior and interior use. For application see (B18c5 & c6) (B19e3 & f5).

(B10t2) Luxeberry Wood Finish (Gloss) (B. B.)

(a) To produce Semi-gloss, mix Gloss (1 part) and Dull (3 parts).

Note: See (A10b) Page 3. A light colored interior rubbing varnish of highest quality. For application see (B19f7 & f11).

(B10t3) Liquid Granite Floor Varnish (Gloss) (Dull) (Quick Drying) (B. B.)

(a) To produce Semi-gloss, mix Gloss (1 part) and Dull (3 parts).

Note: See (A10c) Page 3. A floor varnish of the highest quality. Known as "The Million-step-test floor varnish." Use also for standing trim to take severe wear. For application see (B18c7) (B19e3, e4, f6, f8, f10 & g3) (B22c4 & c6).

(B10u) LACQUERS (CLEAR SPRAYING)

(B10u1) No. 652 Clear (Gloss) (B. B.)

Note: See (A11a) Page 3. Clear gloss for interior cabinet finish. Can be rubbed. For application see (B19h6 & h8).

(B10u2) No. 653 Semi-gloss Berryloid Clear (B. B.)

Note: See (A11b) Page 3. Clear semigloss to save the cost of rubbing. For application see (B19h8).

(B10u3) No. 653A Berryloid Clear (B. B.)

Note: See (A11c) Page 3. Clear flat to save the cost of rubbing. For application see (B19h8).

(B10u4) No. 507 Berryloid Clear Exterior (Gloss) (B. B.)

Note: See (A11d) Page 3. Clear gloss for exterior use and for interior use where there is severe wear or moisture is prevalent. Can be rubbed. For application see (B18d4) (B19h5).

(B10v) ENAMELS

Note: See (B10k) for Lionoil Floor Enamel and (B10l) for Lionoil Metal Trim Enamel.

(B10v1) Berry's Enamel Undercoat (B. B.)

Note: See (A12a) Page 4. An opaque interior enamel undercoat of highest quality. For application see (B18e3) (B19i1 & i7) (B20b).

(B10v2) Luxeberry Enamel (Gloss) (Eggshell) (B. B.)

Note: See (A12b) Page 4. An interior rubbing enamel of highest quality. For application see (B18e4 & e6) (B19i3, i6 & i7) (B20b).

(B10v3) Berrycraft Quick Drying Enamel (Gloss) (B. B.)

Note: (A12c) Page 4. A quality enamel for use where time is the element. For application see (B19i4).

(B10v4) Berry's Radiator Enamel (Flat) (B. B.)

Note: See (A12d) Page 4. A special heat resisting flat radiator enamel. For application see (B21c).

(B10w) PLASTER PAINTS

(B10w1) Berryflat (B. B.)

Note: See (A13a) Page 4. A high grade semi-flat wall paint. For application see (C20d).

(B10w2) Delitone and Delitone Thinner (Semi-gloss) (B. B.)

Note: See (A13b) Page 4. A semi-gloss wall paint of high quality. For application see (C20c).

(B11) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF STEEL, IRON, ETC.

(B11a) For previous painting at shop and in the field see (give paragraph and page references).

Note: *Shop and field coats of Lionoil Colored provides exceptional protection.*

(B11b) Over shop or field coats previously applied, all exposed surfaces of the following items shall be finished as specified below:

Note: *Here list items such as exposed steel work columns, trusses, etc.; cast iron and steel stairs; fire escapes, wrought iron and pipe rails; exposed lintels, etc. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (B11b) and list separately followed by the particular specification which applies.*

Note: *Specifications are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.*

(B11c) Two (2) coats of Lionoil Metal Trim Enamel *(Exterior) (and) (Interior)*. Allow not less than 10 hours to dry hard between coats.

(B11d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

(B11e) Verde Antique Finish—Two (2) coats of Lionoil Colored (Brown) over which apply a glazing coat of Lionoil Light Green, which when partially set shall be partly removed by wiping off or "patting" with a pad of knit cotton goods to imitate Verde Antique Bronze. Allow not less than 12 hours to dry hard between coats. Finish with one (1) coat of Liquid Granite Dull.

(B12) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF STEEL WINDOWS

(B12a) For previous painting at shop *(and in the field)* see *(give paragraph and page reference)*.

Note: *Steel windows should be painted in the field after erection, before glazing. This frequently is done by the erector in which case specify the same material as specified for finish reducing the finish by one (1) coat.*

(B12b) Over shop or field coats previously applied, the following items shall be finished as specified below:

Note: *Here list items. Where there are a variety of classes or groups each requiring a different finish, precede each group with clause (B12b) and list separately followed by the particular specification which applies.*

Note: *Specifications are listed in the order of desirability, the highest grade first. Select that adapted to the particular work.*

(B12c) Two (2) coats of Lionoil Metal Trim Enamel, Exterior and Interior as adapted. Allow not less than 10 hours to dry hard between coats.

(B12d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

(B13) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF SHEET METAL WORK

(B13a) For previous painting at shop *(and in the field)* see *(give paragraph and page reference)*.

Note: *Shop and field coats of Lionoil Colored provides exceptional protection.*

(B13b) All exposed surfaces of the following items shall be finished as specified below:

Note: *Here list items such as roofing, flashing, ventilators, skylights, sheet metal windows, steel smoke stacks, etc. Where a variety of classes or groups of work each requiring a different finish, precede each group with clause (B13b) and list separately followed by the particular specification which applies.*

Note: *Specifications are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.*

(B13c) Two (2) coats of Lionoil Metal Trim Enamel *(Exterior) (and) (Interior)*. Allow not less than 10 hours to dry hard between coats.

Note: *Particularly advocated for interior exposed sheet metal work and both exterior and interior of Sheet Metal Windows.*

(B13d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

(B14) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF METAL DOORS AND TRIM

(B14a) For previous painting at shop *(give paragraph and page reference)*.

Note: *A shop coat of Lionoil Colored provides exceptional protection.*

(B14b) Over shop coat previously applied, all exposed surfaces of metal doors (including tops and bottoms) and trim shall be finished as specified below.

Note: *Here list items by numbers, reference to schedules, or otherwise.*

Note: *Specifications are listed in order of desirability, the highest grade first. Select that adapted to the particular work.*

(B14c) Two (2) coats of Lionoil Metal Trim Enamel *(Exterior) (and) (Interior)*. Allow not less than 10 hours to dry hard between coats.

(B14d) Two (2) coats of Lionoil Colored. Allow not less than 12 hours to dry hard between coats.

Note: *Adapted to industrial and similar work.*

(B15) EXTERIOR AND INTERIOR PAINTING AND FINISHING OF CEMENT, CEMENT STUCCO, CONCRETE AND BRICK

(B15a) Treat all wall surfaces of *(cement) (concrete) (brick)* with a wash consisting of 4 lbs. of zinc sulphate crystals to the gallon of water. After the walls are dry, all loose crystals must be removed with a brush.

Note: *Advocated if alkali is especially strong.*

(B15b) ***Note:*** *If walls have been previously finished include clauses (B8g2) and (B8g4).*

(B15c) The following surfaces shall be finished as specified below.

Note: *Here list surfaces to be finished such as exterior stucco, cement or concrete work, brick, etc., in light courts and interior walls and ceilings.*

(B15d) One (1) coat of Lionoil Clear and two (2) coats of Lionoil Floor Enamel—Quick Drying each applied with a *(brush) (spray)*. Allow not less than 8 hours to dry between coats.

Note: *Use where a gloss finish is desired.*

(B15e) Two (2) coats of Lionoil Colored, the first coat reduced with a gallon of Lionoil "Clear" to the gallon of Lionoil "Colored." Apply with a *(brush) (spray)*. Allow not less than 12 hours to dry between coats.

Note: *Use where a semi-gloss is desired.*

(B16) (INDUSTRIAL BUILDINGS) INTERIOR PAINTING AND FINISHING OF WOOD, BRICK, CONCRETE AND PLASTER

(B16a) Treat all wall surfaces of *(cement) (concrete) (plaster) (brick)* with a wash consisting of 4 lbs. of zinc sulphate crystals to the gallon of water. After the walls are dry, all loose crystals must be removed with a brush.

Note: *Advocated if alkali is especially strong to prevent the possibility of burning through the finish.*

(B16b) ***Note:*** *If walls have been previously finished include clauses (B8g2) and (B8g4).*

(B16c) The following surfaces shall be finished:

Note: *Here list interior surfaces to be finished such as wood columns, beams and ceilings in mill construction; brick walls; concrete walls, columns, beams and ceilings; and plaster walls and ceilings.*

(B16d) *(One (1)) (two (2))* coats of Berry Brothers Mill White applied with a *(brush) (spray).* Allow not less than 24 hours to dry between coats.

(B17) FINISHING CONCRETE FLOORS AND BASES

(B17a) The following concrete floors shall be finished as specified below: ***Note:*** *List and locate.*

(B17b) One (1) coat of Lionoil Clear, and two (2) coats of Lionoil Floor Enamel—Quick Drying. Allow not less than 12 hours to dry between all coats except last two where not less than 4 hours is required.

(B18) EXTERIOR PAINTING AND FINISHING OF WOOD

(B18a) The following exterior woodwork shall be finished as specified below:

Note: *Here list items such as exterior woodwork trim, siding, exterior wood window and door frames, exterior side of wood sash and doors, porch floors, etc., and name the wood to be finished. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (B18a) and list separately followed by the particular specification which applies.*

(B18b) PAINT FINISH

(B18b1) Prime all woodwork to be painted with priming paint before or immediately after erection.

(B18b2) This shall include the priming of all backs or unexposed parts of window and door frames.

(B18b3) Prime the pulley stiles and parting beads of double hung wood window frames with a coat of Lionoil Clear only.

(B18b4) Finish exterior wood floors with one (1) coat of Lionoil Clear and two (2) coats of Lionoil Floor Enamel—Quick Drying. Allow not less than 12 hours to dry between first and second coats and not less than 4 hours between the last two coats.

(B18b5) Over the priming coat finish with

(B18b6) Two (2) coats of Berrycraft House Paint.

(B18c) VARNISH OR NATURAL FINISH

(B18c1) Stain with *(oil) (acid)* stain. Allow sufficient time to thoroughly dry.

Note: *Omit on natural finish.*

(B18c2) Fill with paste wood filler. Allow not less than 8 hours (more if necessary) to set hard.

Note: *Omit ordinarily on close-grain wood (see B9d).*

(B18c3) Over *(stain) (and) (filler)* apply a thin coat of *(SDC-orange) (SDC-white)* shellac and sand lightly.

(B18c4) Finish with

Note: *Specifications below are listed in the general order of desirability, the highest grade first. Select that adapted to the particular work.*

(B18c5) *(Two (2)) (three (3))* coats of Berryspar. Allow not less than 8 hours to dry between coats.
(a) The last coat shall be rubbed to a dull finish.

(B18c6) One (1) coat of Lionoil Clear over which shall be applied *(one (1)) (two (2))* coats of Berryspar. Allow not less than 8 hours to dry between coats.

(B18c7) Two (2) coats of Lionoil Clear and two (2) coats of Liquid Granite Floor Varnish *(Quick Drying)* Dull. Allow not less than 8 hours to dry between coats.

Note: *An excellent finish for half timber work, and similar natural or stained exterior woodwork trim; porch ceilings, etc.*

(B18d) CLEAR SPRAYING LACQUER FINISH

(B18d1) Stain with acid stain. Allow sufficient time to *thoroughly* dry.

Note: *Omit on natural finish. Use only acid stains under lacquer.*

(B18d2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: *Omit on close-grain wood. Use only Pyroxylin Filler.*

(B18d3) Over *(stain) (and) (filler)* apply a spray coat of Lionoil Clear. Allow not less than 12 hours to dry or completely oxidize before lacquer is applied.

(B18d4) Finish with *(two (2)) (three (3))* coats of No. 507 Berryloid Clear Exterior, spray applied. Allow not less than 1 hour to dry between coats.

(B18d5) The last coat shall be allowed to dry for at least 5 hours and shall then be rubbed to a dull finish.

(B18e) ENAMEL FINISH

(B18e1) Prime all woodwork to be enameled with equal parts of Berryflat and Lionoil Clear priming coat.

(B18e2) ***Note:*** *If exterior window frames and trim are enameled include clauses (B18b2) and (B18b3).*

(B18e3) Over the priming coat, apply two (2) coats of Berry's Enamel Undercoat. Allow not less than 8 hours to dry between coats.

(B18e4) Over undercoats apply *(two (2)) (three (3))* coats of Luxeberry Enamel Gloss. Allow not less than 3 days to dry between coats.

(B18e5) The last coat shall be rubbed to a dull finish.

(B18e6) Over undercoats apply *(one (1)) (two (2))* coats of Luxeberry Enamel, Gloss, finished with *(one (1) coat of Luxeberry Enamel Eggshell) (one (1) coat consisting of equal parts of Berry Enamel Undercoat and Luxeberry Enamel Gloss).*

Note: *Choose finish coat. Either produces an eggshell finish without rubbing.*

(B19) INTERIOR PAINTING AND FINISHING OF STANDING WOODWORK

(B19a) The following interior woodwork shall be finished as specified below.

Note: *Here list items of standing woodwork trim, etc., and name the wood to be finished. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (B19a) and list separately followed by the particular specification which applies.*

(B19b) BACK PAINTING, SHELVING, INSIDE OF DRAWERS, CUPBOARDS, ETC.

(B19b1) The unexposed back of all standing interior woodwork coming in contact with plaster shall be given *(one (1)) (two (2))* coats of *(Lionoil Clear) (Berrycraft House Paint priming coat).*

(B19b2) The inside of all *(drawers) (cupboards)* and all shelving shall be given *(one (1)) (two (2))* coats of Lionoil Clear.

(B19b3) After wood doors have been fitted and hung give the tops and bottoms two (2) coats of Lionoil Clear.

(B19c) PRIMING

(B19c1) Prime all wood work to be *(painted) (and) (enameled)* with priming paint before or immediately after erection.

(B19d) PAINT FINISH

(B19d1) Over the priming coat, finish with

(B19d2) Two (2) coats of Lionoil Floor Enamel *(Quick Drying).* Allow not less than 4 hours to dry between coats.

(B19d3) Two (2) coats of Berrycraft House Paint.

(B19d4) Two (2) coats of Berrycraft Interior Finish (Gloss).

(B19e) GRAINING

Note: *Particularly for the interior of soft wood sash to match hard wood interior trim.*

(B19e1) Over the priming coat, give one coat of *(Lionoil Colored) (Berrycraft House Paint) (Berrycraft Interior Finish (Gloss))* ground color over which, when thoroughly dry, apply one (1) coat of graining color combed to the desired effect.

(B19e2) Finish with

(B19e3) *(Two (2)) (three (3))* coats of *(Berryspar) (Liquid Granite Floor Varnish* [*Quick Drying*] *Gloss),* the last coat rubbed to a dull finish. Allow not less than 24 hours *(4 hours for Quick Drying)* to dry between coats.

(B19e4) *(One (1)) (two (2))* coats of Liquid Granite Floor Varnish Gloss finished with one (1) coat of Liquid Granite Floor Varnish *(Dull) (Semi-gloss).* Allow not less than 24 hours *(4 hours for "Quick Drying")* to dry between coats.

(B19f) VARNISH FINISH

(B19f1) Stain with *(oil) (acid)* stain. Allow from 24 to 36 hours to dry.

Note: *Omit on natural finish.*

(B19f2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: *Omit on close-grain wood.*

(B19f3) Over *(stain) (and) (filler)* apply a thin coat of *(SDC-orange) (SDC-white)* shellac and sand lightly.

(B19f4) Finish with

Note: *Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.*

(B19f5) *(Two (2)) (three (3))* coats of Berryspar. Allow not less than 8 hours to dry between coats.

(B19f6) *(Two (2)) (three (3))* coats of Liquid Granite Floor Varnish Gloss *(Quick Drying).* Allow not less than 12 hours *(4 hours for "Quick Drying")* to dry between coats.

Note: *Use the two above particularly where moisture must be guarded against. Use Liquid Granite wherever the hardest service is required.*

(B19f7) *(Two (2)) (three (3))* coats of Luxeberry Wood Finish Gloss. Allow not less than 12 hours to dry between coats.

Note: *All of the above are in gloss varnish requiring rubbing for the finest finish.*

(B19f8) *(Two (2)) (three (3))* coats of Liquid Granite Quick Drying Varnish *(Gloss) (Dull).* Allow not less than 4 hours to dry between coats.

(B19f9) The last coat shall be rubbed to a dull finish.

Note: *The gloss requires rubbing for the finest finish. The dull provides a semi-gloss or dull without rubbing.*

(B19f10) *(One (1)) (two (2))* coats of Liquid Granite Gloss finished with a coat of Liquid Granite Floor Varnish *(Dull) (Semi-gloss) (Quick Drying).* Allow not less than 12 hours to dry between coats.

(B19f11) *(One (1)) (two (2))* coats of Luxeberry Wood Finish Gloss finished with one (1) coat of Luxeberry Wood Finish *(Dull) (Semi-gloss).* Allow not less than 12 hours to dry between coats.

Note: *The above two provide a dull or semi-gloss finish without rubbing.*

(B19h) CLEAR SPRAYING LACQUER FINISH

(B19h1) Stain with acid stain. Allow sufficient time to *thoroughly* dry.

Note: *Omit on natural finish. Use only acid stains under lacquer.*

(B19h2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: *Omit on close-grain wood. Use only Pyroxylin Filler.*

(B19h3) Over *(stain) (and) (filler)* apply a thin spray coat of Lionoil Clear. Allow not less than 24 hours to dry or completely oxidize before lacquer is applied.

(B19h4) Finish with

Note: *Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.*

(B19h5) *(Two (2)) (three (3))* coats of No. 507 Berryloid Clear Exterior, spray applied. Allow not less than 1 hour to dry between coats.

Note: *The above particularly where severe wear or moisture must be guarded against.*

(B19h6) *(Two (2)) (three (3))* coats of No. 652 Berryloid Clear, spray applied. Allow not less than 1 hour to dry between coats.

(B19h7) The last coat shall be allowed to dry for at least 5 hours and shall then be rubbed to a dull finish.

Note: *The above two are in gloss finish requiring rubbing for the finest finish.*

(B19h8) *(One (1)) (two (2))* coats of No. 652 Berryloid Clear finished with one (1) coat of *(No. 653 Semi-gloss Berryloid Clear) (No. 653A Eggshell Flat Berryloid Clear)* spray applied. Allow not less than 1 hour to dry between coats.

Note: *Use where rubbing is impractical on carvings, mouldings, etc. Provides an eggshell or soft semi-gloss finish. Samples on request.*

(B19i) ENAMEL FINISH

(B19i1) Over the priming coat, apply two (2) coats of Berry's Enamel Undercoat. Allow not less than 8 hours to dry between coats.

(B19i2) Finish with

Note: *Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.*

(B19i3) *(Two (2)) (three (3))* coats of Luxeberry Enamel Gloss.

(B19i4) *(Two (2)) (three (3))* coats of Berrycraft Quick Drying Enamel.

(B19i5) The last coat shall be rubbed to a dull finish.

Note: *The above two are in gloss enamel requiring rubbing for the finest finish.*

(B19i6) *(One (1)) (two (2))* coats of Luxeberry Enamel Gloss finished with one (1) coat of Luxeberry Enamel Eggshell.

(B19i7) *(One (1)) (two (2))* coats of equal parts of Luxeberry Enamel and Berry's Enamel Undercoat.

Note: *The above two provides an eggshell or soft semi-gloss finish without the expense of rubbing.*

(B20) PAINTING AND FINISHING OF INTERIOR PLASTER WALLS AND CEILINGS

Note: *See also (B15) and (B16).*

(B20a) The following interior plaster walls and ceilings shall be finished as specified below:

Note: *Here list items and state whether sand float or hard (putty coat) finish. Where there are a variety of classes or groups of work each requiring a different finish, precede each group with clause (B20a) and list separately followed by the particular specification which applies.*

Note: *Specifications below are listed in order of durability or desirability. Select that adapted to the particular work.*

(B20b) One (1) sizing coat consisting of one (1) part of Lionoil Clear to one (1) part of Berry's Enamel Undercoat applied with a *(brush) (spray)*, over which apply *(one (1)) (two (2))* coats of Berry's Enamel Undercoat, finished with *(two (2)) (three (3))* coats of Luxeberry Enamel (Gloss) (Eggshell). Allow not less than 12 hours to dry between coats. Recoat flat spots appearing after first coat before the application of second coat.

Note: *For the highest class of enameled wall finish.*

(B20c) One (1) coat consisting of equal parts of Delitone and Delitone Thinner applied with a *(brush) (spray)* over which apply with a *(brush) (spray)* a finish coat consisting of Delitone reduced with 1½ pints of turpentine and ½ pint of Delitone Thinner to the gallon of Delitone. Allow not less than 24 hours to dry between coats. Recoat any flat spots appearing after first coat before the application of the second coat.

(B20d) One (1) sizing coat consisting of one (1) part of Lionoil Clear to one (1) part of Berryflat applied with a *(brush) (spray)*, over which apply with a *(brush) (spray) (one (1)) (two (2))* coats of full body Berryflat. Allow not less than 12 hours to dry between coats. Recoat any flat spots appearing after first coat before the application of the second coat.

(B20e) After the finish coat has set from 20 to 30 minutes, stipple with a stippling brush to a uniform mat finish.

Note: *Either of the above finishes takes an excellent stipple.*

(B20f) ***Note:*** *Where desired over-glazes, sponge-stipples, etc., may be added. If required, specify here.*

(B20g) One sizing coat consisting of one (1) part of Lionoil Clear to one (1) part of Berryflat applied with a *(brush) (spray)*, over which apply with a *(brush) (spray)* one (1) two (2) coats of full body Berrycraft Interior Finish (Gloss). Allow not less than 12 hours to dry between coats. Recoat any flat spots appearing after first coat before the application of the second coat.

(B20h) *(Two (2)) (three (3))* coats aluminum paint consisting of 1¾ lbs. of aluminum bronzing powder to the gallon of Berry Brother's Aluminum Paint Liquid No. 3 applied with a *(brush) (spray)*.

Note: *An especially durable, cleanable, light reflecting surface for use in elevator shafts, boiler and fan rooms, etc., and industrial buildings.*

(B21) PAINTING AND FINISHING OF RADIATORS, ETC.

(B21a) The following radiation (and exposed piping) shall be finished as specified below:

Note: *Here list items.*

(B21b) Apply with a *(brush) (spray)* one (1) coat of aluminum paint consisting of 1¾ lbs. of aluminum bronzing powder to a gallon of Berry Brothers' Aluminum Paint Liquid No. 3. Allow not less than 8 hours to dry.

Note: *Advocated to produce a clean smooth surface for enamel finish. This is often included under the Heating Specification and if so, omit here.*

(B21c) (Over the aluminum bronze coat) apply *(one (1)) (two (2))* coats of Berry's Radiator Enamel. Allow not less than from 6 to 8 hours to dry between coats.

(B22) PAINTING AND FINISHING OF INTERIOR WOOD FLOORS

(B22a) The following interior wood floors shall be finished as specified below:

Note: *Here list floors and name the wood to be finished. Where there are a variety of classes or groups of floors each requiring a different finish, precede each group with clause (B22a) and list separately followed by the particular specification which applies.*

(B22b) PAINT FINISH

(B22b1) Prime the floors with Lionoil Colored priming paint over which apply two (2) coats of Lionoil Floor Enamel —Quick Drying. Allow not less than 8 hours to dry between the first and second coats and not less than 4 hours between the last two coats.

(B22c) VARNISH FINISH

(B22c1) Stain with *(oil) (acid)* stain. Allow sufficient time to thoroughly dry.

Note: *Omit on natural finish.*

(B22c2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: *Omit on close-grain wood.*

(B22c3) Finish with

Note: *Specifications below are listed in general order of durability or desirability, the highest grade first. Select that adapted to the particular work.*

(B22c4) Apply one (1) coat of Lionoil Clear followed by *(two (2)) (three (3))* coats of Liquid Granite Floor Varnish Gloss *(Quick Drying)*.

(B22c5) The last coat shall be rubbed to a dull finish.

Note: *The above is gloss varnish requiring rubbing for the finest finish.*

(B22c6) Apply one (1) coat of Lionoil Clear followed by *(one (1)) (two (2))* coats of Liquid Granite Gloss, finished with one (1) coat of Liquid Granite Floor Varnish *(Dull) (Semi-gloss) (Quick Drying)*.

Note: *The above provides a dull or semi-gloss finish without rubbing.*

(B22d) WAX FINISH

(B22d1) Stain with *(oil) (acid)* stain. Allow sufficient time to thoroughly dry.

Note: *Omit on natural finish.*

(B22d2) Fill with paste wood filler. Allow from 24 to 36 hours to set hard.

Note: *Omit on close-grain wood.*

(B22d3) Over the *(stain) (and) (filler)* apply a thin coat of *(SDC-orange) (SDC-white)* shellac and sand lightly.

(B22d4) Over shellac apply two (2) coats of Berrywax, each polished hard with a weighted floor brush, or Berrycraft Liquid Wax—three (3) coats.

(B22e) OIL FINISH

(B22e1) Apply *(two (2)) (three (3))* coats of Lionoil Clear with a *(brush) (mop)*. Allow not less than 12 hours to dry between coats.

Note: *Floors finished with Lionoil Clear retain their natural color and will not darken as with linseed oil. It costs no more than the application of hot linseed oil and turpentine. It penetrates deeply, gives unusual service and is waterproof.*

Berrycraft
FINISHES



Since 1858

BERRY BROTHERS INC.

Varnishes Enamels Lacquers

Detroit, U.S.A. *Walkerville, Canada*

SAMUEL CABOT, INC.

Manufacturing Chemists

141 Milk Street, BOSTON, MASS.

BRANCH OFFICES

NEW YORK, N. Y., 101 Park Avenue — CHICAGO, ILL., 5000 Bloomingdale Avenue
PHILADELPHIA, PA. — KANSAS CITY, MO. — LOS ANGELES, CAL. — SAN FRANCISCO, CAL.
SEATTLE, WASH. — PORTLAND, ORE. — MINNEAPOLIS, MINN.

PRINCIPAL AGENCIES

ATLANTA, GA., Atlanta Paint Company, 290 Spring St., N. W. (Shingle Stains and Collopakes); DeJarnette Supply Co. (Quilt)

BALTIMORE, MD., National Building Supply Co., Franklintown Rd. near West Baltimore St.

CINCINNATI, OHIO, The Saeger-Winstel Co., 1148 Main St. (Shingle Stains and Collopakes); The Cincinnati Builders Supply Co., 209 East Sixth St. (Quilt)

CLEVELAND, OHIO, The Cleveland Paint & Color Co., 1200 Bolivar Rd. (Shingle Stains and Collopakes); The Harvard Lumber Co., 6000 Harvard Ave. (Quilt)

COLUMBUS, OHIO, The Creith-Potter Lumber Co., 319-345 East Fifth St.

DALLAS, TEX., W. L. Macatee & Sons

DENVER, COLO., The Colorado Builders' Supply Co., 1534 Blade St.

DETROIT, MICH., Gregg Company, 2457 Woodward Ave. (Quilt); Gagnier Paint Company, 164 Congress St., East (Shingle Stains and Collpakes)

HOUSTON, TEX., W. L. Macatee & Sons

NEW ORLEANS, LA., Jahncke Service Inc., 814 Howard Ave.

PITTSBURGH, PA., Houston-Starr Company, 3rd Ave. and Grant St.

RICHMOND, VA., R. McC. Bullington, 4th and Broad Sts.

ST. LOUIS, MO., Hunkins-Willis Lime & Cement Co., Louderman Bldg., 11th and Locust Sts. (Quilt); Sullivan Paint Co., 2100 Pine St. (Shingle Stains and Collopakes)

CANADIAN AGENT: BRANDRAM-HENDERSON, Ltd.
HALIFAX MONTREAL TORONTO WINNIPEG CALGARY VANCOUVER
(Shingle Stains and Collopakes)

Cabot's
Creosote Shingle and Wood
Stains

Cabot's Collopakes

Samuel Cabot Inc.

Products

CREOSOTE and SHINGLE WOOD STAINS.

INTERIOR WOOD STAINS.

SEMI-FLAT WATERPROOF COLLOPAKES.

OLD VIRGINIA WHITE.

GLOSS COLLOPAKES.

DOUBLE-WHITE.

INTERIOR FLAT WATERPROOF COLLOPAKES.

CLEAR BRICK and CLEAR CEMENT WATERPROOFING.

CONSERVO WOOD PRESERVATIVE.

DAMPPROOFING.

FLEXIBLAC PROTECTIVE PAINT.

LAMPBLACK.

MORTAR COLORS.

For Stained Shingles, and Cabot's Quilt and Building Insulation, see Manufacturers' Index.

Cabot's Creosote Shingle and Wood Stains

Cabot's were the first shingle stains ever made (1882). Forty years ago a prominent architect said, "You have made the first improvement in exterior coloring in half a century," and recently a leading dealer said, "Your stains are as standard as white lead."

Uses—Cabot's Creosote Shingle Stains are for use on roof and side shingles, clapboards, siding, rough or smooth boarding, on wood trimmings of cement houses, and, in fact, all exteriors, wood work, fences, etc.

Beautiful Artistic Effects—The strongest and purest colors obtainable are reduced in these stains to microscopic fineness in linseed oil and dispersed in genuine Cabot refined Creosote.

Preserves the Texture—As no two pieces of wood are alike, the colors show the beautiful effects of light and shade that are inherent in real Stains. They give soft velvety colors to the wood without hiding its texture. There is no gloss or shine and colors are guaranteed fast.



House in Hillsboro, Calif.
JOHN WHITE, San Francisco, Architect
Roof stained with Cabot's Creosote Shingle and Wood Stains.

Preserves the Wood—The refined creosote usually doubles the life of the wood and protects it from decay and ravages of insects.

"Creosote is the best wood preservative known."
—Trautwein.

Colors—Made in *22* standard colors and in white primer.

Special Colors—Special colors and shades will be made for architects who wish to produce special effects. Send us samples to match or suggestions to follow.

Specifications — How to Apply — Stir thoroughly and keep well stirred while using. If more than one package is required, mix all together in one large container. Do not thin out. Use a broad, flat brush, a spray machine, or dip shingles before laying.

Stains Over Paint—Any of the darker, heavier colors go well over old paint but the "stain effect" is not possible over new solid coats of paint.

Paint Over Stain—The Stains make splendid priming coats because of their preservative action and prevention of mildew.

Restaining—When it is desired to renew the Stains this can usually be done by one coat of the same color; or if a change of color is desired, by two coats. In restaining, a lighter shade should be used than the result desired, because the Stains, being transparent, will come out darker on old wood than on our samples, which are on new wood.

Cabot's Creosote Bleaching Oil No. 241 for Producing a Silver-Gray Effect

Cabot's Creosote Bleaching Oil No. 241 gives exactly the same result as Nature and produces a beautiful silver-gray tone like that seen on very old shingles at the seashore resulting from many years of exposure to the salt air. It secures this effect in from six to twelve months. A small amount of gray pigment gives a delicate gray tone from the first, and as this wears off it is followed by the bleaching of the wood. The Creosote preserves the wood from decay and also prevents mildew and blackening.

Covering Capacity—One gallon—applied with a brush after the shingles are laid—will cover 100 sq. ft., two coats; 150 sq. ft., one coat. Two and one-half to two and three-quarter gallons will dip-coat 1,000 shingles, dipping them two-thirds their length.

Cabot's Interior Stains

Cabot's Interior Stains are colloidal pigments made by the patented Cabot Collopaking process mixed with a lighter oil base for interior work only. They have all the beauty and lasting quality of Cabot's Creosote Stains and are particularly noteworthy in grays and other light colors.

Specifications—Apply in exactly the same manner as Cabot's Creosote Shingle and Wood Stains, with large brush.

The Patented Cabot Collopaking Process

In Cabot's Collopakes, the Pigment Particles Differ from Those in Regular Ground Paint and Stains

In the patented Cabot Collopaking Process, the pigment is not ground but is reduced by a new method to separate particles ranging in dimension from one-thousandth to one-millionth of a millimeter in diameter. This is far finer than is possible by any grinding process. Particles are then suspended (dissolved) colloidally in the proper vehicles.

Advantages of the Collopaking Process—Cabot's Collopakes have the following outstanding advantages:

(1) Owing to the fineness of the particles (they cannot be seen separately with an ordinary microscope) they never settle out hard in the package and very little stirring is required even after standing for a year or more.

(2) Particles of pigment will penetrate, even through filter paper. Consequently when applied to any ordinary surface they are bonded more tightly to it, priming the surface and preparing it for the next coat. They do not tend to lift or peel.

(3) The pigment and vehicle are thoroughly amalgamated. Both oil and pigment are drawn into the wood instead of the oil only leaving a film of pigment behind.

(4) The colors do not fade. Fading is ordinarily due to the use of fillers. In paint, fillers are necessary unless the paint is to be very expensive. These fillers are usually white or light in color. When they are soaked in oil, they are invisible but when the oil dries out, they become gray and give the effect of fading. No fillers are used in Cabot's Collopakes as sufficient body is furnished by the finer collopaked particles.

(5) Absence of brush marks. Owing to their colloidal nature. Cabot's Collopakes have a very high surface tension. This tends to smooth out all brush marks automatically and makes the Collopakes self-leveling.

(6) Flexible long-wearing film. The flexible long-wearing surfaces produced with Cabot's Collopakes are due to their colloidal qualities.

Cabot's Semi-flat Waterproof Collopakes

Give a fine semi-flat finish, preserving the texture of the surface.

Where to Use Them—On all new or painted, rough or dressed woodwork, on stucco, brickwork, concrete, stone, metal or prepared roofings.

Specifications — Although Collopakes settle but slightly and the pigment never becomes hard, it is well to stir before using to insure complete solution. Use as it comes from the can without thinning. Use two coats. Surface must be clean, firm and dry before applying. If used for dipping, shingles should be brushed off after dipping. For a light dip-coat use Cabot's No. 1166 Special White Primer and brush with Semi-Flat after laying.

On sawed shingles and other undressed lumber use two coats—or if redwood, red cedar, or other dark colored woods are used, three coats may be required; on shaved shingles and other dressed lumber, three coats may be necessary, depending upon the covering effect desired, but it is not intended to cover like paint. Extra coats will be required in proportion to the degree in which the user desires to cover the grain of the wood. The practice varies, some preferring the



House in Newport, R. I.
CHARLES BARTON KEEN, Philadelphia, Architect
Brick walls covered with Cabot's Old Virginia White Collopakes

thin effect and the weathering, even on smooth wood, and others using extra coats to cover.

Covering Capacity—1 gal. covers 100 to 150 sq. ft. two coats on shingles, rough wood, and brick work.

Cabot's Old Virginia White

This is the White of the Semi-Flat Waterproof Collopakes and faithfully reproduces the soft, cool qualities of whitewash, but with somewhat finer tone and texture. Waterproof, simple and easy to apply.

Specifications and Covering Power—Exactly like Semi-Flat Waterproof Collopakes.

Cabot's Gloss Collopakes

Made of the strongest and most permanent earth mineral colors colloidally compounded, i. e., pigments of submicroscopic fineness in colloidal solution. Ideal for blinds, shutters, doors and trimmings because they do not fade or grow lifeless with age, but retain their gloss and always remain fresh and lively. Have remarkable wearing quality as floor paints on both wood and concrete. Made in pure greens that stay green, and a wide range in other colors.

Specifications — Although Collopakes settle but slightly and the pigment never becomes hard, it is well to stir before using, in order to insure complete solution. For priming or to secure proper brushing consistency, reduce in the customary way to proper brushing condition with linseed oil and turpentine or mineral naptha, the amounts and proportions to be varied to suit conditions. Gloss Collopake colors are splendid for tinting oil paints because of their brilliance and the ease with which they can be stirred in.

Note: The Greens, Blues, Signal Red and Bright Yellows must not be applied to fresh plaster, magnesite or cement because of the free lime present.

Cabot's DOUBLE-WHITE

A heavy white non-gloss collopake. Whiter than white lead and oil, it spreads more evenly and weathers flat. Is not affected by gases and light and is waterproof.

Uses—On all kinds of surfaces, including wood, brick, cement and stucco.

Specifications — Although DOUBLE-WHITE settles but slightly and the pigment never becomes hard, it is well to stir before using, in order to insure complete solution. For priming or to secure proper brushing consistency, thin out in the usual way with linseed oil and turpentine or mineral naptha, the amounts and proportions to be varied to suit conditions.

Cabot's Interior Flat Waterproof Collopakes

Cabot's Interior Flat Waterproof Collopakes have been developed to improve the art of interior decoration.

They are compounded colloidally like all of the other Cabot Collopakes and so have many advantages not found in any other type of interior flat.

Uses—Cabot's Interior Flat Waterproof Collopakes can be supplied to *any* kind of surface.

They are especially fine for *undercoating work* because of their natural flatness and can be used for this purpose without rubbing or flatting with a brush.

They go equally well on wood, plaster, stone, stucco or metal of any kind, *including metal ceilings where there is a particularly large use for them.*

Owing to their special nature, they lend themselves more easily to mottled, sponged and stencilled work, and can be used for the production of all kinds of two-tone and three-tone wall finishes.

Specifications — Although Collopakes settle but slightly and the pigment never becomes hard, it is well to stir before using, in order to insure complete solution. Apply only to clean, dry, well seasoned surfaces. Sizing is not usually required. Where necessary thin with turpentine or mineral naphtha, but the product is much freer brushing than it appears and we advise that it be tested out by brushing before thinning is resorted to. For tinting Interior Flat Collopakes, Gloss Collopakes may be used.

Covering Power—Approximately 500 sq. ft. one coat, depending upon the nature of the surface.



Milwaukee Country Club, Milwaukee, Wis.
FITZHUGH SCOTT and ROGER H. BULLARD, Milwaukee, Architects
Walls, brick and woodwork finished with Cabot's Double-White Collopakes

Cabot's Clear Brick Waterproofing

Cabot's Clear Brick and Clear Cement Waterproofings for brush application penetrate and seal the pores, making the surface permanently and completely rainproof.

Use Clear Cement Waterproofing on light colored surfaces and Clear Brick Waterproofing on dark colored brick or stone.

Cabot's Conservo Wood Preservative

For preserving all kinds of woodwork from decay and insects, including termites (white ants).

For brush or dip application. Conservo gives a butternut brown tone.

Cabot's Dampproofing

For direct plastering on brick and concrete walls and stonebacking on marble and other delicate stones.

A permanently waterproof and adhesive coating that forms a perfect bond between the plaster and the wall, making furring and lathing unnecessary. It penetrates both plaster and wall, knitting them firmly and permanently together. It may be used for exterior work below grade.

Cabot's Flexiblac Protective Paint

A chemically pure black bitumen paint.

Cabot's Flexiblac is not affected by acids or electrolysis, will not crack or peel. It is permanent and a perfected protection, and costs only one-third as much as linseed oil paint.

Cabot's Germantown Lampblack

Pure lampblack which gives a cool gray tone to concrete sidewalks, floors and walls, and is much used for black mortar color.

Cabot's Mortar Colors

For 35 years the strongest and most durable colors for mortar. Made in pulp form to insure uniform mixing and to save labor.

CALBAR PAINT & VARNISH COMPANY

Manufacturers of Technical Paints, Caulking and Glazing Compounds

FACTORY AND EXECUTIVE OFFICE
2620-26 North Martha Street, PHILADELPHIA, PA.

Products

CALBAR CAULK-O-SEAL NON-STAINING CAULKING, POINTING and GLAZING COMPOUND.

Also Calbar Industrial and Technical Coatings and Finishes.

CALBAR

(Reg. U. S. Pat. Off.)

Calbar Caulk-O-Seal Non-staining Caulking, Glazing and Pointing Compound

The necessity for a material having an elastic nature for sealing cracks, waterproofing and glazing, prompted us some years ago to devote a large amount of time, money and effort to produce a product that would fill every requirement for varying conditions. After several years of constant experiments and gradual improvements we developed a compound which was considered the acme of perfection. Time has proven that our product is just right. Each feature has been carefully tested and we offer those, who are interested in a caulking compound of exceptional merits, Calbar Caulk-O-Seal Plastic Compound.

The saving of fuel from air leakage is an economic necessity. Heating and ventilating of buildings can not be controlled while there are cracks around doors and windows and other openings where air in unregulated amounts can enter. Of course, there are other things to consider also. Such openings allow dirt, dampness and deterioration to get in their work. It is well recognized at the present time that all buildings, from the modest two-story home to the highest skyscraper, require caulking. The cost is low and the benefit is great.

Caulk-O-Seal—Permanently Plastic Compound

Caulk-O-Seal is a permanently plastic compound that is impervious to heat, cold, moisture and fumes. It dries with a tough surface hide which can be painted over without bleeding through. Beneath the surface it remains plastic and pliable for years, taking up expansion or contraction of adjoining surfaces. Vibration does not harm it. It is strictly a waterproof product. It adheres firmly and tenaciously to any surface, whether glass, marble, tile, brick, concrete, wood, steel, limestone, etc.

Caulk-O-Seal—Non-staining Compound

Caulk-O-Seal is a truly *non-staining* compound. This feature is of extreme importance and we suggest that it be considered carefully. It will not stain the surrounding surface adjacent to the place applied. This is a distinctive feature of our product and worthy of consideration. Many beautiful buildings, of limestone and marble construction principally, have been marred by the use of a compound which exudes liquid. The liquid is required as it is the life of the compound. If it bleeds out, its life is lessened. It will be a revelation to you to make a few simple tests with Caulk-O-Seal. Samples will be furnished to demonstrate its *non-staining* quality.

Method of Application

The method of application advocated by us is by the use of a hand caulking gun. We furnish a light, powerful gun, easily operated and capable of developing a high pressure. However, Caulk-O-Seal is of the proper consistency and is easily forced to the required depth in an opening. A canvas of caulking contractors proves conclusively that the use of a hand gun saves labor cost and does the work properly,, making a smooth, even exterior finish.

Caulk-O-Seal Gun Grade—Knife Grade

Caulk-O-Seal is supplied in Gun Grade (for use with caulking gun) and in Knife Grade (for use with a putty knife or caulking tool.) Made in white, gray, limestone, natural, green, red, maroon and black. Special colors made to order in any quantity. Packed in all sized convenient containers. One gallon of Gun Grade will caulk about 150 lineal feet of an opening, ¼ in. wide and ½ in. deep.

Caulking Around Window and Door Frames

In new construction, it is recommended that the compound be applied between the frame proper and the masonry. When spaces are deeper than ½ in., they should be packed within ½ in. of the surface with oakum and the remaining space completely filled with Caulk-O-Seal. The staff bead is then put in place.

Pointing Stonework, Terra Cotta, Copings, etc.

All joints should be raked back to a depth of ½ in. and filled in with Caulk-O-Seal.

Glazing

For embedding and glazing glass in wood or metal sash or skylights, use the same as putty. Its elasticity prevents glass from breaking due to vibration or contraction and expansion.

Guarantee

Caulk-O-Seal when applied as directed under usual conditions is guaranteed to give five years' service.

References

Many important buildings have been caulked with Caulk-O-Seal, including schools, hospitals, apartment houses, churches, public buildings, hotels, United States Government buildings, and industrial plants.

Contractors approved by us are available in principal cities of the United States.

CRAFTEX COMPANY

EXECUTIVE OFFICES
BOSTON, MASS.

For Craftex, Craftcoat, Craftexsize, etc., see Manufacturers' Index

AN INTERIOR FLAT WHITE PAINT WITH 90% LIGHT REFLECTION

SUNFLEX

REG. U.S. PAT. OFF.

Description

Sunflex—an inside flat white paint for undercoating and finish coats. A time-tested lithopone product with a casein vehicle, used by more and more architects on work that involves unusual conditions of application, service or cost. The following characteristics show why Sunflex is unique among paints.

Light Reflection

Sunflex with better than a 90% reflection of the light, rates as high if not higher than any other paint on this important point. Owners of buildings with Sunflex walls and ceilings report savings in lighting bills as high as 30%. Sunflex gives the highly desirable "mat" or diffused reflection which distributes the light evenly throughout the room.

Never Yellows

Furthermore, this light reflection is maintained indefinitely. Sunflex is made with an absolutely non-yellowing binder. It stays white through exposure to air, light and temperatures ordinarily experienced in industrial plants.

Permanence

Sunflex has unusual resistance to heat, moisture, steam, acid fumes and other service factors that rapidly deteriorate most paints. It makes a permanent bond to any solid surface to which it is applied. Laundries, plants housing chemical processes and other buildings where such conditions obtain are using Sunflex in large quantities.

One-coat Coverage

The great hiding power of Sunflex saves a coat of paint on most work. Sunflex will do the ordinary 3-coat job with two coats and the 2-coat job with a single application, hiding plaster, concrete, brick and other surfaces with a durable, unifying coat of opaque white. Whether one or two coats of Sunflex are used the savings in material and labor that follow the consequent elimination of one coat of paint are a worthwhile consideration when cost is a factor.

Pleasant Odor—Quick Drying

Sunflex dries dust free in an hour with none of the disagreeable odor associated with paint. This feature makes Sunflex ideal for use in plants manufacturing food and other products liable to contamination from paint odors, and hotels, stores, factories and other interiors where rapid repainting with minimum annoyance to occupants is desirable.



Criminal Courts Building, New Orleans, La.
1400 gal. of Sunflex used on walls and ceilings throughout this building

Application Over Damp Concrete

Sunflex has the unusual characteristic of allowing damp surfaces to "breathe" and moisture to dry through without affecting the bond or appearance of the paint. Concrete can be painted with a permanent coat of Sunflex shortly after the forms are removed. By using Sunflex the architect is able to turn over a finished interior ready for immediate use and occupancy, an important advantage when money is running low. Fresh plaster and other damp surfaces which will eventually dry out can be similarly painted with Sunflex.

Low Cost

There is practically no step in a painting job where Sunflex does not effect a substantial saving. It can be brushed or sprayed, flows easily, has exceptional coverage, is rapidly applied and dries without laps or brush marks. Compared with any other paint, coat for coat, Sunflex is a cost-cutter—and as already pointed out Sunflex eliminates one coat of paint with subsequent further savings in stock and labor.



Containers and Use

Sunflex is a white paste packed in 1, 5 and 10-gallon containers. It is quickly prepared for use by adding water and stirring smooth to painting consistency. It is easily tinted by mixing dry color with the paste.

Tinted Sunflex

Sunflex is also supplied in the following standard tints: Ivory, Cream, Buff, Rose, Blue, Green, Dove Gray, Silver Gray, and Black. CRAFTEX COMPANY will co-operate in making special colors of tinted Sunflex. Let us know your requirements and send sample of desired tint.

Years of Successful Use

The earliest Sunflex installations include Dennison Manufacturing Company, Framingham, Mass. (1923); Suffolk Engraving Company, Cambridge, Mass. (1923); Lakeview Press, Framingham, Mass. (1923); which are still in excellent condition. The best answer to the standing of Sunflex is shown by repeat orders, steadily increasing sales, and use in such buildings as the following:

Representative Sunflex Installations

ARENA—Boston Garden, Boston, Mass.
ARMORY—Commonwealth Armory, Boston, Mass.
AUDITORIUM—City Auditorium, Charlotte, N. C.
BAKERY—Colonial Bakery, Des Moines, Iowa
BANK—Provident Trust Co. Bldg., Philadelphia, Pa.
BLEACHERY—Lanett Bleachery & Dye Works, Lanett, Ala.
CHURCH—Sacred Heart Church, Elizabeth, N. J.
CLUBS—Gymnastic Club, New Orleans, La.
COLD STORAGE—Produce Terminal Cold Storage Co., Chicago, Ill.
COLLEGE—Yale University, New Haven, Conn.
COMMUNITY CENTER—Westchester County, White Plains, N. Y.
DAIRY—Telling Belle Vernon Co., Cleveland, Ohio
FOOD PLANTS—Morton Salt Co., Chicago, Ill.; Fleischmann Yeast Co., Chicago, Ill., and Oklahoma City, Okla.; Wm. Wrigley, Jr., Co., Chicago, Ill.
GARAGE—Gainsborough Garage, Boston, Mass.
HOME—Residence of Gar Wood, Detroit, Mich.
HOSPITAL—Mayo Clinic, Rochester, Minn.
HOTEL—Skirvin Hotel, Oklahoma City, Okla.
LAUNDRY—American Family Laundry, St. Paul, Minn.
MANUFACTURING PLANTS—Western Electric Co., Hawthorne, Ill., and Kearny, N. J.; Technicolor Motion Picture Corp., Boston, Mass.
OFFICE—Celotex Co., Chicago, Ill.
PAPER—Central Ohio Paper Co., Columbus, Ohio
RADIO STATION—KWK, St. Louis, Mo.
RESTAURANT—Thompson's Spa, Boston, Mass.
RUBBER PLANT—La Crosse Rubber Mills, La Crosse, Wis.
SCHOOL—New School for Social Research, New York, N. Y.
STORES—Peck & Peck, New York, N. Y., St. Louis, Mo., Minneapolis, Minn.
THEATRE—Jackson Theatre, Jackson, Mich.
TOBACCO—Liggett & Meyers, St. Louis, Mo.

CERTAIN-TEED PRODUCTS CORPORATION

PAINT AND VARNISH DIVISION

Manufacturers of Paints, Stains, Enamels, Varnishes, etc.

GENERAL OFFICES
100 East 42nd Street, NEW YORK, N. Y.

For Sales Offices, see Gypsum Plaster Pages
For Our Other Products, see Manufacturers' Index

Products

CERTAIN-TEED INTERIOR and EXTERIOR HOUSE PAINTS, FLAT WALL PAINTS, ENAMELS, KALSOMINE, OIL STAINS, SHINGLE STAINS, VARNISHES, LACQUERS and FLOOR PAINTS.

CERTAIN-TEED PAINT, ENAMEL, STAIN AND VARNISH PRODUCTS

Certain-teed paints, enamels, stains and varnishes include finishes for practically every interior and exterior purpose. This line represents highest quality—the direct result of care exercised by experts in the selection of raw materials and in the process of manufacture.

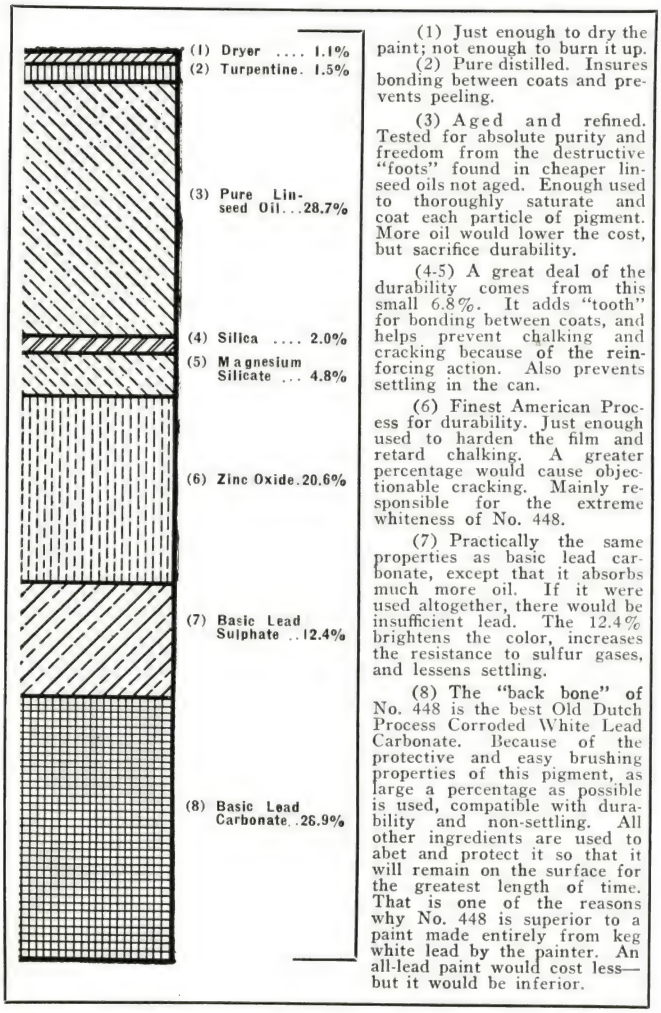


TRADE-MARK

Certain-teed paint and varnish products enjoy a country-wide reputation that has been built up through years of satisfactory service. Architects specify Certain-teed products because successful results bespeak good judgment in the wise selection of materials.

No. 448 Outside White

What is inside the paint can labeled No. 448 Outside White? In each can of No. 448 Outside White there are *18 lbs.* of the finest, purest ingredients scientifically combined to form this extra heavy, highly superior house paint. There is a reason—and a good one—for each ingredient used in this paint. There is also a good reason for using an exact percentage of that ingredient.



Graphic Analysis of Certain-teed No. 448 Outside White

Certain-teed House Paint (Exterior and Interior)

Exact combinations of the best ingredients, tested by expert chemists, precision in grinding and mixing, assure a superior product. It possesses durability, uniformity and permanence of colors. Spreads easily, covers generously, and keeps the ultimate cost of painting low when the expense of labor is compared with the cost of material over a period of years.

Certain-teed House Paint comes in liquid, paste and semi-paste form. The covering capacity is approximately 350 sq. ft. per gallon, two coats, depending on the surface.

Industrial Paints and Varnishes

In addition to a complete line of standard paints, varnishes, enamels, and stains, we manufacture every kind of related industrial finishes. Specifications are rigidly adhered to, and when supplied, samples will be matched exactly for color, uniformity and durability. Our Industrial Department is devoted to problems of this nature. It is composed of men, expert in their field, who are anxious to co-operate along every line.

Architects' Specifications

Complete Architects' Specifications for the application of paint and varnish, covering the extensive Certain-teed line, will be supplied upon request. These specifications cover every phase of the architect's problems in specifying the proper paints and varnishes, the varying conditions which will affect his decisions, and their proper applications.

Certain-teed Flat Wall Paint

A practical beautiful flat wall finish of the very best quality. It is soft and restful to the eyes, and free from even a suggestion of gloss or glare. Widely used in public buildings, office buildings, schools, homes, etc. It may be used on wood, metal ceilings, wall boards, etc., as well as for plastered walls and ceilings. It is sanitary and germproof, and the painted surfaces may be washed with soap and water.

Widely used as an undercoating for enamel finishes.

Covering Capacities—The covering capacity will vary according to the condition of the surface.

One gallon will cover with one coat approximately as follows:

On smooth plaster, metal ceilings and painted smooth surfaces, 700 to 800 square feet.

On rough plaster, wall board and over wallpaper or burlap 500 to 600 square feet.

Where wall size is mixed with the paint, estimate about 500 square feet per gallon, one coat.

Application—No size is needed on unpainted woodwork or metal ceilings. Sizing is required for new plaster work and for wall board. For old plaster kalsomined, wash off kalsomine or if it is tight, give one coat of Certain-teed Wall Size.

Certain-teed Mill White

A sanitary light reflecting finish for interior walls and ceilings of factories, shops, industrial plants, schools, office buildings, etc. Certain-teed Mill White is a durable oil paint, not a cold water paint, and will not wash off. It can be used on wood, plaster or brick surfaces. Has minimum of yellowing tendency and may be washed with soap and water. Made in flat and gloss finishes. The gloss finish has the greatest light reflecting properties, but does not produce a glare. Its smooth surface resists dust and dirt, and is more easily cleaned than the flat finish.

Soap or washing powder will not injure it. It is white when applied and stays white in use, thus overcoming the serious loss in lighting value encountered in finishes which yellow with age, readily catch dirt or rub off.

Specifications—The ceilings and walls of .... shall be painted with Certain-teed Mill White Paint. Where one coat is required, this shall be the gloss finish, but where two coats are required, the first coat shall be Certain-teed Mill White (Flat) Paint and the second coat shall be Certain-teed Mill White (Gloss) Paint. All paint shall be used from the manufacturer's original container and only as prescribed by the directions on the container. Old walls and ceilings painted white and not very soiled, shall be given one coat of gloss finish. New work shall be given two coats.

Certain-teed Penetrating Oil Stains

Highest quality penetrating oil stains for interior finishing on either hard or soft woods. They are in liquid form and penetrate deeply, but do not raise the grain of the wood. As they are clear and transparent, they show off the grain of the wood. Open grain woods must be filled over the stain and given time to dry before being shellacked. As the color of the stain will vary on different woods, because of the nature and color of the wood itself, samples of the stained finishes should be required before proceeding with the work. Covering capacity, 800 to 1000 sq. ft. per gallon, one coat, depending upon the wood to be stained. May be applied with a soft cloth or a brush.

Certain-teed Varnishes

Certain-teed Varnishes are unexcelled for quality and service. They successfully meet all the "freak" tests and the more important test of actual service. Extensive manufacturing facilities, high standard of quality, ample resources and the most competent technical skill combine to make them the best that can be manufactured. Covering capacity, all varnishes, about 600 to 700 sq. ft. per gallon, one coat.



Certainteed Universal Varnish No. 900—For both exterior and interior use. Certain-teed Universal Varnish is made from the best grades of Congo gum, China wood oil, specially treated linseed oil, etc. The formula for making Certain-teed Universal is based upon many years of experience in varnish manufacture—extensive laboratory research and every conceivable test in actual use.

Certain-teed Universal is very pale in color—is heavy bodied, brushes easily, is self-leveling and dries quickly. A quality varnish that is built for sturdy endurance under all kinds of rough usage. For all interior and exterior work. Dries dust free in from 4 to 6 hours—hard overnight.

Certain-teed Interior Spar Varnish—This is a highest grade interior varnish for general use. It is not affected by contact with water. Has a durable and permanent gloss which can be rubbed to a dull finish and polished, if desired. Dries dust free in about 4 hours, and hard in 18 to 20 hours; rubbed in about 72 hours.

Certain-teed Cement Floor Paint

For preventing dusting, crumbling and disintegrating of cement floors. Very durable and furnishes a glossy damp-proof and sanitary surface on cement floors, which is easy to keep clean.

Covering capacity, approximately 500 sq. ft. per gallon, one coat. Dries in about 12 hours.

Two coats are recommended, allowing the first coat to become thoroughly dry.

CREO-DIPT WHITE

Double Strength—for Interior or Exterior Use

CREO-DIPT COMPANY, INC.
NORTH TONAWANDA, N. Y.
FACTORIES, SALES OFFICES OR WAREHOUSES IN ALL PRINCIPAL CITIES

Other Creo-Dipt Products: Creo-Dipt Stained Shingles (Wood), Creo-Dipt Mohawk Shingles (Fireproof—made of Cement and Asbestos), Creo-Dipt Fireproof Shingles (Cement and Asbestos), Creo-Dipt Building Papers

See Manufacturers' Index for Information on these Products

CREO-DIPT WHITE (Double Strength)

Natures and Uses

New Creo-Dipt White is a special brushcoat preparation that gives the true Colonial flat white effect. It can be used on either interior or exterior surfaces. On shingles, siding, stucco, stone, brick, or cement, it gives the soft, velvety appearance of a wash combined with extraordinary wear resisting qualities. Obtainable in flat white or tints of ivory, cream, buff and similar shades, it can also be tinted to any desired shade by a painter using ordinary oil paints.

Quality of Creo-Dipt White

Creo-Dipt White is a true architectural finish. It avoids the "painty" look. It has maximum hiding qualities. It remains white and resists the darkening effect of industrial gases.

Superiority of Creo-Dipt White

The superiority of Creo-Dipt White lies in its hiding qualities, ease of application, greater covering capacity, intense whiteness and resistance to weather.

Creo-Dipt White is unusually opaque. You can test this for yourself by brushing Creo-Dipt White and a similar product side by side over a black and white background.

The New Creo-Dipt White flows readily off the brush. It does not stick or drag, making it easy to do a neat, workmanlike job without lap or brush marks. Creo-Dipt White covers approximately 250 sq. ft. two brushcoats or 350 sq. ft. one brushcoat.

Creo-Dipt White is so white that white lead looks gray alongside it. Accelerated weathering tests show that Creo-Dipt White is still in as good condition after five years exposure.

Creo-Dipt White weathers by gradual chalking which produces an ideal surface for repainting and will not peel nor alligator nor will it chalk excessively. Creo-Dipt White resists ocean front climate and salt spray—which ruin ordinary paints rapidly and completely. A large number of high strength pigments protect the oil from the ravages of salt spray wind, snow, rain or sleet and the destructive ultra-violet rays present in all sunlight.

Application

If Creo-Dipt White is to be used on untreated siding, lumber, brick, stone or stucco whether interior or exterior, the surface to which it is to be applied should first have a priming coat consisting of four parts Creo-Dipt White to one part boiled or raw linseed oil. If raw linseed oil is used a small amount of drier should be added. If boiled linseed oil is used, no drier is necessary. After the priming coat is thoroughly dry, the Creo-Dipt White should be applied.

Creo-Dipt Shingles to be finished with Creo-Dipt White are furnished treated with No. 207, a priming coat. They are given one coat of Creo-Dipt White after they are applied.

Detailed directions for the application of Creo-Dipt White are printed on the label of each can. For further information write us, or look for the name Creo-Dipt in your telephone book.

Creo-Dipt Stains

In addition to the new Creo-Dipt White, we manufacture Creo-Dipt Stains for recoloring and preserving old shingles. Creo-Dipt Stains come in the same wide variety of colors as Creo-Dipt Stained Shingles. We also manufacture a special stain for old Asbestos Shingle and Concrete Tile roofs. Look for Creo-Dipt in your telephone book or write to Creo-Dipt Company, Inc., North Tonawanda, N. Y. for complete information.



Charming Kansas City Residence

HARRY L. WAGNER, Architect used Creo-Dipt White on the chimney and brickwork, Creo-Dipt Stained Shingles (wood) on both roof and sidewalls

ESTABLISHED 1827

JOSEPH DIXON CRUCIBLE COMPANY

JERSEY CITY, N. J.

DISTRICT SALES OFFICES

NEW YORK, N. Y., 68 Reade Street
SAN FRANCISCO, CAL., 444 Market Street
BOSTON, MASS., 80 Federal Street
PHILADELPHIA, PA., 612 Public Ledger Building
CHICAGO, ILL., Builders' Building

Products

DIXON'S INDUSTRIAL PAINTS *(Flake Silica-Graphite).*

DIXON'S BRIGHT ALUMINUM.

DIXON MAINTENANCE FLOOR PAINTS.

DIXSPAR VARNISHES (Exterior, Floor, and Aluminum Vehicle Varnishes).

The Company

For over one hundred years the business of the JOSEPH DIXON CRUCIBLE COMPANY has followed every ramification of graphite use with every known grade and form of graphite passing through its laboratories.

The company is, therefore, in position to select and use that kind of graphite best suited to any particular purpose. That this selection is made with the utmost care and with due regard to the purpose for which the graphite is intended is evidenced by the high character and quality of Dixon's products generally and the popularity of *Dixon's Paints* in widely diversified fields.

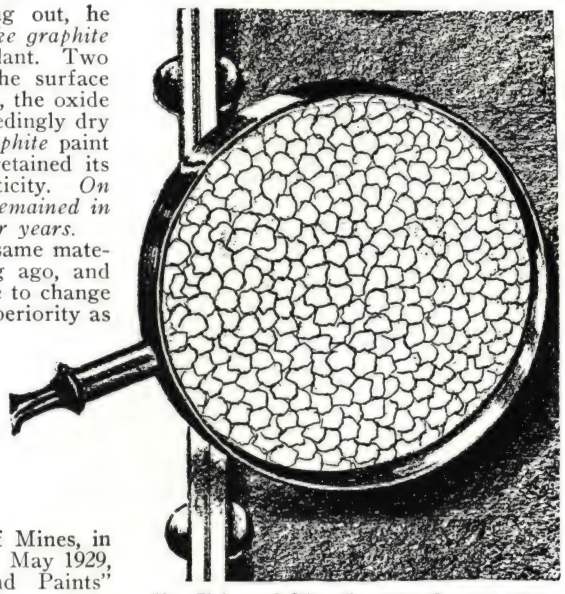
Flake Silica-Graphite as a Paint Pigment

How Dixon Discovered the Value of Flake Graphite as a Paint Pigment

Over sixty-five years ago, alterations in the mining plant of the JOSEPH DIXON CRUCIBLE COMPANY at Ticonderoga, N. Y., resulted in the removal of a large amount of good machinery. As it was necessary to store it out of doors and protect it from rusting, the superintendent started to paint it with a mixture of oxide of iron and linseed oil.

The supply of oxide giving out, he thought to use some of the *flake graphite* which was a product of the plant. Two years after, examination of the surface showed that, though still intact, the oxide of iron paint had become exceedingly dry and brittle, while the *flake graphite* paint had, to a wonderful extent, retained its original toughness and elasticity. *On many of the pieces the paint remained in good condition for twenty-four years.*

We use today precisely the same material used in this trial so long ago, and never have we found any cause to change our views as to its absolute superiority as a protective coating on wood and metal surfaces.



Flat Flakes of Silica-Graphite Overlap Like the Scales of a Fish

Cemented together by a tough elastic "skin" of pure boiled linseed oil, these flakes give to *Dixon's Industrial Paint* a striking resemblance to nature's own best protection against water—the armor of a fish

Flake Silica-Graphite Is Favored by the United States Department of Commerce

The United States Department of Commerce, Bureau of Mines, in Information Circular No. 6123, May 1929, under caption "Pigments and Paints" commends the use of *flake silica-graphite* as a paint pigment because of its opacity and great resistance to deterioration. This statement literally substantiates the claims made by the JOSEPH DIXON CRUCIBLE COMPANY respecting the wearing and protective qualities of Dixon's Industrial Paints in which the pigment used is *flake silica-graphite.*

The Physical Properties of a Silica-Graphite Protective Paint

There are two components in paint—the *pigment* and the *vehicle.* They are of prime importance, for upon them depend the life and wearing qualities of the paint.

Linseed Oil Vehicle—Of all paint vehicles linseed oil is recognized as one of the most suitable because of its ability to withstand wear and exposure. When dry, linseed oil adheres strongly to surfaces upon which it is applied, and even when used alone it offers a certain amount of protection. However, when so used, the film is thin and soon wears away under the influence of the elements and the abrasive action of dust, cinders, etc.

In order to make the film thicker so as to furnish a greater amount of wear resistance, a pigment is added and the resistance to wear is increased in direct proportion to the thickness of this pigment.

Flake Silica-Graphite Pigment—As a paint pigment, graphite is absolutely inert. It is not affected by the action of even the strongest acids or alkalis. It does not undergo any chemical change in use and will not affect the natural resiliency of the oil vehicle.

Natural *flake* graphite, however, needs something to give it further endurance and for that reason we call on the aid of *silica.* The peculiarity of Dixon's Silica-Graphite Paint is that the silica is mined with the graphite and is largely an integral part of the graphite itself.

Silica is sometimes used as a paint pigment but it has no covering power and is hard, rough and transparent while graphite is soft, unctuous and opaque.

Silica and flake graphite are two most excellent paint pigments possessing in the greatest possible degree those most necessary characteristics—inertness and low specific gravity. But to be perfect, each needs just that amount of improvement which the presence of the other affords.

Nature's mixture of *flake silica-graphite* is obtained from our own mines and affords a most superior paint film as compared with a pigment where silica is mechanically added to the graphite.

Advantages of Using Flake Silica-Graphite Paints

(1) They are easier to apply, the unctuous peculiarity of flake graphite giving an ease of brushing not to be found in "tacky" paints.

(2) They are stronger in covering quality, particularly in the darker shades, the tendency of graphite as a paint pigment being toward heavy opacity.

(3) They cover more surface per gallon because of the assistance graphite lends in smoothness, without depreciating the protection of the paint film.

(4) They are more waterproof, graphite having waterproof qualities unsurpassed by any other pigment.

Dixon's Industrial Paints are, therefore, more durable and afford maximum protection because of the *flake silica-graphite* pigment.

DIXON'S INDUSTRIAL PAINTS
(Flake Silica-Graphite)

Where the Use of Dixon's Industrial Paint Is Recommended

For finishing outdoor metal and wood surfaces where unusual wear or climatic conditions present a disturbing maintenance problem.

These paints are waterproof in the rigid sense of the word. Changes in temperature do not affect them.

Covering Capacity—Dixon's Industrial Paints are strong in covering power and have a spreading capacity of 450 to 500 sq. ft. to the gallon.

A Protective Coating for:

Structural Steel	Coal Tipples
Water Conduits	Iron Fences
Grain Elevators	Lamp Posts
Roofs	*Smokestacks
Bridges	Marine Work
Boilers	Steel and Wood Barges
Gas Tanks	Condensers
Oil Tanks	Transformers
Tank Cars	Excavating and Hauling
Water Tanks	Machinery

*As a finish for smokestacks or heated surfaces Dixon's Industrial Paints are without peer, resisting heat up to 500° F.

Dixon's Red Lead Graphite Primer No. 101

Composed of red lead, *flake silica-graphite,* a high grade oxide of iron and tested boiled linseed oil, it meets the requirements of those inclined toward straight red lead because of its strong adherence to metal and long life.



National City Company, New York, N. Y.
McKim, Mead & White, Architects
Geo. A. Fuller Co., Contractors

The unctuous quality of the *flake graphite* prevents "dragging" and destruction of brushes. Because of the nature of its pigment and vehicle, this primer will not become hard and brittle with resultant chipping and scaling, but retains its elasticity. Having a covering capacity of 450 sq. ft. to the gallon it is most economical either from a standpoint of cost per gallon or years of service.

A metal surface finished with a coat of Dixon's Red Lead Graphite Primer No. 101, followed by two coats of Dixon's Industrial Paint *(flake silica-graphite)* will have the best of protection for a period of 9½ years, on the average, without renewal.

Hundreds of testimonials submitted by engineers, chemists, contractors, etc., substantiate this claim.

Dixon's Aluminum Paints

The value of aluminum as a reflective and protective paint, and its ability to lessen evaporation losses is well established.

Its use in oil and gas fields is standard practice. There are, however, many other equally important uses to which this unique paint is adaptable.

Aluminum Graphite—Prepared with the same care as our other *flake silica-graphite* paints, it has established a reputation for quality and durability.

The pigment is flake aluminum and *flake silica-graphite.* The similarity of their flake structure permits them to lap over one another like fish scales forming a film of great elasticity and durability. So closely do they overlap that it is impossible for anything to penetrate to the undersurface. The vehicle is a tough marine spar varnish.

Gases, acids, smoke and other deteriorating influences have practically no effect on surfaces protected by Dixon's Aluminum-Graphite and it is also highly resistant to the effects of the elements. Its unusual durability, reflectivity and low cost per year of service is due to the overlapping of the flakes in a bond of durable spar varnish.

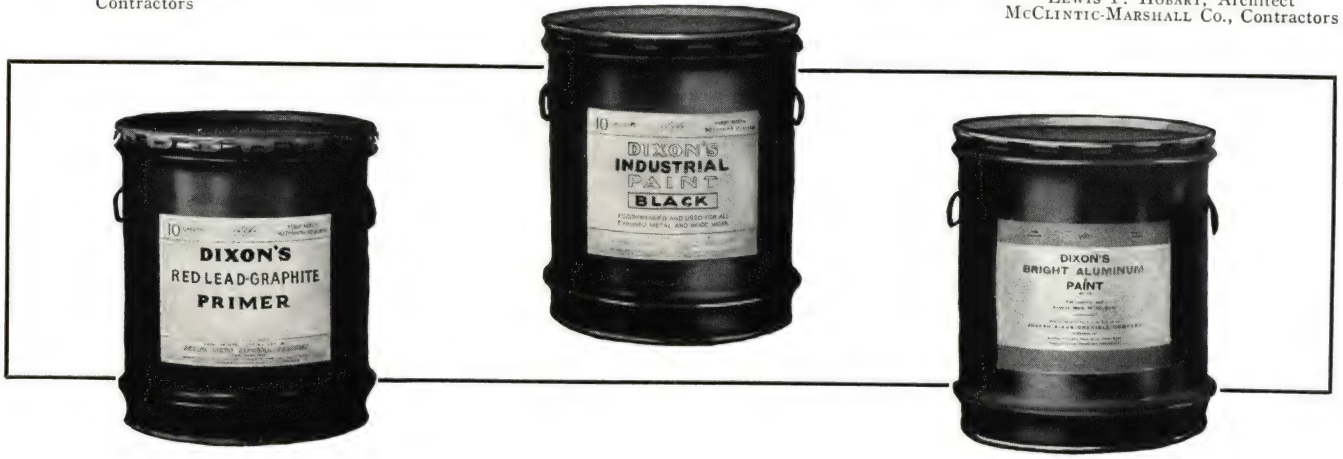
Because of the graphite component, it brushes easily and covers well.

Bright Aluminum—The vehicle used is a tough marine spar varnish giving great resistance to the elements and insuring life and brightness to the *straight aluminum pigment* (Albron).

This paint will not dull or take on a brownish cast with the readiness of ordinary aluminum paints nor will its pigment precipitate as rapidly.



Hotel and Temple M. E. Church, San Francisco, Cal.
Lewis P. Hobart, Architect
McClintic-Marshall Co., Contractors



Specifications for Dixon's Industrial Paints (Flake Silica-Graphite)

In preparing the following specifications covering the application of Dixon's Industrial Paints we have spared no effort to insure their technical and practical correctness.

Each specification is based on our observation during 65 years in the manufacture of metal protective paints and is placed before the architect and engineer with the assurance that in following any specification herein they may feel fully confident that the results therefrom will be of the most satisfactory nature.

Dixon's Industrial Paints *(flake silica-graphite)* are recognized the world over for their protective value and in specifying them the architect or engineer insures for his client permanency of the steel and iron work.

General Conditions

Materials—All paint materials shall be delivered to the building site in the original unbroken containers bearing the manufacturer's stamp or label thereon.

The top of the container to be removed on the site of the work, and the paint properly stirred before being used.

The use of adulterants at any stage of the work is strictly prohibited, nor shall materials be thinned or changed in any way other than specified.

Workmanship—All materials shall be applied by skilled mechanics. Paint shall be evenly spread and thoroughly brushed out. All workmanship shall be executed in accordance with the best practices.

All surfaces to be painted shall be dry and free from foreign matter, dirt, cement, grease, oil, scale, etc. No paint shall be applied until the preceding coat is thoroughly dry.

Specification No. 1

Steel Bridges

Shop Coat—All steel work, including iron and cast steel, shall be thoroughly cleaned of all scale, rust, dirt, grease or other foreign particles and shall be given one shop coat of Dixon's Red Lead Graphite Primer No. 101. Where surfaces of riveted work come in contact they shall be painted with the same material before being assembled.



Painting the Menai Bridge with Dixon's Industrial Paint

This old English suspension bridge carries the Holyhead road from Bangor over the Menai Straits in North Wales. Designed by T. Telford and completed in 1826, it serves to perpetuate the fame of this pioneer bridge builder, and it is significant that Dixon's Industrial Paint has now been chosen to protect it against the elements



Highway Bridge, Haverhill, Mass.

For nearly twenty years this bridge has been protected by Dixon's Industrial Paint. The original coating is still in excellent condition

Field Coat—After erection, all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be touched up with Dixon's Red Lead Graphite Primer No. 101. A first field coat of Dixon's Industrial Paint of approved color shall then be applied. After the first coat is thoroughly dry, a second field coat shall be applied, a difference in shade to be observed between the first and second field coats to insure proper coverage.

Specification No. 2

Structural Steel

Shop Coat—All structural steel work, before leaving the shop shall be cleaned of all scale, rust, dirt, grease or other foreign particles and shall be given one shop coat of Dixon's Red Lead Graphite Primer No. 101. Where surfaces of riveted work come in contact they shall be painted with the same material before being assembled.

Field Coat—After erection all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be touched up with Dixon's Red Lead Graphite Primer No. 101, and then all encased surfaces of the steel work shall be given a coat of Dixon's Black Paint (Alkali Resisting) No. 333.

Miscellaneous—All grillage shall receive one coat of Dixon's Red Lead Graphite Primer No. 101, and one coat of Dixon's Black Paint (Alkali Resisting) No. 333 before setting.



Florianapolis Bridge, South America



Newark Bay Bridge, C.R.R. of N. J., Newark, N. J.

Specification No. 3

Miscellaneous Iron, Ornamental Iron, Steel Partitions, Steel Windows, Kalamein Work, etc.

General—Before shop coat is applied, all steel and iron work shall be thoroughly cleaned of all scale, rust, dirt, grease or other foreign particles. Before the field coat is applied all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be retouched with the same material used for the shop coat, which is to be Dixon's Red Lead Graphite Primer No. 101.

Miscellaneous Iron—All miscellaneous iron work, such as steel lintels, steel bucks, anchors, brackets, etc., shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and one field coat of Dixon's Standard Oxide Red No. 114.

Note: All exposed miscellaneous iron, such as window lintels, etc., shall receive an additional coat of lead and oil paint as specified under "Painting."

Ornamental Iron—All ornamental iron, such as railings, fencing, window grilles, flagpoles, etc., shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and one field coat of Dixon's Standard Oxide Red No. 114. The final coat shall be Dixon's Industrial Paint of approved color.

Note: When colors to harmonize with surrounding woodwork, etc., are desired, the final coat should be lead and oil paint as specified under "Painting."

Steel Partitions—Steel partitions, such as metal toilet partitions, etc., shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and two coats of Dixon's Olive Green No. 110.

Steel Windows—Steel windows shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101, and one shop coat of Dixon's Standard Oxide Red No. 114. The final coat shall be lead and oil paint as specified under "Painting."

Kalamein Work—All kalamein work shall receive one shop coat of Dixon's Red Lead Graphite Primer No. 101. The final coats shall be applied as specified under "Painting."



Equitable Trust Company, New York, N. Y.
Trowbridge & Livingston, Architects
Thompson, Starrett Co., Contractors

Specification No. 4

Dixon's Bright Aluminum for Walls, etc.

Note: Dixon's Bright Aluminum No. 113 is highly recommended for the interiors of workrooms and industrial buildings because of its light reflecting qualities. It does not tarnish, is not affected by sulphurous gases and can be washed with soap and water.

Priming Coat—All plaster surfaces of walls, columns and ceilings shall receive a coat of primer having lime resisting qualities. It shall be applied in accordance with the printed instructions of the manufacturer and shall not be recoated until it has dried hard and absolutely free from tack.

All metal surfaces shall be primed with Dixon's Red Lead Graphite Primer No. 101.

Aluminum Coat—All plastered surfaces of walls, columns and ceilings and all wood and metal trim and doors shall be painted with two coats of Dixon's Bright Aluminum No. 113.

Specification No. 5

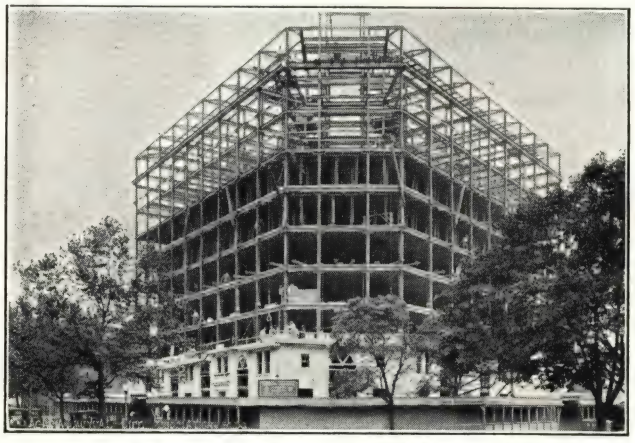
Water Tanks, Smokestacks, Gas Holders, Power Plant Equipment, etc.

Shop Coat—All steel work, including cast iron and cast steel, shall be thoroughly cleaned of scale, rust, dirt, grease or other foreign particles and shall be given one shop coat of Dixon's Red Lead Graphite Primer No. 101.

Where surfaces of riveted work come in contact they shall be painted with the same material before being assembled.

Field Coat—After erection, all damaged surfaces of shop coat, all shop marks, rivets, bolts, etc., shall be touched up with Dixon's Red Lead Graphite Primer No. 101. A first field coat of Dixon's Industrial Paint of approved color shall then be applied. After the first coat is thoroughly dry, a second field coat shall be applied, a difference in shade to be observed between the first and second field coats to insure proper coverage.

Note: For smokestacks and other heated surfaces we recommend Dixon's Black No. 108, or Dixon's Natural No. 107. Both paints will withstand heat up to 500° F. In repaint work two coats are required for best results, and on new work, three coats, including the priming coat (Dixon's Red Lead Graphite Primer No. 101).



Acacia Mutual Life Association, Washington, D. C.
Hoggson Bros., Engineers and Contractors
Barber & Ross, Inc., Fabricators



N. W. Ayer & Son, Inc., Philadelphia, Pa.
R. B. Benckert, Architect
McClintic-Marshall Co., Fabricators

Specification No. 6

Wire Work

All uncoated wire work, including frames, fixtures, etc., shall receive one coat of Dixon's Red Lead Graphite Primer No. 101, and two coats of Dixon's Bright Aluminum No. 113.

All galvanized iron wire work shall receive one coat of Dixon's Red Lead Graphite Primer No. 101 and two coats of Dixon's Bright Aluminum No. 113.

Specification No. 7

Maintenance Painting

Cleaning—All broken or blistered paint, all rust, grease and dirt, must be removed by wire brushes, scrapers, blow-torch, or by sandblasting with fine sand. The method to be selected and made part of the contract. After this preparatory work, exposed parts of the surface to be "spot-coated" with Dixon's Red Lead Graphite Primer No. 101.

Repainting—All surfaces shall be given two coats of Dixon's Industrial Paint of approved color. The second coat to be applied when the first is thoroughly dry and to be slightly different in color to insure proper coverage. Surfaces must be perfectly dry when painted.

Galvanized Iron or Tin Roofing—Before Dixon's Industrial Paint is applied to a new roof, the roof should be washed clean of oil, etc., with a solution of sal-soda. When dry, a first coat of Dixon's Red Lead Graphite Primer No. 101 should be applied, followed by a second and third coat of Dixon's Industrial Paint of approved color.

Note: The same qualities which make Dixon's Industrial Paints so efficient for other exposed surfaces account for its great protection to roofs—a particularly inert pigment and a linseed oil vehicle. We recommend three coats for new metal roofs—the first coat to be Dixon's Red Lead Graphite Primer No. 101 followed by two coats of Dixon's Industrial Paint. On previously painted metal roofs, two coats of Dixon's Industrial Paint is ordinarily sufficient.

This paint is also suitable for canvas and shingle roofs. Where shingles are dry, they should receive a coat of oil, otherwise they will quickly absorb oil from the paint, leaving the pigment without sufficient binding material. Use Dixon's Light or Dark Green for beautifying effect or Dixon's Natural Color for slate effect.

A Few Notable Structures on Which Dixon's Industrial Paints Were Specified and Used

Thousands of tons of steel are in these buildings and hundreds of barrels of Dixon's Industrial Paint were used to assure the steel frameworks that *"ounce of prevention"* against rust and corrosion.

Architects, engineers and contractors are unanimous in their approval of this method of safeguarding and lengthening the life of steel framework.

Dixon's Industrial Paint has made records for long protection service on all types of structures and is universally recognized as being low in cost per year of service.

BALTIMORE, MD.
- Belvedere Hotel
- Chamber of Commerce
- National Marine Bank
- Savings Bank of Baltimore

CHICAGO, ILL.
- Chicago Telephone Co. Building
- Commonwealth-Edison Co. Building
- Fair Department Store
- Illinois Athletic Club

CLEVELAND, OHIO
- City Hall
- Willys-Overland Building

NEW YORK, N. Y.
- Astor Hotel and Addition
- City Investing Building
- Equitable Life Insurance Bldg.
- Hudson Terminal Building
- Lord & Taylor Department Store
- Ritz-Carlton Hotel
- W. & J. Sloane Building
- St. Regis Hotel

OAKLAND
- Y. M. C. A. Building

PHILADELPHIA, PA.
- Stephen Girard Building
- Girard Trust Co. Building
- Ritz-Carlton Hotel
- John Wanamaker Department Store

PITTSBURGH, PA.
- Annex Hotel
- Jenkins Building
- Schenley High School Building

ROCHESTER, N. Y.
- Federal Building
- New York Telephone Building
- Rochester City Hospital

ST. LOUIS, MO.
- City Hospital Pathological Building
- St. Louis Library

SAN FRANCISCO, CALIF.
- Metropolitan Life Insurance Co. Building
- Mills Building
- Palace Hotel
- Postal Telegraph Building
- John A. Roebling's Sons Co. Building

SCRANTON, PA.
- D. L. & W. Railroad Station
- Strand Theatre Building

TRENTON, N. J.
- First National Bank Addition
- Modern Aeros Corporation, Ltd.
- John A. Roebling's Sons Co. Plant

WASHINGTON, D. C.
- Perry Belmont Residence
- Central High School Building
- Riggs Hotel and Theatre
- Telephone Building

WILMINGTON, DEL.
- E. I. duPont de Nemours Powder Plant
- Du Pont Hotel

DIXON'S MAINTENANCE FLOOR PAINTS

All-purpose Floor Coatings

Dixon's Maintenance Floor Paints are all-purpose coatings for use on floors of

Concrete	Linoleum
Composition	Wood

They are designed to give the maximum of durability, the special vehicle used being properly balanced to give this result.

These paints are solid covering and heavy bodied so that a satisfactory finished job can be had in a two-coat operation.

For use in factories, garages, hotels, public buildings, steamships, hospitals, laboratories, railway cars and every place where a protective durable floor coating is required.



For Inside or Outside Use

Dixon's Maintenance Floor Paints may be used inside or out and are particularly adapted to withstand the rigorous action of climatic changes, sleet, rain and salt water to a remarkable degree.

Because of their "all-purpose" characteristics Dixon's Maintenance Floor Paints have met the rigid standards of the marine trade which may be taken as an indication of their superior quality.

They have also found unqualified acceptance in the industrial and railroad fields where service conditions are, as a rule, particularly severe.

Prevent "Dusting" of Cement Floors

Dixon's Maintenance Floor Paints withstand the disintegrating action of the alkali in cement and concrete and effectually prevent "dusting."

They are not affected by hot, cold, fresh, salt or soapy waters, oil, alkali or dirt, and give service over a long period despite hard weather and extraordinary wear.

They dry in six to eight hours, thereby facilitating work which heretofore has been subject to irritating delays.

Colors

Dixon's Maintenance Floor Paints are made in eight conventional colors:

Mahogany Red	Dustproof	Rich Brown	Special Tan
Light Gray	Dark Red	Standard Green	Oak

Specifications

[All cement floors, steps, platforms and wall bases] [All composition floors, steps, platforms and wall bases] [All wood floors] shall receive two coats of Dixon's Maintenance Floor Paint, color selected.

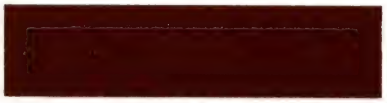
All surfaces to be painted shall be thoroughly cleaned before the paint is applied.

To insure satisfactory performance, Dixon's Maintenance Floor Paint shall not be applied to cement surfaces until at least three months after installation.

DIXON'S INDUSTRIAL PAINTS



Red Lead Graphite Primer—No. 101



Standard Oxide Red—No. 114



Extra Light Gray—No. 102



Medium Gray—No. 105



Black—No. 108



Dark Red—No. 103



Light Gray—No. 106



Light Green—No. 110



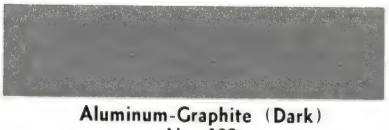
Battleship Gray—No. 104



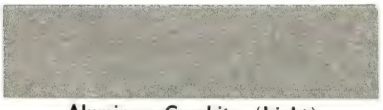
Dark Gray (Natural)—No. 107



Dark Green—No. 112



Aluminum-Graphite (Dark)
No. 109



Aluminum-Graphite (Light)
No. 111



Bright Aluminum
No. 113

DIXON'S MAINTENANCE FLOOR PAINTS



Dustproof



Mahogany Red



Light Gray



Rich Brown



Oak



Dark Gray



Special Tan



Standard Green

DIXSPAR VARNISH



DIXSPAR VARNISHES

Exterior Varnish—Floor Varnish—Aluminum Vehicle

Dixspar Exterior Varnish

A quality varnish unsurpassed for durability and waterproofness.

Dixspar Exterior is extremely elastic and its use is especially recommended on outdoor surfaces that are subjected to rigorous climatic conditions or wear.

It will provide a tough protective film on boats, table tops, floors (where rapid drying is not essential), exposed signs, porch ceilings (wood), sporting equipment, etc.

Directions for Use—Dixspar Exterior flows out smoothly and freely requiring very little brushing, permitting the application of a heavy coat. It is sufficient to draw the brush over the surface two or three times in opposite directions; the final stroke being lengthwise with the panel or grain of the wood.

When used outdoors, Dixspar Exterior should not be applied over shellac. If the surface requires "filling" a good oil or varnish filler should be used, followed by two coats of Dixspar Exterior.

New Woodwork—Apply filler of desired color and follow with two full coats of Dixspar, allowing 12 to 15 hours between coats for thorough drying.

Close Grained Woods (New)—Fill with oil or varnish filler and follow with two full coats of Dixspar Exterior allowing 18 to 20 hours between coats for drying.

For Stain Work—Apply stain to the natural wood and after it is thoroughly dry, smooth down with fine steel wool and apply two coats of Dixspar Exterior.

For Velvet or Eggshell Finish—On all such work as described above on which a velvet or eggshell finish is desired, allow the final coat of Dixspar Exterior 48 hours for drying, and rub down with pumice stone and water. If a polish is desired, use rottenstone and oil, but wait until several days have elapsed before this final operation—this permits Dixspar Exterior to dry stone hard.

Dixspar Floor Varnish

Dixspar Floor in addition to being rapid drying, has excellent waterproof qualities and provides adequate protection even where the surface undergoes hard usage. It withstands heavy foot traffic and it is this characteristic that recommends Dixspar Floor for use on trim, furniture, linoleum, doors and natural wood surfaces throughout the building.

Directions for Use—Dixspar Floor should be applied after the surface has been properly cleaned and all dust, dirt or foreign substances removed. A good clean brush with these precautions taken will insure satisfactory results.

New Floors—After filling with an oil or varnish filler of the desired color, apply two coats of Dixspar Floor allowing 4 to 6 hours for thorough drying between coats.

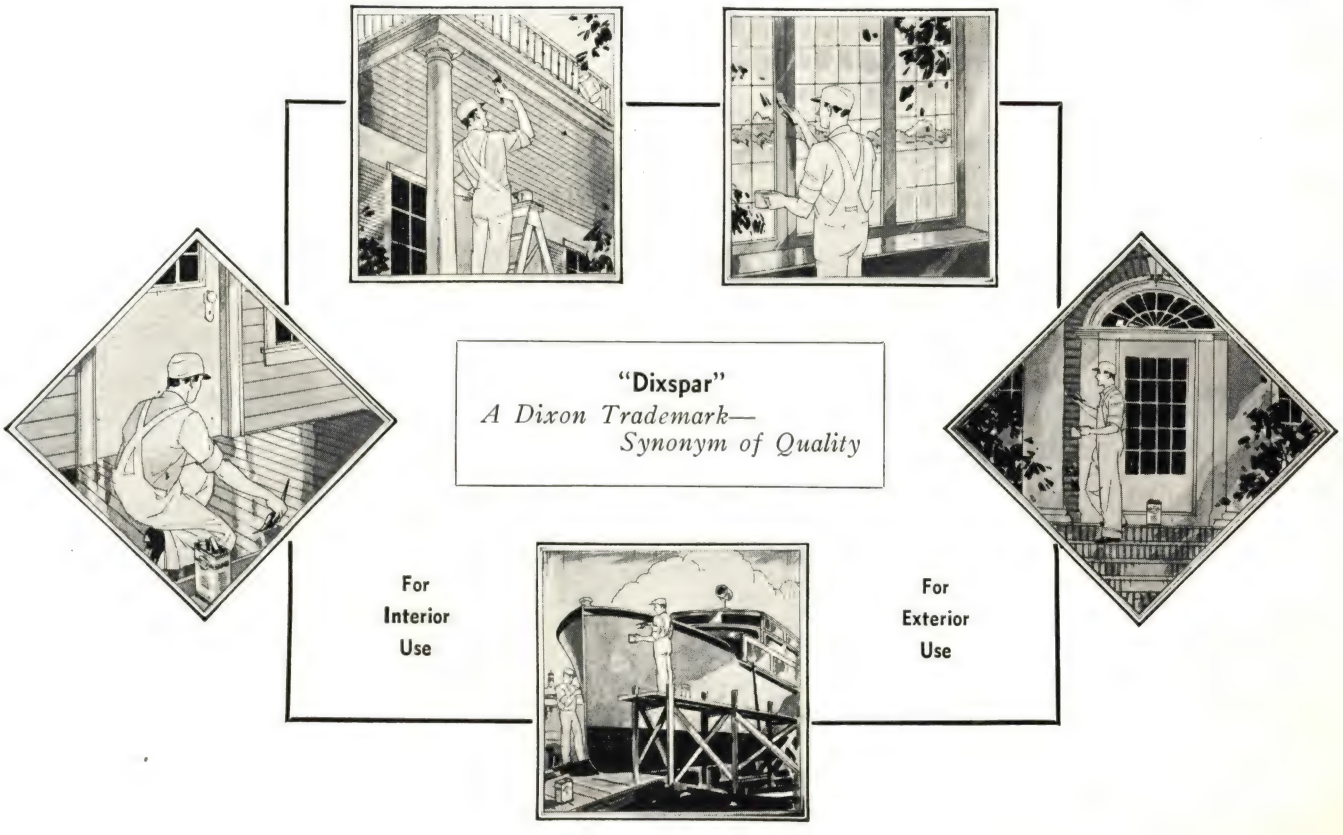
Old Floors—If in fair condition, the application of one coat of Dixspar Floor will renew the original finish and give desired results. If the surface is badly worn, the fragments of the old finish should be removed with a steel scraper and a filler used, followed by two coats of Dixspar Floor.

Dixspar Floor requires no thinning.

Dixspar Aluminum Vehicle

Dixspar Aluminum Vehicle is sufficiently heavy in body to carry up 2½ pounds of aluminum powder per gallon and hold it in suspension. For best results, however, an admixture of 1¾ to 2 pounds of powder per gallon is recommended. An aluminum paint made with Dixspar Vehicle may be used on metal or wood surfaces and will give the most durable of results on exteriors of gas holders, oil and gasoline tanks, transformers, fire escapes, in plant maintenance and similar usages.

The high quality of Dixspar Vehicle can be determined by the fact that it passes the standards of the Navy Department, the War Department (Panama Zone), the Aluminum Company of America, and others of the highest specification agencies.



E. I. DU PONT DE NEMOURS & CO., INC.

Paints, Enamels, Varnishes, Duco

1616 Walnut Street
PHILADELPHIA, PA.

BRANCH OFFICES

BOSTON, MASS., Everett Station (49)
NEW YORK, N. Y., Empire State Building
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CALL NEAREST OFFICE FOR SPECIAL ARCHITECTURAL REPRESENTATIVE

Products

- Du Pont Duco (Brush and Spray)
- Du Pont Prepared Paint (for all Exterior Surfaces)
- Du Pont FlowKote Enamel
- Du Pont Flat Wall Paint
- Du Pont Primer Sealer
- Du Pont White Enamel Undercoat
- Du Pont Kromate Metal Primer
- Du Pont Antoxide (Rust Inhibitive)
- Du Pont Du-Lite (Mill White)
- Du Pont Floor and Deck Enamel
- Du Pont Wheeler's Paste Wood Filler
- Du Pont Penetrating Stain
- Du Pont Acid Stain
- Du Pont Stain Sealer
- Du Pont Wonderlac
- Du Pont Prepared Wax
- Du Pont Shipoleum Interior Varnish
- Du Pont Supremis Floor Varnish
- Du Pont Chi-Vo (to Approximate Rubbed Finish)
- Du Pont Navalite Varnish (Exterior)
- Du Pont Trim and Trellis Green

DU PONT
REG. U.S. PAT. OFF.

The Du Pont Line

The quality reputation enjoyed by the Du Pont line of Finishes has been built on two primary factors: the establishment of rigid standards of quality, and the setting up of machinery and methods to insure strict adherence to these standards. These two principles have established in the public mind a confidence in Du Pont products, and the strict adherence to these standards assures the architect of the best possible results.

With its unique technical and scientific experience, the Du Pont Company combines a practical paint manufacturing experience which dates back over a century—with the old Harrison paint line, the Yellow Can Varnishes of the Chicago Varnish Works, and the stains, fillers and finishes formerly manufactured by the Bridgeport Wood Finishing Company as antecedents of the present Du Pont line.

Du Pont Wheeler's Paste Wood Filler

The original silex wood filler, used by the leading piano and furniture manufacturers for over 40 years. It is specified by leading architects for all types of building construction, including the finest public and residential work. Forms a permanent, unshrinkable, transparent foundation in the pores of the wood for the support of the finishing coats.

Supplied in Transparent, Walnut or Light Antique, Golden Oak, Mahogany, Mahogany N (for dark mahogany effects), Ebony and Special White.

(1) Specifications—Filler to be reduced with turpentine or benzine at the rate of 8 to 10 lb. of filler to 1 gal. of reducer. Apply 1 brush coat of Du Pont Wheeler's ( ) Paste Wood Filler. Allow work to stand until the filler has set or become dull, then rub the filler well into the pores of the wood, wiping off the surplus with a cloth or sea moss, rubbing across the grain. Allow to dry at least 24 hours before finishing coats are applied.

Du Pont Architectural Varnishes

These varnishes, formerly sold under the Chicago "Yellow Can" label, have been specified by architects for the past 50 years, and are accorded first place in the varnish field.

Shipoleum Interior Finish—The very highest grade of interior varnish. Should be specified for use on fine residences, churches, schools, hospitals, asylums, public buildings, bathrooms. It stands heat and moisture, is very elastic and never cracks. May be rubbed and polished.



Supremis Floor Finish—The first varnish put on the market especially for floors, and one that has always retained its leadership. It is a remarkable wood preservative, dries hard and elastic, is extremely pale in color, is thoroughly waterproof and will not mar or scratch white.

When rubbed, it produces the soft eggshell luster of French polish.

Chi-Vo—Noted for its beautiful rubbed appearance without the labor and expense of rubbing. This is a distinctive varnish, made by a new process, and has a third more spreading capacity than ordinary varnishes.

Should be specified as a finishing coat over Shipoleum Varnish.

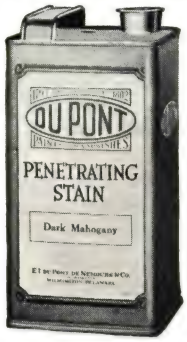
Navalite (Spar)—Especially adapted for use on front doors, vestibules and any exterior surface subject to all kinds of weather conditions. It will retain its luster and elasticity under severe conditions and meets every requirement of drying, appearance and durability.

(2) Specifications—Apply 3 coats of Du Pont Architectural ( ) Varnish. Each coat to be sanded (except Chi-Vo) when thoroughly dry, with No. 00

sandpaper, and dusted. Final coat to be rubbed to flat, eggshell or polish, as desired.

Note: If time or expense will not permit rubbing, the use of Chi-Vo is recommended.

Du Pont Penetrating Stain



For producing on practically all woods, with the possible exceptions of mahogany and walnut, clear toned stained effects.

These stains do not raise the grain of the wood or show laps. They penetrate the wood deeply, bringing out the full beauty of the grain.

Where economy of finish is a factor, the oak shades may be used as a 1-coat finish, but are generally finished over with stain sealer and wax; stain sealer and varnish; filler, stain sealer and wax; or filler and varnish. On close grained woods, the use of filler is not necessary.

The mahogany shades are generally used on such close grained woods as birch, gumwood, pine, fir, cypress and whitewood, and should be finished over with stain sealer and varnish coats.

Regularly supplied in the following colors:

Light Oak, Brown Oak, Golden Oak, English Oak, Flemish Oak, Walnut, Light Mahogany, Dark Mahogany, Brown Mahogany, Mission Green, and Circassian Walnut (for gumwood only).

(3) Specifications—Apply brush coat of Du Pont ( ) Penetrating Stain. Allow work to stand for 4 or 5 minutes and wipe off surplus stain with a cloth to secure uniform effect. Allow to dry 24 hours before applying further finishing coats.

Du Pont Stain Sealer

A sealing coat for Penetrating Stains which also perfectly supports the varnish coats.

This product is much superior to shellac for the purpose, as it prevents the stain from "bleeding" through the varnish coats. For best results, do not specify the use of Penetrating Stains without the use of Stain Sealer.

(4) Specifications—Apply 1 brush coat of Stain Sealer over Penetrating Stain; allow to dry 24 hours and sand or hair lightly. Dust work before applying varnish coats.

Du Pont Acid Stain

Intended for use on all types of wood in producing the delicate light gray and brown satiny effects not possible with any other type of stain.

The mahogany effects are generally used on genuine mahogany wood in connection with Wheeler's Paste Wood Filler, such effects being finished over with varnish coats. Use filler on all open grain woods. Grays and fumes are generally finished over with Wonderlac.

Regularly supplied in the following colors:

No. 1000 Dark Fumed Oak, No. 1314 Light Fumed Oak, Standard Gray, Satin Gray, Steel Gray, Smoked Pearl, Mahogany, Dark Mahogany, Brown Mahogany. Write for panels showing new gray and brown tones.

(5) Specifications—Apply 1 brush coat of Du Pont ( ) Acid Stain. Allow work to dry thoroughly, about 12 to 24 hours, and sand surface smooth with No. 00 sandpaper. Dust work before applying further finishing coats.

Note: If time or expense will not permit rubbing, the use of Chi-Vo is recommended.

Wonderlac

A dull lusterless finish adapted for use *only* over the Gray and Fumed Acid Stains. Does not change the color of the most delicate shades and forms a dampproof finish.

(6) Specifications—Apply 2 brush coats of Wonderlac over Standard Gray (or Fumed Oak) Acid Stain, allowing 8 hours between coats for drying.

Du Pont Prepared Wax

Used in producing the waxed effect on interior woodwork and floors.

(7) Specifications—Apply 2 coats of Prepared Wax. Apply with cloth evenly over entire surface; allow to stand 10 to 20 minutes and polish with a soft cloth. Second coat may be applied in the same manner 24 hours after first coat has been polished.

Du Pont Enamel Undercoat (White)

This is the proper undercoat for an enamel finish. Possesses excellent spreading qualities presenting full body on the work. Forms a hard, smooth finish, causing the enamel to stand out with full gloss and luster.

(8) Specifications—Apply 2 brush coats of Du Pont Enamel Undercoat reducing, if necessary, to meet the conditions of the surface being painted.

FlowKote Enamel



A high grade strictly long oil, zinc pigment enamel that will not change color. Adapted for both interior and exterior work. Supplied in White and Ivory, in both gloss and rubbed finish. The latter type gives the hand rubbed effect without the labor and expense of rubbing; and if rubbed finish is specified, no rubbing is necessary for the final coat.

(9) Specifications—In addition to the Enamel Undercoat mentioned above, two additional coats should be applied as follows:

Third Coat—Equal parts Undercoat and Flowkote Enamel.

Fourth Coat—Du Pont Flowkote Enamel.

Note: This would make an exceptionally high grade Flowkote finish in four coats, counting the two coats of Undercoat. Sand all coats with the exception of the finish coat. Final coat may be in gloss or rubbed effect, white or ivory, as desired, or the material may be tinted to any shade with Du Pont Harrison Brand Oil Colors.

Du Pont Special Lab Enamel (Fumeproof)

Special Lab Enamel (or Fumeproof Enamel) is an intensely white product composed of specially prepared vehicle and selected pigments, being designed to withstand extraordinary conditions, such as fumes, gaseous vapors, etc., which readily discolor usual enamel.

It dries with a hard, durable elastic film of either eggshell or high gloss effect and may be repeatedly washed. Although primarily prepared for use in hospitals, laboratories, bakeries, factories, etc., it is an exceptional general utility product.

Du Pont Lab Enamel is furnished in white only, gloss or eggshell, but may be easily tinted to any shade desired with Du Pont Oil Colors.

(10) Specifications (New Work)—*Preparation*—All surfaces must be perfectly dry and all loose or scaling particles removed by wire brushing. Grease or oil spots shall be removed by washing thoroughly with benzine or gasoline.

Specification No. 1, for New or Unpainted Plaster, Concrete, Wall Board or Brick—

Note: If the surface to which the coating is to be applied is green or particularly strong in alkali, use the following clause: Apply a neutralizing coat of zinc sulphate crystals, using 3 to 4 lb. dissolved in a gallon of water. After applying solution, allow to dry and then brush off any loose crystals which may remain.

First Coat—Du Pont Primer Sealer.

Second Coat—Du Pont Enamel Undercoater to each gallon of which has been added ½ gal. of Du Pont Special Lab Enamel.

Third Coat—Du Pont Special Lab Enamel—egg shell or full gloss.

Specification No. 2, for Woodwork—*First Coat*—Du Pont Enamel Undercoater.

Second Coat—Du Pont Enamel Undercoater to each gallon of which has been added ½ gal. of Du Pont Lab Enamel.

Third Coat—Du Pont Lab Enamel.

Specification No. 3, for Metal Walls and Ceilings—*First Coat*—Kromate Metal Primer.

Second Coat—Du Pont Enamel Undercoater without thinning.

Third Coat—Du Pont Enamel Undercoater to each gallon of which has been added ½ gal. of Du Pont Lab Enamel.

Fourth Coat—Du Pont Lab Enamel.

(11) Specifications (Old Work)—***Preparation***—Plaster, brick, or concrete surface shall be carefully wire brushed to remove scaling or loose particles. Holes or cracks shall be filled smooth with plaster of paris and such places treated with Elastic Wall Primer and Enamel Undercoater, same as for new work as given in Specification No. 1.

Specification No. 4—*First Coat*—Du Pont Enamel Undercoater.

Second Coat—Du Pont Special Lab Enamel.

Note: Where the old film is not badly discolored, omit the first coat of Enamel Undercoater.

Du Pont Prepared Paint



An exceptionally durable house paint made to withstand extreme weather conditions. Has exceptional durability and covers well.

Color card on request, showing 30 attractive colors.

(12) Specifications—Coat all knots and sappy streaks with shellac, to prevent showing through subsequent paint coats.

On very resinous knots the resinous matter should be "pulled out" of the surface by the use of the blow torch, followed by a brush coat of turpentine or benzole just before application of the priming coat.

Apply 3 coats of Du Pont Prepared Paint ( ) as follows:

Priming Coat—Thin to priming consistency with equal parts linseed oil and turpentine. (For soft, open grained woods like white pine and poplar, thin with 3 parts oil and 1 part turpentine. On resinous woods, such as yellow pine, reduce with 1 part oil and 3 parts turpentine.) All nailholes to be puttied after first coat.

Second Coat—Thin to working consistency with a mixture consisting of 1 part raw linseed oil and 2 parts turpentine. Brush out well.

Third Coat—Apply without thinning, except when conditions warrant the use of a little turpentine.

Du Pont Flat Wall Paint



A ready-to-use interior wall finish, producing a soft, matte surface that can be repeatedly washed. It covers exceedingly well and does not show brush marks.

Supplied in 10 colors and white. Send for color card, showing these colors in various combinations.

(13) Specifications—*First Coat*—Du Pont Primer Sealer.

Note: Du Pont Primer Sealer is intended for the purpose of sealing and priming. In case covering is more important than sealing, Flat Wall Paint may be added to the Primer Sealer as a first coat, not to exceed 1 qt. of Flat to the gallon of Primer Sealer.

Second Coat—Du Pont Flat Wall Paint of package consistency.

Third Coat—Same as second coat.

Du-Lite (Mill White) Enamel



Du-Lite is a mill white of lasting whiteness. In its manufacture the oils are treated by a unique and exclusive process called "thermostatic control." Du-Lite stubbornly resists discoloration—remains white over a long period of service.

Du-Lite is a white enamel made in the following finishes: Du-Lite Undercoater, Du-Lite Gloss, Du-Lite Eggshell and Du-Lite Flat. Three coats recommended for all new or unpainted work.

(14) Specifications for Use Over Cement, Concrete, Brick and Plaster—All surfaces must be thoroughly dry and free from grease and dirt.

(*Caution:* New or green surfaces, particularly green or strong in alkalis, should first be washed with a solution made by dissolving 3 to 4 lb. of zinc sulphate in 1 gal. of water.)

First Coat—Du Pont Primer Sealer.

Note: Primer Sealer is intended for the purpose of sealing and priming. In case covering is more important than sealing, Du-Lite Undercoater may be added to the Primer Sealer as a first coat, not to exceed 1 qt. of Undercoater to the gallon of Primer Sealer.

Second Coat—Du Pont Du-Lite Undercoater to each gallon of which has been added ½ gal of Du-Lite Enamel.

Third Coat—Du Pont Du-Lite, Gloss, Eggshell or Flat.

Where only 2 coats are used, the following specification is recommended:

First Coat—Du Pont Du-Lite Undercoater.

Note: Where brick and concrete surfaces are very porous, Primer Sealer should be added to the Undercoater for a first coat, using approximately equal amounts of the Primer Sealer and the Undercoater.

Second Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

(15) Specifications for Use Over Wood and Wall Board—All surfaces must be thoroughly dry and free from grease and dirt. Knots and sappy places in wood shall be shellacked before painting and all nailholes puttied after first coat.

First Coat—Du Pont Du-Lite Undercoater reduced to priming consistency with equal parts of pure raw linseed oil and spirits of turpentine or turpentine substitute.

Second Coat—Du Pont Du-Lite Undercoater.

Third Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

Note: Where only 2 coats are used, the second coat may be omitted.

(16) Specifications for Use Over Structural Iron or Steel and All Metal Work (except Galvanized

Iron)—Metal surfaces shall be cleaned of all scale, dirt, rust and grease.

First Coat—Du Pont Kromate Metal Primer.

Second Coat—Du Pont Du-Lite Undercoater.

Third Coat—Du Pont Du-Lite Gloss, Eggshell or Flat.

Note: Where only 2 coats are used, the first coat may be omitted.
Note: When galvanized iron is used, apply a solution of copper sulphate, using 8 oz. in 1 gal. of warm water. When dry, priming coat, as above, may be applied.

Du Pont Primer Sealer

The proper foundation for Du Pont Flat Wall Paint and Du-Lite. Stops the suction in plaster walls and prevents plaster burns from showing through subsequent coatings.

(17) Specifications—See Du Pont Flat Wall Paint and Du-Lite Specifications.

Du Pont Old English Paint Oil

Old English Paint Oil is a specially prepared vehicle for general painting purposes. The oil is made on a China wood oil base, which is well known as one of the most complete oxidizing oils in existence. It has practically the same body as linseed oil, although much lighter in color, making it particularly well adapted for use with light colored paints. When Du Pont Old English Paint Oil is used no driers are required. Furthermore, Old English Paint Oil does not "burn up" the life of the linseed oil generally incorporated in paints as driers are inclined to do. This product when used as a reducer of gloss or flat paints adds to their durability, makes them more washable and more easily applied.

It is unsurpassed as a wall size, being steamproof and waterproof. Old English Paint Oil is an exceptional floor dressing. It will not darken wood nor bruise white, but dries with a hard, tough, elastic surface. Two coats give a good gloss finish. By adding turpentine Old English Paint Oil will give a beautiful satin gloss effect, depending upon the quantity of turpentine used.

A few other general uses of this product are:

When added to shingle stain it binds the colors free from wash. For tempering varnishes and glossing paints. As a blender for raw oils. For dressing oil cloth and linoleum. For application to exterior brick or cement surfaces as a waterproofing material. Makes green and black paints dry quickly and hard. Resists mildew.

Antoxide (Rust Inhibitive)



A rust inhibitive paint with a varnishlike vehicle, that completely covers the surface and prevents moisture from attacking the metal and causing rust. It prevents formation of rust beneath the coating as well as progressive oxidation where it has already begun. This paint withstands acid fumes to an unusual degree, therefore is peculiarly adapted for use around smelters, acid plants, paper and other mills. Also used on water towers, inside and out, as it does not foul water.

(18) Specifications—Surface to be free from grease, dirt and dust. Wire brush to remove scale.

First Coat—Du Pont Kromate Metal Primer.

Second Coat—Du Pont Antoxide ( ), to each gallon of which has been added 1 pt. of turpentine.

Third Coat—Du Pont Antoxide ( ), as contained in package.

Du Pont Kromate Metal Primer

One of the latest developments in metal primers for structural steel or sheet metal, the principal pigment being basic lead chromate. Supplied in ready mixed form and is far superior to red lead in rust inhibitive properties.

(19) Specifications—See Du Pont Flat Wall Paint and Antoxide specifications.

Du Pont Floor and Deck Enamel



Hard drying, wear resisting high gloss enamel paint for preserving exterior and interior wood and concrete floors. Supplied in 11 colors.

(20) Specifications (Wood Floors)—*First Coat*—Du Pont Floor and Deck Enamel Paint ( ) to each gallon of which has been added 1 pt. pure turpentine.

Second Coat—Du Pont Floor and Deck Enamel Paint ( ) as received in original package.

(21) Specifications (Concrete Floors)—*First Coat*—Du Pont Floor and Deck Enamel Paint ( ) to each gallon of which has been added from ½ to 1 pt. pure turpentine.

Second Coat—Du Pont Floor and Deck Enamel Paint ( ) as received in original package.

(*Caution:* Concrete floors should age for at least 30 days before painting. Refer Du-Lite Specification 14 for new concrete wall and ceiling surfaces.)

Du Pont Duco (Spray Application)

Information supplied on request.

Du Pont Trim and Trellis Green



Trim and Trellis Green is a revolutionary trim green, made possible through Du Pont's latest chemical achievement—Dulux Vehicle. Extra durability, quick drying, and resistance to fading are only a few of its advantages over orthodox green paints. This sensational new product is setting new standards of durability and has solved many of the heretofore commonly regarded inherent weaknesses of exterior greens.

It retains its good appearance 50% to 100% longer than ordinary greens. It is extremely resistant to mildew and fungus growths. It is quick drying—and consequently free from the hazards of dirt and dust collection. It brushes out freely, with a beautiful gloss and a smooth, even finish that is particularly free from brush marks. Superior in resistance to fading. Will not check or crack.

Trim and Trellis Green has enjoyed an enviable reputation with painters and architects for the past eighteen months.

Recommended for application in three coats for new work, or two coats for repainting. Supplied in four attractive shades —Jade Green, Light Green, Dark Green, and Bronze Green.

Special Note

Realizing that the architects of today are constantly striving for uniqueness, economy and beauty, but not at the expense of quality or serviceability, the Du Pont Company, research leaders in the chemical field, is vitally interested in encouraging, assisting and promoting the architects' handiwork.

The Architectural Division of the Du Pont Company is maintained for the express purpose of co-operating with the architectural profession. Every attempt is made to study the problems pertaining to the profession, and the use of the service of one of the Du Pont architectural representatives or direct contact with any of the offices is cordially welcomed.

In addition to this, a selected list of finished panels, the result of exhaustive research with the architects, is kept on hand at all times awaiting your requests. Every panel carries a complete outline of the finishing procedure.

THE EAGLE-PICHER LEAD COMPANY

Manufacturers of Lead Pigments for Paints

GENERAL OFFICES

Temple Bar Building, CINCINNATI, OHIO

BALTIMORE, MD., 359 Guilford Avenue
BOSTON, MASS., 11 Wharf Street
BUFFALO, N. Y., 39-43 Mechanic Street
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CINCINNATI, OHIO, 1030 Broadway
CLEVELAND, OHIO, 1200 W. Ninth Street
DALLAS, TEX., 600 No. Caruth Street
DETROIT, MICH., 7310 Woodward Avenue
JOPLIN, MO., 214 W. Third Street
KANSAS CITY, MO., 2801 Terrace Street
MINNEAPOLIS, MINN., 437 Harding St., N.E.
NEW ORLEANS, LA., 411 So. Peters Street
NEW YORK, N. Y. 420 Lexington Avenue
PHILADELPHIA, PA., Fourth and Cherry Sts.
PITTSBURGH, PA., 49 Terminal Way, S.S.
EAST ST. LOUIS, ILL., 305 St. Clair Avenue

For Eagle Home Insulation, see Manufacturers' Index

Eagle White Lead—For All Types of Painting



Pure lead paint (made from white lead carbonate ground in linseed oil) continues to be the most satisfactory answer to all general painting problems. In the hands of a good painter, it is quickly mixed to suit *exactly* all the requirements of each job. It readily fits into any decorative plan, for the painter tints it to the desired shade on the job.

Pure lead paint expands and contracts with changes in temperature; the film is elastic and long wearing despite severe weather conditions. It wears away slowly, so that when repainting is necessary, the old film forms a perfect base for the new white lead coats without burning or scraping off.

Eagle White Lead comes in two forms: heavy paste and easily-mixed *soft paste*. Both are pure lead carbonate ground in linseed oil, but *soft paste* contains more oil. This additional oil, ground in at Eagle factories, saves the painter time in preparing the mixture for the brush. Both heavy and *soft paste* Eagle White Lead are available in 100, 50, 25 and 12½-lb. air-tight steel kegs.

For Interior Decoration—*(a) Flat Effects and "Egg-Shell" Gloss Finishes*—When pure white lead is thinned to brushing consistency with Eagle Flatting Oil, the resulting paint provides a durable finish which may be tinted to any color required by the decorative plan. The paint dries into a smooth washable surface showing no brush marks.

Before application, the wall surface should be thoroughly dry; if, for example, paint is applied on plaster walls which are still damp, cracking will develop. No amount of quality materials and skillful workmanship can avert it. Loose paint scales, if present, must be scraped and sandpapered off; oil or grease spots must be removed, for paint will not adhere to these surfaces. All dust must be wiped off; otherwise it is liable to mix with the paint and discolor it.

General Formulæ (heavy paste only is considered):

New Inside Work

Priming Coat

Eagle White Lead	100	lbs.
Pure Raw Linseed Oil	3	gals.
Pure Turpentine	1	gal.
Best Japan Drier	1½	pts.
Paint produced	7	gals.

Second Coat

Eagle White Lead	100	lbs.
Pure Raw Linseed Oil	1½	gals.
Pure Turpentine or Eagle Flatting Oil	1½	gals.
Best Japan Drier	1	pt.
Paint produced	5⅞	gals.

Third Coat—Oil Gloss

Eagle White Lead	100	lbs.
Pure Raw Linseed Oil	3-3½	gals.
Pure Turpentine or Eagle Flatting Oil	1	pt.
Best Japan Drier	1	pt.
Paint produced	6-6½	gals.

Third Coat—Flat

Eagle White Lead	100	lbs.
Turpentine or Eagle Flatting Oil	3 -3½	gals.
Paint produced	5¾-6¼	gals.

Old Inside Work

First Coat

Eagle White Lead	100	lbs.
Pure Raw Linseed Oil	1	gal.
Pure Turpentine or Eagle Flatting Oil	2-3	gals.
Best Japan Drier	1	pt.
Paint produced	5¾-6¼	gals.

Second Coat—Oil Gloss

Eagle White Lead	100	lbs.
Pure Raw Linseed Oil	3-3½	gals.
Pure Turpentine or Eagle Flatting Oil	1	pt.
Best Japan Drier	1	pt.
Paint produced	6-6½	gals.

Second Coat—Flat

Eagle White Lead	100	lbs.
Turpentine or Eagle Flatting Oil	3 -3½	gals.
Paint produced	5¾-6¼	gals.

Note: Eagle Flatting Oil, as recommended in the foregoing specifications, is obtainable in quart, gallon, and 5-gallon packages. A companion product to Eagle White Lead, Eagle Flatting Oil is indispensable in effecting the rich, tasteful wall finishes made from pure white lead paint.

In the foregoing formulæ, no consideration has been made for color other than that of the natural gleaming whiteness of pure lead paint. Any oil colors of known quality effectively combine with Eagle White Lead; a tinting chart will be sent on request.

(b) Plastic Finishes from White Lead Paint—Dignified, low-relief textures can be secured with Eagle White Lead. Tones and shades are limitless, depending on the motif of the individual decorative scheme. Any skilled craftsman can quickly execute these tasteful plastic finishes; a detailed booklet on this subject will be sent without charge to any architect desiring it.

For Exterior Decoration—Pure lead paint has long enjoyed unequalled prestige for durability and beauty in outside painting work. The surface, prior to painting, must be prepared in general as suggested under "Interior Decoration." General Formulæ (*soft paste* only is considered):

Old Outside Work

First Coat

Eagle Soft Paste White Lead	100	lbs.
Raw Linseed Oil	3	qts.
Turpentine	1¾	gals.
Best Japan Drier	1	pt.
Paint produced	6	gals.

Second Coat

Eagle Soft Paste White Lead	100	lbs.
Raw Linseed Oil	2½	gals.
Turpentine	1	pt.
Best Japan Drier	1	pt.
Paint produced	6¼	gals.

New Outside Work

Priming Coat

Eagle Soft Paste White Lead	100	lbs.
Raw Linseed Oil	2¾	gals.
Turpentine	1½	gals.
Best Japan Drier	1	pt.
Paint produced	7⅞	gals.

For very light-colored woods ½ gal. more of oil may be added.

Second Coat

Eagle Soft Paste White Lead	100	lbs.
Raw Linseed Oil	1	qt.
Turpentine	1½	gals.
Best Japan Drier	1	pt.
Paint produced	5⅜	gals.

For very light-colored woods ¼ gal. more of oil may be added.

Third Coat

Eagle Soft Paste White Lead	100	lbs.
Raw Linseed Oil	2½	gals.
Turpentine	1	pt.
Best Japan Drier	1	pt.
Paint produced	6¼	gals.

For very light-colored woods 1 pt. more of oil may be added.

Eagle Sublimed Blue Lead—for Metal Surfaces

Ten reasons for rustproofing with sublimed blue lead:

(1) Proper basicity, chemically stops corrosion.
(2) Exceptional durability; does not crack, check or peel.
(3) Elasticity and toughness in oil.
(4) Extreme fineness and smoothness.
(5) Easy brushing, spraying, and dipping qualities, air dried or baked.
(6) Remarkable opacity.
(7) Pleasing color—being slate gray and easily tinted.
(8) Exceptionally low cost per square foot.
(9) Will not harden in the keg.
(10) Can be used with treated oils and varnishes of neutral character.

Sublimed blue lead is a fine, slate-gray powder, produced by sublimating galena ore (lead sulphide) in special furnaces. The pigment is accurately mixed with linseed oil in proper proportions and ground. No other raw materials are used. Sublimed Blue Lead is not only highly efficient for rustproofing, but is also extremely economical, both in original cost and long service.

A gallon of Sublimed Blue Lead will cover six hundred to eight hundred square feet of metal surface of average smoothness, and its use will assure protection for an unusually long period. Its easy spreading qualities cause it to require a minimum of labor in application.

Where to Use Sublimed Blue Lead

Sublimed Blue Lead is an ideal pigment for every purpose requiring a metal protective paint. Its first use is as a priming coat (direct to the metals). Sublimed Blue Lead is equally good for second and finishing coat work for metal or wood. To easily identify the different coats when Sublimed Blue Lead is used as a priming coat, it may be painted over with Eagle White Lead in Oil or Eagle Sublimed White Lead or mixed with either of them or with other combinations; such as, red lead, American vermillion, commercial chrome green or commercial chrome yellow. It can be brushed, sprayed, dipped, air dried, or baked.

Estimating Paint Requirements on Structural Steel

The scale below represents a method employed by an important steel fabricator for rapidly estimating the approximate paint requirements of large projects. Based upon the use of Sublimed Blue Lead, which as a priming coat, covers from six hundred to eight hundred square feet per gallon, this chart expresses the gallons of paint required per ton of steel in various types and shapes:

Average Highway Bridges	0.4	gals.	per ton
Highway Beam Spans and Lattice Railing	0.8	gals.	per ton
Light Mill Building	0.4	gals.	per ton
Heavy Mill Building	0.32	gals.	per ton
Plate Girders, Railway or Highway	0.24	gals.	per ton
Heavy Highway and Railway Truss Spans	0.32	gals.	per ton
Office Buildings	0.2	gals.	per ton
Railing Beam Bridges	0.2	gals.	per ton

For estimating graphite or iron oxide paint requirements, *add 25% more* paint to the scale above. For estimating red lead requirements, *add* 50% *more* paint to the scale.

Thus it is readily apparent that Sublimed Blue Lead affords a substantial quantity saving over graphite or iron oxide paint, and red lead.

How to Use Sublimed Blue Lead—The removal of rust, mill scale and dirt should be done generally by sand blasting or through the use of metal brushes, scrapers, chisels, hammers or other effective means. Bright steel should be exposed in all cases. If sand blasting is used, the first coat of paint must follow immediately.

Oil and grease may be removed by the use of gasoline or benzine. Do not apply paint on wet or damp surfaces and in no case until preceding coat is dry and hard. Allow two to four days before applying second coat for exterior work. For priming coat on interior allow one week before applying a second coat, and twenty-four hours between second and third coats.

Paint shall be evenly spread and shall be thoroughly brushed out. Where solder fluids have been used on metal surfaces, it shall be cleaned thoroughly with benzine before any paint is applied. All rivet heads and bolts, and all edges and corners shall be thoroughly covered with paint in painting structural steel or other metal work.

In exceptional instances pickling is advisable for small work and especially before painting galvanized metal, otherwise treat it with a solution of eight ounces copper sulphate to one gallon of soft water, allow to dry and brush off, follow by using Sublimed Blue Lead. Paint shall be thoroughly stirred before being removed from container and while it is being applied.

How to Secure Sublimed Blue Lead—Sublimed Blue Lead in Oil sells at the same low price as Eagle White Lead in Oil and may be had in the following sizes: 12½, 25, 50 and 100-lb. containers, or may be secured from a reliable paint manufacturer by specifying pure Eagle-Picher Sublimed Blue Lead mixed to paint consistency ready to apply.

Paint Formulæ

Sublimed Blue Lead in Oil (paste)

First Coat

Sublimed Blue Lead in Oil	100	lbs.
Raw Linseed Oil	2⅔	gals.
Turpentine or paint and varnish manufacturers' 48° to 50° Naphtha	1½	gals.
Drier (rosin free)	1	qt.
Paint produced	7½	gals.

Second Coat

Sublimed Blue Lead in Oil	100	lbs.
Raw Linseed Oil	3	gals.
Turpentine or 48° to 50° Naphtha	2	qts.
Drier (rosin free)	1	qt.
Paint produced	6¾	gals.

Sublimed Blue Lead—Dry (powder)

First Coat

Sublimed Blue Lead—Dry	90	lbs.
Raw Linseed Oil	4½	gals.
Turpentine or 48° to 50° Naphtha	1½	gals.
Drier (rosin free)	1	qt.
Paint produced	7½	gals.

*Second Coat

Sublimed Blue Lead—Dry	90	lbs.
Raw Linseed Oil	4½	gals.
Turpentine or 48° to 50° Naphtha	1½	qts.
Drier (rosin free)	1	qt.
Paint produced	6¾	gals.

*Where impractical to have two formulæ used on a job, this second coat formulæ is suitable for both first and second coats.

48° to 50° Naphtha represents the gravity known as the Baume or hydrometer test for a liquid weight. When used as a substitute for turpentine, be sure the flash point complies with the fire underwriters or local ordinance.

To increase the permanence of the color, many users add about three percent lampblack or black magnetic oxide of iron to formulæs for second and finishing coats.

The Raw Linseed Oil shall conform to the linseed oil specifications of the A.S.T.M. Standards, Pages 655-658, Volume 21.

The Japan Drier shall be pure unadulterated drier containing no rosin.

The Turpentine used shall be pure unadulterated turpentine and conform to the specifications of the Department of Commerce, Bureau of Standards, as given in Circular No. 86.

Note: For painting metal surfaces that may become too hot to warrant the use of linseed oil, substitute fish oil.

Eagle Red Lead—Dry and in Oil

While we recommend Sublimed Blue Lead as the most effective yet most economical rustproofing pigment on the market, we are also manufacturers of pure red lead. Eagle Red Lead in Oil is packed in 100, 50, 25, and 12½-lb. kegs. In dry form, it is put up in barrels of 500-600 lbs.

It possesses high "true" red lead content and is fine enough to insure splendid brushing qualities. It is impervious to water and unaffected by atmospheric gases. The rapid drying qualities of Eagle Red Lead make it decidedly advantageous for use where a hard surface, capable of withstanding abrasion, must be produced in a shorter time than usual.

ESTABLISHED 1888

GOHEEN CORPORATION

OF NEW JERSEY

Paint Engineers

NEWARK, NEW JERSEY

BRANCH OFFICES IN ALL PRINCIPAL CITIES

NEW YORK OFFICE
420 Lexington Avenue

FACTORY
NEWARK, NEW JERSEY

Paint and Varnish Products

BRITENOL INTERIOR WHITE—interior washable white for industrial plants.

BRITENOL FUME PROOF WHITE.

CARBONIZING COATING—iron and steel preservative paint.

HIGHWAY RED—chemically combined Red Lead Paint.

GALVANUM—special paint for galvanized iron.

CONCREWALTUM FLOOR ENAMEL—paint for protecting and decorating concrete floors.

Also manufacturers of Rockote, Hardener for concrete floors; Concrewaltum Wall Paint, for masonry walls; Oxidized Carbon Cement Paint, acid, alkali, fume resistant; Thermokote, heat resisting paint for stacks and boilers; Old Honesty, Ready Mixed Paint for wood surfaces; Alumikote, Aluminum Paint; House Paints; Wood Floor Preservative; Flat Wall Finish; Asbestos Ore, Fire Resisting Paint; Goheen's Machinery Enamel; Carbonizing Coating Gas Holder Paint; Exterior and Interior Enamels; Concrewaltum, Waterproofing and Dampproofing Paint; Hydrolite, Integral Hardener for concrete; Fondcoat, Plaster Bond for dampproofing below grade; Plasterkote, Plaster Bond for dampproofing interior masonry walls; Surfalox, Wall Sizing; Graphite Paints; Roof Paints; Blue Lead Paints; Red Lead Paints; Varnishes.

Send for standard specifications and descriptive literature.

Forty-three Years of Paint Engineering Service

Goheen Paint Engineers have, since 1888, perfected a series of scientific, specific purpose paints, to meet the special requirements of architects, engineers, large industrials, public utilities, railroads and mining interests for every exterior and interior surface.

When you specify Goheen Paints, you are assured of quality plus engineering service, controlled by experts from the raw material to the finished product.

Britenol Interior White

A superior mill white designed specifically for interiors of industrial plants, textile mills, paper mills, power plants, food product plants, dairies, laundries, bakeries and offices. Will remain white under practical industrial conditions, and possesses the highest light reflecting qualities.

It stays where it is put—on walls or ceilings, and will not crack, peel or flake off under vibration. Has great hiding power, giving first class results with a single coat in many cases. It is used on concrete, brick, plaster, wood, or steel and the finished surface is smooth, dustfree and washable as an enamel.

Supplied for spray application as well as brush. Made in flat, eggshell, or gloss finish. Special shades available for dado work.

Britenol Fume Proof White

Standard industrial Britenol is mildly acid and fumeproof. For severe acid, gas, fume or moisture conditions, Britenol Fume Proof White should be used.

Carbonizing Coating

An inhibitive and protective coating for iron and steel, including structural steel, steel buildings, steel sash, fire escapes, bridges, transmission towers, tanks, standpipes, gas holders, penstocks, pipe lines, condensers, turbines, etc. Will give seven to ten years exterior service under normal conditions, and has lasted as long as fifteen years.

Made in a variety of standard shades and in special colors to order.

Highway Red

A chemically combined red lead paint, mixed ready for application, possessing all advantages of hand mixed red lead with disadvantages eliminated. Eliminates any whitening or non-uniformity of film. Remains in suspension without any tendency to settle or harden in package.

Made in two shades—No. 22 Red Lead shade and No. 21 Standard shade.

Galvanum

A special paint for the protection of galvanized iron. Galvanum adheres to new galvanized iron without priming, acid washing or weathering. It is applied directly to the bare metal without any preliminary treatment whatsoever. Is equally successful on galvanized iron which has previously been painted. Lasts from five to seven years, often from ten to fifteen years. Made in a variety of standard shades and in special colors to order.



St. George Hotel, Brooklyn, N. Y.

EMERY ROTH, Architect — BING & BING, General Contractors

Goheen Paints were used on the new addition to this hotel, which is the largest in Greater New York

Concrewaltum Floor Enamel

Produces a hard, elastic, durable and beautiful enamel finish on concrete floors. Prevents absorption of oils and greases and gives a surface easy to clean and to keep sanitary.

Made in a wide range of colors and in special shades to order.

ESTABLISHED 1834

E. & F. KING & CO., INC.

Manufacturers of Putty and Paints

TELEPHONE
Hancock 8930

399-409 Atlantic Avenue
BOSTON, MASS.

Products

TRIPLE LEADKOTE PAINT; "BREER'S" METAL COATING; "BREER'S" WALL FINISH; INTERIOR WALL PAINTS; "BREER'S" METAL SASH PUTTY; "KINGLAZE" QUALITY WOOD SASH PUTTY.

Triple Leadkote, a Primer for Structural Steel and All Metal Work

This paint is designed as a primer for every class of steel construction where absolute protection from corrosion is required. It is composed of all pure lead pigments, which give the maximum adhesion, cohesion, and inhibition when properly incorporated with our specially processed oil vehicle.

Breer's Metal Coatings for Structural Steel and All Metals

Designed and proven to give the best steel protection, they stand the highest test when used over Triple Leadkote. Especially used for painting of bridges, standpipes, steel sash, structural steel, etc.

Over fifteen years of thoroughly satisfactory service on specified work have established irrefutably the excellent quality and entire dependability of Breer's Metal Coatings. They withstand exposure to every climatic condition, are waterproof, insoluble in common acid and salt solutions, and also impermeable to stray electric currents.

Specifications for Painting Steel

All steel shall be thoroughly cleaned and scraped of all metal scale, rust, grease and any other foreign substance at the shop, and shall be given one full priming coat of Triple Leadkote before erection.

After erection, the complete structure shall have two full coats of Breer's Metal Coating of colors to be selected. All surfaces which cannot be second-coated after erection shall have a field coat of Breer's Metal Coating before erection.

Specifications for Structural Steel—(1) Encased in Concrete—The steel shall be thoroughly cleaned and scraped, removing all loose metal scale or grease and other foreign substances, and shall be painted one shop coat of Breer's Metal Coating No. 202 Dark Gray. Any places where the paint film is ruptured or torn, shall be touched up after erection with No. 202 Dark Gray.

(2) Steel Encased in Brick Terra Cotta and Limestone—Structural steel shall be thoroughly cleaned of all metal scale and grease and shall then receive one full coat of Breer's Metal Coating No. 202 Dark Gray, followed by two coats of Breer's Metal Coating, color to be selected by the architect after erection.

Breer's Wall Finish

A durable flat wall paint in twenty attractive shades. Can be washed repeatedly without impairing the color or finish.

Goes on very smoothly and freely, leaving no streaks or brush marks, and since it is an oil paint the danger of cracking and chipping is eliminated. This paint can be stippled immediately after application. One gallon covers 500 to 700 sq. ft. of surface, one coat. Put up in barrels, 5 and 1-gal. cans.

Specifications for Wall Finish

New Walls—Apply a priming coat of about equal parts of Breer's Wall Size and Breer's Wall Finish. If the surface is very porous, increase the proportion of the size. Allow 48 hours to dry, and apply one or more coats of Breer's Wall Finish at 48-hour intervals.

Old Walls—All dust and dirt of a greasy nature should be removed by washing with gasoline or a solution of ½ lb. oxalic acid in 1 gal. of water. Walls should then be cleaned with soap and water before the paint is applied. If painted walls are in good condition only one coat will be required, unless a light color is to be used over a dark color.

If an eggshell gloss is desired, thin the paint with about 1 pt. of Breer's Varnish Liquid to 1 gal. of paint.

Interior Wall Paints

Ceralith Cement Coating—A pigmented oil base priming coat for concrete, brick and plaster. Neutralizing free lime in such surfaces.

Vivax—Flat, eggshell or gloss for all interior work on industrial buildings where whiteness is the primary consideration.

Putty Should Be Specified

The failure of putty, due to cracking, wrinkling, sagging, and breaking away, can be avoided by specifying putty made to a definite formula by a special process and properly aged. The importance of putty specifications, from an architectural and engineering viewpoint, cannot be overstressed.

Breer's Metal Sash Putty

Proved by fifteen years of service and recognized by engineers as most durable. Manufactured for special use on steel factory and casement sash, marquises, etc. Our own special process of manufacture and aging produces a putty which works very freely under the knife, sets sufficiently on surface for painting within a week, and does not wrinkle, sag or form oil pockets. Perfect condition guaranteed for two years. Will last indefinitely if properly painted.

"Kinglaze" Quality Wood Sash Putty

Widely known and used by large sash manufacturers and glaziers for bedding and setting glass in sash, doors, skylights, conservatories, etc. Guaranteed pure English chalk whiting and linseed oil, free from adulterants.

Manufactured and aged by our own special process and produces most satisfactory results.

Literature

Circulars, color cards, and complete specification books ready for filing, sent on request.

S. C. JOHNSON & SON

RACINE, WIS.

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PHILADELPHIA, PA., 401 No. Broad Street
PITTSBURGH, PA., 926 Duquesne Way
ST. LOUIS, MO., 2116 Locust Street
ST. PAUL, MINN., 1930 St. Anthony Avenue
SAN FRANCISCO, CAL., 56 Twelfth Street
SEATTLE, WASH., 314 Bell Street

Johnson Interior Finishes

JOHNSON'S WAX POLISH (Paste and Liquid).
JOHNSON'S ELECTRIC FLOOR POLISHERS:
- Improved Household Model
- De Luxe Model

JOHNSON'S FLOOR FINISHES:
- Johnson's Floor Lacquer
- Johnson's Floor Varnish
- Johnson's Quick Drying Paste Wood Fillers
- Johnson's Crack Fillers
- Johnson's Pratique Stains

JOHNSON'S INTERIOR FINISHES:
- Johnson's Flat Varnish
- Johnson's Sani-Spar Varnish
- Johnson's Sani-Spar Varnish Stains
- Johnson's Floor & Finishing Varnish
- Johnson's Interior Trim Varnish
- Johnson's Quick-Drying Varnish
- Johnson's Perfectone Undercoat
- Johnson's Perfectone Enamel
- Johnson's Quick-Drying Perfectone Enamel
- Johnson's Glo-coat Enamel
- Johnson's No. 25 Enamel
- Johnson's Permacote (flat wall paint)
- Johnson's Perma-Prime (Wall Primer)
- Johnson's Wood Dyes (oil stains—spirit stains)
- Johnson's Liquid Wax Glaze
- Johnson's Lacquer Sealer

Slogan

"The Interior Finishing Authorities"

Scope and General Information

S. C. JOHNSON & SON have been in business at Racine, Wisconsin, for nearly 50 years and occupy a unique position in the decorating industry. They do not attempt to cover the entire "paint" field but concentrate on a highly specialized line of Floor and Interior Finishes.

Each of these finishes is built on the old craftsman idea of doing one job 100% perfectly. Yet this old-fashioned plan is carried out in one of the most modern plants and finest laboratories in the country.

Johnson Finishes are standard in nine-tenths of American schools where manual training or vocational education are taught. And Johnson Specifications are the model for high grade construction.

Floor problems particularly have been a study of the Johnson organization. Probably no other single company has contributed so much to the solution of modern floor problems. The Johnson Lacquer-Wax Specification has been widely adopted as offering a very fine method of finishing practically all kinds of floors.

Johnson Electric Floor Polishers provide a modern and efficient method of employing that ancient method of floor maintenance which has survived the test of centuries, namely, *wax*.

Write for the Johnson book, "Modern Floor Finishing."

Price List

Tell your painting contractor to write for the Johnson *Wholesale* Price List.

JOHNSON LACQUER-WAX SPECIFICATION

The Johnson Lacquer-Wax Specification for floor finishing is based on the time-tested idea of a film of minimum thickness. Its practicability was made possible by the development of Johnson's Floor Lacquer and Johnson's Quick Drying Paste Wood Filler, to supplement the wax finish, and labor-saving polishing equipment. The principles upon which the Johnson Lacquer-Wax Specification for floor finishing is based are these:

(1) The complete and permanent filling of open-grain woods with a fast and hard-drying paste wood filler.

(2) The sealing of the wood (close-grain woods) and of the wood and paste wood filler (open-grain woods) with a thin coat of lacquer to prevent the absorption of wax subsequently applied and the penetration of dirt which would otherwise discolor the wood.

(3) The application of a thin coat of wax as a final service coat to enhance the beauty of the floor, to make cleaning easy and to make it possible to refinish traffic areas conveniently and at low cost.

(4) The maintenance of waxed floors by partially removing the wax film and all of the embedded dirt, replacing the wax coat with a fresh film of wax.

(5) The resultant finish to be thin yet of greater durability than a thick finish, unscratchable and of a rich, lustrous beauty.

Finishing Schedules

Schedule No. 1—New Open-grain Woods—Oak, walnut, mahogany, natural and colored finishes.

Operation 1—Sweep and clean the floor to remove all dust, dirt, grease and oil.

Operation 2—Stain with Johnson's Pratique Stain of the color specified and allow 6 hours for drying.

Operation 3—Fill. Apply Johnson's Quick-Drying Paste Wood Filler in suitable color, wipe and let dry overnight to 24 hours.

Operation 4—Sandpaper lightly and wipe up with benzine on a cloth to clear the wood grain.

Operation 5—Lacquer sealing coat. Apply one coat of Johnson's Floor Lacquer, allowing to dry overnight.

Operation 6—Wax. Apply sparingly one coat of Johnson's Paste or Liquid Wax and let dry 30 minutes, or longer, before polishing.

Operation 7—Polish to hard, lustrous finish with Johnson Electric Polisher, with weighted brush, or by hand with a cloth.

Operation 8—Wax. Apply a second coat of wax two days later and polish as in Operations 6 and 7.

Note: For natural finishes follow the same method but omit the stain in Operation 2.

Schedule No. 2—New Close-grain Woods—Maple, pine, birch, beech, natural and colored finishes.

Operation 1—Sweep and clean floor to remove all dust, dirt, grease and oil.

Operation 2—Stain with Johnson's Pratique Stains of the color preferred and allow 6 hours for drying.

Operation 3—Lacquer sealing coat. After dusting off the floor apply one coat Johnson's Floor Lacquer and allow to dry overnight.

Operation 4—Wax. Apply sparingly one coat of Johnson's Paste or Liquid Wax and let it dry 30 minutes or longer.

Operation 5—Polish to a hard, high gloss finish with the Johnson Electric Polisher, with a weighted brush, or by hand.

Operation 6—Wax. Apply a second coat of wax two days later and polish as in Operations 4 and 5.

Note: For natural wood finish follow the same method but omit the stain in Operation 2.

Schedule No. 3—Refinishing Old Open-grain and Close-grain Woods—Oak, walnut, mahogany, maple, pine, birch, beech, natural and colored finishes.

(a) When old finish is worn through in traffic areas and when the new color is to be natural wood, or the same stained color, or a different stained color.

Operation 1—Strip off old finish, using the Johnson De-Luxe Electric Sander-Polisher.

Operation 2—Bleach if needed.

Operation 3—Fill the cracks with Johnson's Crack Filler, after scraping out the dirt.

Allow 24 hours to dry.

Operation 4—Refinish the surface as a new floor following Schedule No. 2, New Close-grain Woods.

Finishing of Linoleum, Rubber, Tile, Terrazzo, Cork, etc.—Complete working schedules for the employment of the Johnson Lacquer-Wax Specification and for the proper finishing of linoleum, rubber, tile, terrazzo, cork and other floors are to be found in the new Johnson book, "Modern Floor Finishing."

Write for a copy.

SPECIFICATIONS FOR FINISHING NEW WOODWORK

(1) For a Natural Finish

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

Application—***First Coat***—*One coat of Johnson's Natural Quick Drying Paste Wood Filler No. 10. Wipe off across the grain with burlap or excelsior and allow 24 hours to dry. (Johnson's Paste Wood Filler also made in mahogany, golden oak, dark oak, and Antwerp.) The first coat of filler is used only on Oak and other open-grained woods and not on soft woods and close-grained hard wood as Maple, Birch, Pine, Gum, etc.*

Second Coat—*One Coat of Johnson's Lacquer Sealer flowed on with a full brush.*

Third and Fourth Coats—*Two coats of Johnson's Prepared Wax, allowing 24 hours between coats. Each coat to be polished with soft rag or Johnson's Polishing Mitt.*

Or—Two coats of Johnson's Sani-Spar Varnish, allowing 24 hours between coats. First coat to be sanded with No. 00 sandpaper, and dusted before applying second coat.

Or—Two coats of Johnson's Floor Varnish, allowing 24 hours between coats. First coat to be sanded.

Or—One coat of Johnson's Floor Varnish and one or two coats of Johnson's Flat Varnish if dull finish is desired. First coat to be sanded. Allow 24 hours between coats.

Note: If a rubbed finish is desired over Johnson's Sani-Spar or Floor Varnishes use pumicestone and oil or pumicestone and water, allowing 72 hours for last coat of varnish to dry before rubbing.

Note: A well polished coat of Johnson's Liquid Wax over any of the above varnish finishes adds a richness of effect, makes cleaning easier, and preserves the finish forever.

(2) For Stained Effects

Preparation—Have the surface sanded smooth and thoroughly dusted. All nailholes and other defects shall be treated with Johnson's Crack Filler so as to render them unnoticeable.

Application—***First Coat***—One coat of Johnson's Pratique Stain, shade to be selected by client. Allow 12 hours to dry.

Second Coat—One coat of Johnson's Quick Drying Paste Wood Filler to match the stain. Wipe off across grain with burlap or excelsior to remove excess filler and allow 24 hours to dry. Filler is only used on open-grained woods. Omit second coat on close-grained hard and soft woods.

Third Coat—One thin coat of Johnson's Lacquer Sealer. Sandpaper lightly with No. 00 sandpaper.

Fourth and Fifth Coats—Two coats of Johnson's Prepared Wax, allowing an hour or more between coats.

Or—Two coats of Johnson's Sani-Spar Varnish or Johnson's Floor Varnish. Sand first coat with No. 00 sandpaper and allow 24 hours to dry. May be rubbed if desired.

Or—One coat of Johnson's Floor Varnish and one or two coats of Johnson's Flat Varnish for a dull finish.

Note: A simple stained effect on open-grain woods can be most easily obtained by the use of colored paste wood filler just as specified for a natural finish under (1). If the color desired cannot be found in Johnson's Pratique Stains, Johnson's Wood Dyes may be used, in which case, however, the coat of Johnson's Lacquer Sealer must be substituted by a thin coat of pure shellac (3-lb. cut).

(3) For Interior Enamel Finish on Woodwork, Kitchens, Pantries and Bathrooms

Preparation—All nailholes and other defects to be puttied with lead and whiting putty. A light coat of white shellac should be applied on knots and all pitchy wood. Sand with No. 00 sandpaper and dust.

Application—***Priming Coat***—One coat of Johnson's Perfectone Undercoat—thinned with 1 pint raw linseed oil, ½ pint pure spirits of turpentine, and 3 ounces white japan drier to 1 gallon of undercoat. Brush out well and allow 24 to 36 hours for drying. Sand with No. 00 sandpaper and dust.

Second or Body Coat—One coat of Johnson's Perfectone Undercoat as it comes in the can. If necessary to reduce, use pure spirits turpentine only. Apply freely, flowing it on, and allow 24 to 36 hours for drying. Sand with No. 00 paper.

First Enamel Coat—One coat of Johnson's Perfectone Enamel (Gloss or Satine) or Johnson's Glo-coat Enamel or Johnson's No. 25 Enamel. A flowing coat which has been reduced with ½ pint pure turpentine to the gallon. Allow this coat 4 or 5 days to harden. Sand lightly with No. 00 paper.

Finish Enamel Coat—Johnson's Perfectone Enamel or Johnson's Glo-coat Enamel or Johnson's No. 25 Enamel. A flowing coat as it comes in the can. This last coat may be rubbed with pumicestone and water if desired.

Note: For rush work use Johnson's Quick-Drying Perfectone Enamel.

Note: Care should be taken that building be well heated when applying material.

Note: If in any case only one coat of enamel is used, add one pint of enamel to each gallon of the preceding coat of undercoat.

SPECIFICATIONS FOR FINISHING WALLS

(1) For One-color Finish on Plaster

Preparation—Clean and dust off. Fill all cracks with paste made from equal parts of Permacote and plaster of paris.

Application—***First Coat***—Johnson's Perma-Prime (tinted to suit taste of client) reduced with 1 quart of pure turpentine to the gallon. When necessary add ½ pint good dryer to each gallon. Allow 24 hours for drying.

Second and Third Coats—Apply Johnson's Permacote as it comes in the can (tinted to suit the taste of client). If thinning is necessary, use pure turpentine, not more than 1 pint to a gallon. May be stippled if desired.

(2) For One-color or Two-tone Finish on Textured Walls (over "Plastic Paints" or Sand-finish Plaster)

Preparation—Clean and dust off. Fill all cracks with heavy paste made from equal parts of Permacote and plaster of paris.

Application—***First Coat***—Johnson's Permacote (tinted to suit taste of client) reduced with equal parts Johnson's Wall Size Varnish or reduced with ½ gallon pure boiled linseed oil to 1 gallon Johnson's Permacote. Allow 24 hours for drying. If suction or "hot spots" show through, touch up with above mixture.

Second Coat—Apply Johnson's Liquid Wax Glaze (tinted with pure oil colors to suit client). "Pick up" glaze with soft cloth until desired effect is produced. Or for two-tone effect wipe off high spots until desired effect is produced. Allow to dry 24 hours and then polish thoroughly with bristle brush.

Note: If two or more top colors are desired, they may be used in the second coat by spotting the differently colored Wax Glaze and then blending the colors with a clean soft cloth until the desired effect is produced. Allow 24 hours to dry, and then polish thoroughly with a bristle brush.

Note: Gold and silver effects may be obtained by mixing small amount of gold or silver bronze powder in the natural Glaze and applying lightly with cloth on the high spots. Polish when dry.

JOHN LUCAS & COMPANY, INC.

Makers of Paint and Varnish Since 1849

PHILADELPHIA, PA.

ARCHITECTURAL DEPARTMENT

1313 Architects Building, 17th and Sansom Streets, Philadelphia, Pa.

BRANCH OFFICES

BOSTON, MASS. CHICAGO, ILL. NEW YORK, N. Y. PITTSBURGH, PA. WEST BERKELEY, CALIF.

Durawall

Washable Interior Finish

Durawall Interior Finish

Flat Finish—Eggshell Finish



Durawall is a water free paint product for interior walls and surfaces. It is a wall finish that neutralizes lime in plaster, seals all pores, stops suction and forms a film from which, 30 days after application, sulphur match scratches, ink spots, grease stains, crayon marks, as well as marks left by soiled or perspiring hands, may be washed off with ordinary soap and water. Durawall is not only washable—it may be scrubbed or even cleaned with abrasives, if necessary, without injury to the paint film.

Durawall comes in two parts—body and reducer. Durawall Body is too thick to be used alone; yet it must not be thinned by any liquid other than Durawall Reducer. Durawall is ready for use when mixed, body and reducer, on the job. No aging or sizing is required.

Durawall Body is made in 8 colors and white, to be used with Durawall Reducer for a finish of eggshell gloss. Durawall Body Flat White and Durawall Reducer produce a flat finish. Durawall is "flowed on, not brushed out." Any stipple finish may be obtained with Durawall.

Specifications for Mixing Durawall

For walls on which a smooth putty coat or smooth Keene's cement has been applied and are ready for paint application:

A. Foundation Coat—Two parts Durawall Reducer and one part Durawall Body.

B. Second Coat—Equal parts Durawall Reducer and Durawall Body.

For smooth putty coat walls which have been sized and painted previously:

A. Foundation Coat—Equal parts Durawall Reducer and Durawall Body.

B. Second Coat—Equal parts Durawall Reducer and Durawall Body.

For walls of rough or smooth concrete, brick, cement, and sand finished or semirough finished plaster.

A. Foundation Coat—Two parts Durawall Reducer and one part Durawall Body.

B. Second Coat—Equal parts Durawall Reducer and Durawall Body.

Note: Mix well. The covering capacity is approximately 300 sq. ft. per gal. mixed for each coat.

For Composition Board, sized or unsized:

A. Foundation Coat—Two parts Durawall Reducer and one part Durawall Body.

B. Second Coat—Equal parts Durawall Reducer and Durawall Body.

For Flat Finishes:

Use two parts Durawall Reducer and one part Durawall Body Flat White for first coat on new work; for finish coat use one part Durawall Reducer and two parts Durawall Body Flat White.



Fac-simile of cans in which material is delivered at building in unopened containers

Specifications for Applying Durawall

Two coats of Durawall, in tints not too light, usually suffice on new plaster without sizing or priming coat.

As Durawall is a "water-free" paint product, its balance between pigment and vehicle content has been carefully worked out; therefore no liquids or pigments shall be added to Durawall other than Durawall Reducer. Turpentine, benzine, gloss oil, coal oil, linseed oil or water must not be mixed with Durawall.

All surfaces on which Durawall is to be applied must be in first class condition, thoroughly dry and solid before Durawall's foundation coat is applied. The foundation coat must seal the pores and stop all suction. Should spots of any nature develop after foundation coat has been applied, use only Durawall Reducer (clear) over these spots before second coat is applied. Allow 24 hours between coats on the eggshell finish and 8 hours on the flat. Durawall and Reducer, mixed, cover approximately 600 sq. ft. per gal. 2 coats.

OTHER LUCAS WATER-FREE PRODUCTS

Tinted Gloss Super Outside White

A pure linseed oil, ready-mixed, white exterior house paint of unsurpassed hiding qualities, which is suitable for two-coat work. Made on a Titanox base, it has extraordinary body and exceptional enduring qualities.

Lu-Co-Flat

Ready-mixed flat oil paint, has great hiding power, "sets" slowly, dries overnight at a moderate working temperature, has good body. It is easy spreading and does not sag or "curtain." This paint works well for flat brush, stippling, sponge or mottled effect. Made in 16 shades and white.

Floor-Life

"Made to walk on"—for use on all floors, inside or out, wood, composition, concrete, cement, tile or linoleum. Covers approximately 250 sq. ft. per gal. two coats. "Stands up" under heavy foot wear. Made in 10 colors and black and white.

Lucas Gibbsboro Brand Colors in Oil

These colors in oil, have been manufactured by Lucas since 1856. They are ground exceptionally fine. Their great tinting strength has made them a standard with practical painters. Trueness or purity of tone in reduction is an outstanding quality of Gibbsboro Brand Colors in Oil. Each color is a natural, untoned color, hence maximum permanence is produced when these colors are used.

Lucaseal Varnishes

Made to meet every requirement of the architect and painter. They include five individual types of varnishes, each made to serve a particular purpose; Lucaseal Interior, Lucaseal Exterior, Lucaseal Floor, Lucaseal Seat, and Lucaseal Dull.

For specifications, color cards, or literature on these and other Lucas Products write to the Architectural Department

MINWAX COMPANY, INC.

A Complete Service for Waterproofing, Dampproofing and the Preservation of Wood and Masonry

11 West 42nd Street, NEW YORK, N. Y.

BRANCH OFFICE: 232 East Erie Street, CHICAGO, ILL.

FACTORY: DELAWANNA, N. J.

For Representatives Refer to Local Telephone Directory and Paragraph on Last Minwax Page

Products

MINWAX BRICK and CEMENT COATING; MINWAX METHOD of WOOD FINISHING.

We also make a full line of Waterproofing and Dampproofing Products, Caulking Compounds, etc., for all general building construction purposes, for which see Manufacturers' Index.

MINWAX BRICK AND CEMENT COATING

For Waterproofing and Decorating Exposed Surfaces of Cast Concrete, Brick or Stucco—This Minwax product is a pigment coating produced in a series of attractive flat color tones. It is a combination of the highest grade inert mineral pigments obtainable in a carrying vehicle based on Minwax Clear Waterproofing (one of the oldest, best known and most efficient mediums for exposed wall waterproofing).

This vehicle not only binds the coating on the wall surface so that it stays put, but it penetrates and eliminates the porosity factor and thus prevents the possibility of a dusty, loose coating.

The coating penetrates and becomes part of the concrete or brick, and the vehicle penetrates well below the surface and permanently waterproofs it.

The effect produced is flat, without a painty sheen. It changes the texture of concrete or stucco but slightly and maintains the tone of the structural material and gives it the fresh, clean, uniform color selected. On masonry and brick, it gives a whitewash effect.

Applied with a brush or spray. Handles with unusual ease. Covers rapidly and effectively.

Uses—Because Minwax Brick and Cement Coating is primarily a waterproofing, it is a very efficient means of decorating and beautifying concrete, brick or stucco and of preserving them from the disintegrating effects of water and frost.

Recommended also as a coating for light courts where a durable, fadeproof, white surface is desired.

Colors—Finished in 11 standard colors: white, cream, yellow, cement gray, limestone gray, sandstone, green, brownstone, terra cotta, water blue and brick red. Special colors extra.

Covering Capacity—Varies between 160 and 250 sq. ft. per gal. per coat, depending upon the roughness and porosity of the surfaces to be treated.

How Shipped—In 1, 5, 30 and 55-gal. containers.

Specifications

General—All surfaces shall be thoroughly dry, clean and sound subject to the approval of the painter before work proceeds. This contractor shall immediately before applying material, brush surface to remove dust, sandy and loose material. No work shall be carried forward at temperature below 45° F.

All exposed surfaces as directed shall receive two thorough coats of Minwax Brick and Cement Coating, color as selected, re-touching first coat, if required, for uniform color. First coat shall be thinned with Minwax Brick and Cement Coating Thinner only, as required to insure full penetration and obtain satisfactory coverage for second coat. Painter shall test surface to determine proper percentage thinner. When first coat is dry light spots shall be retouched as necessary to produce uniform color. Second coat shall be applied straight without thinning or adulteration.

Painters shall carefully point up all holes, cracks, or joints, after application of the first coat, rubbing them full of Minwax Pointing Paste in color to match the color of Minwax Brick and Cement Coating selected. After pointing the cracks shall be brushed to remove surplus and re-touched to uniform appearance.

NOTE Especially important that parapets and horizontal surfaces should be done with the greatest care. Two coats are ample on average sound surfaces. On especially porous, or sandy or disintegrated masonry surfaces, three coats are recommended. First coat should be thinned 50% with thinner, second coat approximately 20%, final coat should be applied without thinner.

Newly Laid Brick Walls or New Cast Concrete Surfaces—Where the masonry is green and new and proper time for curing (heavy cast concrete sections 90 days, brickwork 60 days, stucco 30 days) cannot be allowed, apply one coat of neutralizer consisting of 2 lb. of zinc sulphate dissolved in 1 gal. of water. Saturate surface thoroughly using 1 gal. to 150 sq. ft. and allow to dry thoroughly before applying coating.

Old Work—A sound solid surface must be obtained to get satisfactory service from coating. Wire brush surface thoroughly and repair and repoint all loose mortar or concrete. Use Minwax Pointing Paste for filling small cracks and holes.

SUPPLEMENTARY MATERIALS

Minwax Brick and Cement Thinner

This product is a thin liquid, produced from the vehicle or liquid portion of Brick and Cement Coating, to be used for thinning or reducing the first coat to insure penetration and otherwise as necessary.

How Shipped—1, 5, 30 and 55-gal. containers.

Minwax Pointing Paste

This product is a special waterproof putty for filling cracks in concrete, stucco or brick surfaces which are to be coated with Brick and Cement Coating. This material should always be used only after the first coat has been applied and is of proper consistency so that it can be rubbed into small cracks. Where larger cracks occur a very stiff paste of neat portland cement and water should be mixed with Minwax Pointing Paste to bring it to the desired consistency.

Care should be exercised not to smear this material over the surface and all cracks should be cross-brushed with a stiff brush to remove all surplus. Large cracks and spalled places should be repaired with portland cement mortar.

Colors—Made in same colors as Brick and Cement Coating.

How Shipped—½-gal., 1-gal. and 5-gal. pails.

Covering Capacity—On stucco and concrete depends on amount of cracking. Always have some on scaffold. Average brick usually requires gallon to 1000 to 2000 sq. ft. surface.

Neutralizer

For neutralizing the alkalis in green concrete, stucco and mortar, for preaging the surface and assuring a stable foundation for the Brick and Cement Coating, a solution of zinc sulphate in proportion of 2 lbs. to 1 gal. of water should be used. We can furnish the ready mixed Neutralizer where desired. For best results neutralizer should be used on all surfaces less than 90 days old.

Minwax Transparent Waterproofing

Where the natural color of any masonry surface is to be preserved by waterproofing treatment, use Minwax Transparent Waterproofing. Full description and specifications for this product will be found in another section of this edition. See Manufacturers' Index.



Residence of Miss Dorothy Barstow, Ithaca, N. Y.
Minwax Flat Finish No. 716 (Dark Walnut) on oak floors. Minwax Quick-Drying Flat Finish No. 222 (Colonial Pine) on pine panelling.

The Minwax Method of Wood Finishing differs from all other methods in that it applies to modern conditions the age-old principles by which those rich, soft wax effects, associated with early English and Colonial times, were obtained. It also offers real advantages in its labor saving, non-technical method of application. The excellence of the Minwax Method, equally applicable to floors, interior trim, or outside woodwork, and to all kinds of wood, is proven by nearly twenty years of use. The Minwax Method places the finish in and not on the wood, making it an integral, easy to maintain part of the wood.



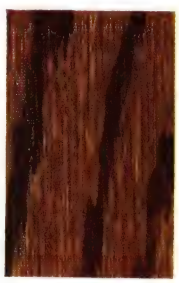
No. 10 or No. 210
Natural Oak



No. 11 or No. 211
Light Oak



No. 12 or No. 212
Dark Oak



No. 716 or No. 2716
Dark Walnut



No. 120-9
Light Fume



No. 122-9
Flemish

MINWAX METHOD OF WOOD FINISHING

A Complete Preservative Finish for Wood Floors and Trim

Description

The Minwax Method places the finish in and not on the wood and does so, generally, in two easily applied coats. It has been developed around a combination of special preservative oils, gums and waxes which penetrate together. By combining with this finish natural wood stain colors, those more mellow, deeper tones of brown which are so deservedly popular, are produced. The penetrative nature of the finish carries these colors intimately into, around and between the surface fibres, so that the color is an integral part of the surface.

This combination of penetrative finish and color is the Minwax Method's unique contribution to wood finishing, producing effects that are more natural, that more truly enhance the natural charm of the wood. Since by this method all is in the wood, a finish that more effectively resists abrasion and which is simpler to maintain is produced.

Materials—While in the Minwax Method there is generally but one material to use, Minwax Flat Finish, supplementary materials have been developed so that the advantages of the Method are available under all conditions regardless of the speed required, the color or degree of lustre desired, etc. So long as the wax type of finish is wanted, it can be efficiently and beautifully obtained by the Minwax Method.

Minwax Flat Finish

This material is a combination of certain carefully blended oils, gums and mineral waxes. It penetrates the wood and deposits tough mineral gums inside and up to the surface. It is produced in natural and in a series of stain colors, so that the complete result is created by two coats of one material, the color being determined by the particular shade selected.

Its mineral base is a distinctive characteristic and makes it resistant to all deteriorating agencies. Its efficiency as a protective and preservative treatment is proven by twenty years on industrial and school floors. (See our catalogue in Manufacturers' Index.)

Being penetrative in character both as to color and finish, its curing is gradual and while the surfaces are usable almost immediately, it constantly improves in lustre, hardness and quality with age. Its penetrative character makes it possible to maintain worn spots to renew the finish by simple wipings with the same material and, as a result, a re-scraping should never be necessary.

Colors—No. 9 (natural); *No.* 10 *(natural oak); No.* 11 *(light oak); No.* 12 *(dark oak);* No. 13 (walnut); *No.* 716 *(dark walnut);* No. 750 (Jacobean); No. 15 (green); No. 16 (mahogany).

Covering Capacity—500 to 800 sq. ft. per gal. per coat.

How Shipped—Quart, gallon, 5-gal., 30-gal., and 55-gal. containers.

Minwax Quick Drying Flat Finish

For some conditions, however, the construction schedule or the fact that the rooms must be lived in during refinishing, demand that the final ultimate results must be produced more rapidly than is possible even with Standard Minwax Flat Finish.

For these conditions, Minwax Quick Drying Flat Finish has been developed, and by its use the final complete high lustre can be had in twenty-four hours. It differs from standard Minwax Flat Finish in only one way: it carries preserving, binding gums deeply into the surface, but does not, as does Minwax Flat Finish, at the same time carry the wax into the surface, but with the Quick Drying Flat Finish the waxing operation must be carried on separately, using Minwax Finishing Wax.

Colors—*No.* 209 *(natural); No.* 210 *(natural oak); No.* 211 *(light oak); No.* 212 *(dark oak);* No. 213 (walnut); *No.* 2716 *(dark walnut);* No. 2750 (Jacobean); No. 215 (green); No. 216 (mahogany); No. 222 (colonial pine).

Covering Capacity—500 to 800 sq. ft. per gal. per coat.

How Shipped—Quarts, 1, 5, 30, 55-gal. containers.

Minwax Finishing Wax

Minwax Finishing Wax is a special wax, which is made in both paste and liquid form, and it is designed for those owners who prefer a high, lustrous polish to the soft, deep velvety finish produced by Minwax Flat Finish. Also, our paste wax is produced for use over our Quick Drying Flat Finish under all conditions—where its use is an integral part of the treatment. The Paste Type is the one to use for the first waxing operation. The Liquid Wax is the material to use for cleaning and general maintenance.

How Shipped—Paste: 1, 4 and 8 lb. cans. Liquid: 1 qt., 1 gal. and 5-gal. cans.

Covering Capacity—Paste: 250 to 350 sq. ft. per lb. Liquid 700 to 1000 sq. ft. per gal.

Minwax Acid Stain

Minwax Acid Stain is a true water stain, so that those owners who desire the weathered, fumed tones or those uniform colors that minimize the grain and pattern which can be produced in no other way, can obtain them by the use of a product scientifically designed to function with Minwax Flat Finish.

The Acid Stain produces simply the color effect, it adds no protection or finish, Minwax Flat Finish being applied over it for preservation and finish.

Colors—No. 120 (light fume); No. 122 (Flemish); No. 123 (dark fume).

Covering Capacity—300 sq. ft. per gal.

How Shipped—½, 1 and 5-gal. glass containers.

How to Specify the Minwax Method

For Average Conditions—Wood shall be clean, free from all shellac, varnish, or other finish, dry, and carefully sanded. Apply Minwax Flat Finish, color as selected, with a brush; wiping each coat thoroughly to remove surplus, in not less than two or more than six hours. Allow at least twelve hours between coats. On floors, polish with a weighted brush or electric polisher after the second coat has cured for four or five days, or just before occupancy. The final wiping is most important—the surface must be thoroughly rubbed to remove all surplus. The finished surface shall be dry and shall show a uniform sheen.

Where a high polish is desired, use Minwax Finishing Wax (Paste) but allow the second coat of Flat Finish to cure and harden at least ten days before waxing and polishing.

Where High Speed Is Necessary—Wood must be clean, dry, and prepared to receive the finish by sanding, and be free from wax, varnish, shellac, or other finish. Minwax Quick Drying Finish is designed to be used only on raw wood or over itself. Apply two coats of Minwax Quick Drying Finish (color as selected), spreading in a heavy, even coat well worked in. Allow each coat to stand fifteen or twenty minutes, until the material has sufficiently penetrated the wood, and then with clean cloth remove the excess from the surface, at the same time rubbing out all laps or unevenly coated spots. Allow twelve hours between coats. Twelve hours after the final coat apply an even coat of Minwax Finishing Wax (Paste) as a final operation and polish with an electric polisher.

For conditions where only the shortest possible time may be allowed, omit second coat of Quick Drying Flat Finish and proceed as above.

Fillers—Fillers are not required with the Minwax Method. If desired they can be used in the usual way after the application of the first coat. The filler should be colored to match the stain color of Flat Finish selected.

Minwax Finishing Wax Specifications—Apply a thin even coat with a rag and polish when dry (15 to 30 minutes).

Minwax Acid Stain Specifications—Apply in even coats with a brush or sponge. Sand lightly with steel wool or 00 sandpaper, and when dry, finish with Minwax Flat Finish No. 9, or as necessary for the desired effect.

NOTE: Chips on the opposite page show four popular stain colors in plain red oak. For the fume effects our acid stain was used. These are on white oak.

MURPHY VARNISH COMPANY

Manufacturers of Varnishes, Enamels, Stains and Lacquers

NEWARK, N. J. DISTRICT OFFICES CHICAGO, ILL. SAN FRANCISCO, CAL.



TRADE SYMBOL

Murphy Airplane Super Spar Varnish

A quick drying varnish that rivals the finest long drying varnish. It dries out-of-dust in 2 hours and is ready to recoat in 4 hours under favorable conditions. Is pale in color and can be used over the lightest woods. It brushes easily and is resistant to acids and alkalis. Is recommended for any inside or outside surface where a finish is required to resist the most extreme wear.

Murphy Transparent Interior Varnish

A fine transparent, lustrous varnish which brings out the grain of the wood, flows freely, covers a great deal of surface, rubs easily and keeps its fullness and original beauty for many years.

Murphy Transparent Floor Varnish

This varnish is regularly used on hotel and dormitory floors. A fine free flowing varnish noted for being extremely tough and long wearing. It can be recoated year after year with no danger of chipping or flaking.

Murphy No-gloss Interior Varnish

This varnish, used for the final coat over Murphy Transparent Interior Varnish gives a rubbed effect without the labor of rubbing. It brings out the grain of the wood. Can be used alone by applying the proper number of coats.

Synthetic Varnishes

Murphy B Spar Varnish is a type of these finishes. It is made of 100% concentrated bakelite base assuring extraordinary durability, high resistance to alkalis, acids and alcohol with the desired feature of quick dry.

For special purposes we will gladly make special synthetic products to solve unusual finishing problems either in clear or pigmented form.

Murphy Muronic Enamel (Gloss or Semi-gloss)

White, Gray and Ivory. The white because of its pure whiteness is popular for "Colonial Interiors"; used either indoors or outdoors. Covers solid over undercoating in two coats.

Murphy Quick White Enamel for Master Painters

This enamel meets with favor where speed and economy are necessary. It dries quickly and produces a finish of fine depth with a minimum number of coats. It is very durable.

Murphy White Enamel Undercoating No. 37

An intensely white undercoat. Hides and covers exceptionally well, is self-leveling without brush marks, ridges or overlaps. Dries quickly so that enamel coat may be applied the same day if necessary.

Murphy Murlox

A preparation coater particularly adapted for all difficult or unusually porous wall surfaces.

It is waterproof and provides a hard, smooth surface for subsequent coats.

It may be added to flat wall paint to prevent sinking in.

Murphy Konkreto

For the sanitary treatment of concrete or cement floors and walls. Gives a smooth surface. Preventing them from wearing, dusting and getting moldy. Concrete and cement floors finished with Konkreto are as easy to clean as tiling.

Murphy Waterproof Mixing

Shellac plus Murphy Waterproof Mixing makes a remarkable sealer or first coater—better than shellac in every way.

Simply mix Waterproof Mixing with shellac—equal parts of each or 2 parts of shellac and 1 part Murphy Waterproof Mixing, according to the desires of the finisher. The mixture is applied the same as ordinary shellac.

Prevents shellac from turning white; increases the elasticity of the finish; has better flowing qualities; dries as quickly as shellac; builds a fuller finish; increases durability; waterproofs; cuts sanding cost; seals as well as straight shellac; increases anchorage, due to better pore penetration; prevents shellac from scratching white and eliminates pinholing.

Murphy Penetrating Stains

By a patented process the finest fast to light water soluble aniline dyes are carried in a vehicle which by deep penetration actually "dyes" the wood. These stains are available in all effects; dry rapidly; do not raise the grain of the wood; do not bleed; are permanent; give a "fire" to wood grain never before possible; and prevent finishing delays.

Murphy Durable Floor Lacquer

This material is an absolutely distinctive combination of varnish and lacquer. It may be brushed or sprayed. When thinned with Murphy Lacquer Thinner for Master Painters, Murphy Durable Floor Lacquer is a very efficient sealer for porous surfaces, and for application under pigmented lacquers. It may be tinted with Murphy Japan Color to secure almost any shade. It is tough and elastic, no offensive odor, dries quickly like lacquer, making it possible to apply three coats in one day.

Free Literature

THE MURPHY VARNISH COMPANY has prepared the following booklets which will be sent free to architects upon request:

Twentieth Century Art.
French Interiors and Their Modern Adaptation.
Murphy Specification Manual.

SPECIFICATION GUIDE

FOR INTERIOR WOOD

For Varnish Finish

Mahogany, Oak, White Mahogany, Walnut, Ash, Butternut and All Open Grained Woods—To be properly filled with MURPHY VARNISH COMPANY'S Paste Filler, care being taken to have filler match the natural color of the wood or the color desired by owner or architect; to receive 1 coat of shellac (mixed with Murphy Waterproof Mixing if improved results are desired) and 2 or 3 coats Murphy Airplane Super Spar Varnish or Transparent Interior Varnish. Shellac coat, and first and second coats of varnish to be sandpapered with 00 sandpaper; the last coat of varnish to be carefully rubbed with pumicestone and water to a dead and even surface (finisher to use rubbing felt), then oiled and thoroughly wiped, where necessary. Where a gloss finish is desired, omit rubbing on final coat.

Pine, Maple, Cypress, Whitewood, Cherry, Birch, Sycamore, Beech, Holly and All Close Grained Woods—To be finished same as above, except that the filler be omitted.

For a Dull Finish without Rubbing—Wood to be brought up the same as above, except that 1 coat of Murphy No-gloss Interior Varnish is used in place of the final coat of Murphy Airplane Super Spar Varnish or Murphy Transparent Interior Varnish.

For a Semi-gloss Finish, without Rubbing—Wood to be brought up the same as above, except that 1 coat of Murphy Semi-gloss Interior Varnish is used in place of the final coat of Murphy Airplane Super Spar Varnish or Murphy Transparent Interior Varnish.

Floors and Bathrooms—All open grained hardwood floors in bathrooms to be properly filled with MURPHY VARNISH COMPANY'S Paste Filler, and receive 2 or 3 coats of Murphy Transparent Floor Varnish or Airplane Super Spar Varnish, the last coat to be rubbed lightly with oil and pumicestone. Thin the first coat with turpentine in the proportion of 1 pint to 1 gallon of varnish. Pine, maple, cherry and all other close grained woods, used for floors, to be finished precisely as above, except that filler is to be omitted.

For a Dull Floor Finish without Rubbing—Floors to be treated as above, except that 1 coat of Murphy Velvet Floor Varnish is to be used in place of the final coat of Murphy Transparent Floor Varnish or Airplane Super Spar Varnish.

For Enamel Finish

For a Gloss Finish—First, give the wood a thin coat of shellac, lightly sandpaper when dry, and follow with 2 coats of Murphy White Enamel Undercoating No. 37 and 2 coats of Murphy Muronic Enamel Gloss or Murphy Quick White Enamel for Master Painters, the last coat to be rubbed down to a fine surface with either pumicestone and water, or rottenstone and water. Omit rubbing on final coat, if gloss finish is desired. (Muronic Enamel is also supplied in Gray and Ivory). If a special color is wanted, tint with MURPHY VARNISH COMPANY'S Japan Color.

For a Semi-gloss White Enamel Effect without Rubbing—Treat work as above, except that 1 coat of Murphy Muronic Semi-gloss Enamel is to be used instead of the final coat of Murphy Muronic Enamel Gloss.

For Lacquer Finish

For Stained Finish—Apply 1 coat of Murphy Permanent Stain (sanding is not necessary); then apply 2 or more coats of Murphy Durable Floor Lacquer allowing 3 or 4 hours between coats. This finish has a soft velvet gloss.

Open Grained Woods—Must be properly filled with Murphy Paste Filler.

For Dull Finish—Go over the last coat of lacquer lightly with 00 steel wool.

A quick attractive and inexpensive lacquer finish is secured in one day by applying 2 coats of Murphy Durable Floor Lacquer providing no filling has to be done.

FOR EXTERIOR WOOD

The surface of all woods must be sandpapered smooth and properly cleaned before finishing. No shellac should be used on outside work, inside sash, window sills, floors or other surfaces exposed to dampness. Use 3 coats of Murphy Airplane Super Spar Varnish or Murphy Transparent Spar Varnish for all of the above work.

The first coat to be applied directly on the wood, if it is close grained, or after the wood is filled, on open grained wood.

FOR SIZING PLASTER WALLS

One coat of Murphy Murlox will seal the most porous surface and make an ideal foundation for finishing coats. Murphy Murlox may also be mixed with first coat of wall finish to prevent sinking in. (Plaster walls should be thoroughly dry before the application of any finishing material.)

FOR FINISHING CONCRETE SURFACES

(1) All concrete must be thoroughly dry before the application of a finishing material, as no type of finish will successfully adhere to damp concrete.

(2) Apply 2 coats of Murphy Konkreto allowing overnight dry between coats. Supplied in appropriate colors.

NATIONAL LEAD COMPANY

Member of the Producers Council

Paint Materials for the Protection and Decoration of Wood, Brick, Stone, Concrete, Stucco, Metal

NEW YORK, N. Y., 111 Broadway
BOSTON, MASS., National-Boston Lead Co., 800 Albany Street
BUFFALO, N. Y., 116 Oak Street
CHICAGO, ILL., 900 West 18th Street
CINCINNATI, OHIO, 659 Freeman Avenue
CLEVELAND, OHIO, 820 West Superior Avenue
PHILADELPHIA, PA., John T. Lewis & Bros. Co., Widener Building
PITTSBURGH, PA., National Lead & Oil Co., 316 Fourth Avenue
ST. LOUIS, MO., 722 Chestnut Street
SAN FRANCISCO, CAL., 2240 24th Street

Dutch Boy Products



Dutch Boy White Lead—Pure white lead ground in pure linseed oil. Just as white lead paint has been the standard for generations, so has Dutch Boy White Lead been a standard among white leads for years. Eight out of every ten painters use Dutch Boy. Soft paste as well as heavy paste form. 100-lb. kegs; 50, 25 and 12½-lb. pails.

Dutch Boy Red Lead in Oil—A very highly oxidized grade of pure red lead ground in pure linseed oil to paste consistency. Its exceptionally high true red lead (Pb_3O_4) content and the fineness of its pigment particles insure a paint of excellent brushing qualities, good coverage and extreme durability. 100-lb. kegs; 50, 25 and 12½-lb. pails.

Dutch Boy Liquid Red Lead—A ready-to-use, pure red lead paint weighing 28 lbs. to the gallon. Equivalent to paint made by mixing 1.85 gals. linseed oil with 100 lbs. Dutch Boy Red Lead in Oil (paste red lead). Composition by weight: Pure red lead (98% true red lead)—81%; pure raw linseed oil—18%; pure liquid drier—1%. 2½-gal. kegs; gallon and quart cans. Can also be had tinted—in light and dark brown, light and dark green, and black.

Dutch Boy Wall Primer—A special primer for sealing and first-coating plaster walls to be painted with white lead. It is a full bodied paint made with a long oil vehicle of varnish type. Stops suction, seals fire cracks, and at same time, gives good hiding. Possesses the elasticity, adhesion and other qualities of an oil primer combined with the recognized sealing property of a varnish primer, producing an ideal foundation for succeeding coats. 5, 1, and ½-gal. cans.

Dutch Boy Linseed Oil—Clear, carefully filtered, well settled, pure linseed oil conforming to the specifications of the American Society for Testing Materials. 1 and 5-gal. sealed cans.

Dutch Boy Flatting Oil—A skilfully blended flatting liquid for use with white lead to produce flat and semiflat paint for interior walls and woodwork. When white lead is thinned with flatting oil a paint results which possesses many points of excellence. It is easy to apply. It has good hiding power. It levels itself nicely. It sets slowly, so that large areas can be worked without risks of laps. It is durable and washable. Quart, gallon and 5-gal. cans.

General Painting Specifications

Following are general specifications for the painting of interior and exterior surfaces:

Preparation of Surface—***(1) Woodwork***—New woodwork shall be cut smooth with sandpaper where required and dusted clean before priming. From old woodwork which has been painted before, all loose paint, scale, dirt and dust shall be removed. Wash off with benzine or turpentine all parts where liquid paint remover has been used.

Before priming new woodwork, all knots and sappy streaks shall receive one coat of shellac varnish brushed out thin. After the priming coat is thoroughly dry, putty up all knotholes, dents, cracks, and other defects with putty composed of white lead and whiting.

(2) Plaster—Before applying any paint to plaster, either new or old, see that it is clean and smooth. Fill all cracks with plaster of paris or approved patching plaster. Where new plaster to be painted is not properly aged, it shall be treated before priming with a solution made by dissolving 2 lbs. of zinc sulphate in 1 gal. of water.

(3) Brick and Stone—New brickwork shall not be primed until dry. At least 2 or 3 days of dry weather shall precede painting. If any mortar has become loose or damaged, all such places shall be pointed with mortar before applying paint. After priming, correct small defects in the surface with putty.

(4) Stucco and Concrete—Stucco or concrete shall be allowed to stand and dry at least six months before paint is applied. If painted before this time, it shall be treated with a solution made by dissolving 2 lbs. of zinc sulphate in 1 gal. of water.

(5) Metal Work—Iron, steel and other metal work shall be cleaned thoroughly of all loose paint, dirt, oil, grease, rust, scale and other foreign matter before paint is applied.

The Paint and Its Application—***(6) Designation of Paint to be Used***—All woodwork, plaster, brick, stone, concrete and stucco which are to be painted, shall be painted with NATIONAL LEAD COMPANY'S Dutch Boy White Lead, Dutch Boy Flatting Oil, Dutch Boy Wall Primer, pure linseed oil, pure turpentine and pure drier mixed according to the formulas hereinafter designated for each kind of work. All metal shall be painted with NATIONAL LEAD COMPANY'S Dutch Boy Red Lead-in-oil, Dutch Boy Liquid Red Lead, or pure dry red lead and pure linseed oil mixed according to formulas hereinafter given for each specific purpose.

(7) Tinting Materials—In producing tints and shades, John T. Lewis & Bros. Co. colors-in-oil or those of equally high grade shall be used. If colors-in-oil are used in quantities large enough to affect the consistency of the paint, the quantities of thinners named in the formulas shall be increased in amount equal to one-half the weight of the tinting material.

(8) Applying the Paint—No exterior painting shall be done when rain or snow is falling, during fog, or until after dew or moisture which may be on the surface has completely disappeared. Painting done in winter weather shall only be done when the temperature is above 50° F. and when all surfaces are dry. All exterior work shall be allowed to dry from 2 to 4 days before the next coat is applied and at least 24 hours shall be allowed between coats on interior work.

Formulas

The following white lead formulas take no account of tinting materials. See paragraph No. 7 when adding colors to the formulas.

It will be noted that the formulas for painting exterior wood are on the basis of Dutch Boy *soft* paste White Lead as well as heavy paste white lead. For flat effects inside, the heavy paste is to be preferred as the higher oil content of the soft paste will give more of a sheen to surfaces painted with it.

(9) New Woodwork Outside—Three coats of paint, mixed as follows, shall be applied to new unpainted woodwork outside:

	(a) Priming coat		(b) Second coat	
	Soft Paste	Heavy Paste	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	3¼ gal.	4 gal.	¾ gal.	1½ gal.
Pure turpentine	2 gal.	2 gal.	1½ gal.	1½ gal.
Pure drier	1 pt.	*1 pt.	1 pt.	*1 pt.

	(c) Third coat	
	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.
Pure linseed oil	2¾ gal.	3½ gal.
Pure turpentine	1 pt.	1 pt.
Pure drier	1 pt.	*1 pt.

*When boiled oil is used, reduce drier to ½ pt.

(10) Old Woodwork Outside—Two coats of paint as follows shall be applied in repairing old woodwork outside:

	(a) First coat		(b) Second coat	
	Soft Paste	Heavy Paste	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	1¼ gal.	2 gal.	2¾ gal.	3½ gal.
Pure turpentine	2 gal.	2 gal.	1 pt.	1 pt.
Pure drier	1 pt.	1 pt.*	1 pt.	1 pt.*

*When boiled oil is used, reduce drier to ½ pt.

Note: In sections of the country where the air is normally damp, such as along the seacoast, better results will be obtained by reducing the linseed oil in the last coat for both new and old woodwork to 3 gals. if heavy paste white lead is used and to 2¼ gals. if soft white lead is used. If this change is made, increase the turpentine to 2 pts.

(11) New Woodwork Inside—Three coats of paint, mixed as follows, shall be applied to new unpainted woodwork inside:

	(a) Priming coat	(b) Second coat
Dutch Boy White Lead (heavy paste)	100 lb.	100 lb.
Dutch Boy Flatting Oil	3 gal.	2 gal.
Pure linseed oil	3 gal.	None
Pure drier	1 pt.	None

	(c) Third coat (Flat finish)	(d) Third coat (Eggshell gloss finish)
Dutch Boy White Lead (heavy paste)	100 lb.	100 lb.
Dutch Boy Flatting Oil	2 gal.	1½ gal.
Floor varnish	None	¾ gal.

(12) Old Woodwork Inside—Two coats of paint shall be used in repainting woodwork inside. For a flat finish, mix the paint for the first and second coats according to formula B in paragraph 11. For an eggshell gloss finish, mix the paint for the first coat according to formula B in paragraph 11 and according to formula D for the finishing coat.

(13) Plaster Walls—Three coats of paint shall be applied to plaster which has never before been painted. The priming coat shall be Dutch Boy Wall Primer or the following:

Dutch Boy White Lead (heavy paste)	100 lb.
Pure boiled linseed oil	7 gal.
Pure turpentine	1 gal.

Note: If boiled linseed oil can not be obtained, 7 gal. raw linseed oil with 3 pt. drier may be used instead and will in most cases give satisfactory results. Boiled oil is much superior, however, and will obviate trouble when conditions are difficult. It seals pores in the plaster and prevents suction.

Mix the paint for the second coat according to formula B in paragraph 11 and according to formula C for the finishing coat if a flat finish is desired. If an eggshell finish is wanted, mix the paint for the finishing coat according to formula D.

In repainting plaster walls, follow the practice recommended for new plaster, except that the priming coat may be omitted.

(14) Brick and Stucco—Three coats of paint, mixed as follows, shall be applied to brick or stucco which has never before been painted:

	(a) Priming coat		(b) Second coat	
	Soft Paste	Heavy Paste	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	6¼ gal.*	7 gal.*	3¼ gal.†	4 gal.†
Pure turpentine	1 gal.	1 gal.	1 gal.	1 gal.
Pure drier	½ pt.	None	1 pt.	1 pt.

	(c) Third coat (Oil gloss finish)		(d) Third coat (Flat finish)	
	Soft Paste	Heavy Paste	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	2¾ gal.†	3½ gal.†	None	None
Dutch Boy Flatting Oil	None	None	None	2 gal.
Pure turpentine	1 pt.	1 pt.	2 gal.	None
Pure drier	1 pt.	1 pt.	½ pt.	None

*Boiled linseed oil is recommended but if it is not available use pure raw linseed oil and add pure drier not to exceed 1½ pt.
†Where boiled oil is used, reduce drier to ½ pt.

Two coats of paint shall be applied in repainting brick and stucco. For the first coat, mix the paint according to formula B in paragraph 14 and for the finishing coat according to formula C or D.

(15) Concrete and Stone—Three coats of paint, mixed as follows, shall be applied to concrete and stone which have never before been painted:

	(a) Priming coat		(b) Second coat	
	Soft Paste	Heavy Paste	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	4¼ gal.*	5 gal.*	2¼ gal.†	3 gal.†
Pure turpentine	1 gal.	1 gal.	½ gal.	½ gal.
Pure drier	½ pt.	None	1 pt.	1 pt.

	(c) Third coat (Oil gloss finish)		(d) Third coat (Flat finish)	
	Soft Paste	Heavy Paste	Soft Paste	Heavy Paste
Dutch Boy White Lead	100 lb.	100 lb.	100 lb.	100 lb.
Pure linseed oil	2¾ gal.†	3½ gal.†	None	None
Dutch Boy Flatting Oil	None	None	None	2 gal.
Pure turpentine	1 pt.	1 pt.	2 gal.	None
Pure drier	1 pt.	1 pt.	½ pt.	None

*Boiled linseed oil is recommended but if it is not available use pure raw linseed oil and add pure drier not to exceed 1½ pt.
†Where boiled oil is used, reduce drier to ½ pt.

In repainting concrete and stone, apply two coats. Mix the paint for the first coat according to formula B in paragraph 15 and according to formula C or D for the second coat.

A semiflat finish on brick, stone, concrete and stucco can be secured by applying over the second coat one or two coats of paint made with 100 lbs. heavy paste white lead, 1½ gal. flatting oil and ¾ gal. spar varnish. For brick red finish on outside brick thin the color with Dutch Boy Flatting Oil.

(16) Metal Work, Exterior and Interior—Three coats of paint, mixed as follows, shall be applied to exterior and interior metal work:

	(a) First coat	(b) Second coat (light brown)
Dutch Boy Red Lead-in-oil	100 lb.	100 lb.
Pure linseed oil	2⅜ gal.	2½ gal.
Lampblack-in-oil	None	12 oz.
Pure turpentine	1 pt.	1 pt.
Pure drier	1 pt.	1 pt.
	or	
Pure dry red lead	100 lb.	100 lb.
Pure linseed oil	3⅝ gal.	3¾ gal.
Lampblack-in-oil	None	13 oz.
Pure turpentine	1 pt.	1 pt.
Pure drier	1 pt.	1 pt.

(c) Third coat (dark brown)

Dutch Boy Red Lead-in-oil	100 lb.
Pure linseed oil	3⅝ gal.
Lampblack-in-oil	6 lb.
Pure turpentine	1 pt.
Pure drier	1 pt.
or	
Pure dry red lead	100 lb.
Pure linseed oil	5 gal.
Lampblack-in-oil	6½ lb.
Pure turpentine	1 pt.
Pure drier	1 pt.

Note: If genuine boiled linseed oil is available, use one-third boiled and two-thirds raw oil, omitting drier.

If liquid red lead is to be used, specify Dutch Boy Liquid Red Lead No. 1 (natural red lead color) for first coat, Dutch Boy Liquid Red Lead No. 6 (light brown) for second coat and Dutch Boy Liquid Red Lead No. 7 (dark brown) for third coat.

Where a dark color other than brown is desired for the finishing coat, one of the following formulas shall be used according to the color desired:

	Light green	Dark green
Dutch Boy Red Lead-in-oil	100 lb.	100 lb.
Pure linseed oil	5½ gal.	4 gal.
Medium chrome yellow	30 lb.	12½ lb.
Chinese or prussian blue	12 lb.	7½ lb.
Pure turpentine	1 pt.	2 pt.
Pure drier	1 pt.	2 pt.

	Black
Dutch Boy Red Lead-in-oil	100 lb.
Pure linseed oil	14 gal.
Chinese or prussian blue	16 lb.
Lampblack-in-oil	52 lb.
Pure turpentine	½ gal.
Pure drier	½ gal.

If liquid red lead is to be used, specify Dutch Boy Liquid Red Lead according to the finishing color desired, that is: No. 8—light green; No. 9—dark green or No. 5—black.

ZINC SULPHIDE AND ZINC OXIDE PAINT PIGMENTS

MANUFACTURED BY

THE NEW JERSEY ZINC COMPANY

ESTABLISHED 1848

160 Front Street, NEW YORK, N. Y.

HIGH GRADE PAINT FINISHES ARE ASSURED

Because the permanence of the paint finish determines the length of time your work will retain its original charm, paint manufacturers have devoted a great deal of effort to the formulation of finishes which will insure brilliant and lasting whiteness or clear, unchangeable and enduring tints, as long as good paint can last. There are definite advantages in using these prepared paints for both interior and exterior use.

New Jersey zinc®

TRADE-MARK

The beauty of a paint finish depends largely upon its pigments. To retain its brilliant whiteness, or clearness of tint, a paint must be based upon naturally white pigments, such as the zinc sulphide pigments—"Albalith" Lithopone, "Cryptone" high zinc sulphide pigments and "XX" Zinc Sulphide—and the lead-free and leaded zinc oxides. For if the base pigment changes in color, the paint cannot hold its original tint. The perfection of these pigments means that today property can be decorated without reference to surrounding atmospheric conditions. And after several repaintings, the surface will not have the "pebbly" appearance characteristic of paints that do not wear away to a good repaintable surface.

The life of a paint finish depends upon a number of factors. The protection which the pigments give the vehicle is exceedingly important. The prepared paints of paint manufacturers, since they contain two or more pigments with characteristics reinforcing and augmenting each other, as set forth below, provide a more effective shield than a single pigment paint. It is significant that there are more Zinc Sulphide and Zinc Oxide pigments used in paint finishes today than any of the other opaque white pigments. They impart the properties below to specific types of paints.

Lithopone

In Interior Paints—Interior flat and gloss finishes of high hiding power, good color and high spreading rate are made with Lithopone. It is the basic pigment used in making practically all of the high grade flat wall paints. Lithopone is also used in good smooth enamels and gloss finishes.

Paints containing a high percentage of Lithopone give more square feet of hiding power for a dollar than can be obtained from interior paint made from any other white pigment known.

Not more gallons for less money, but the greatest paint value per dollar.

In Exterior Paints—Brilliant and lasting exterior paints are made from Lithopone and Zinc Oxide (a necessary pigment to give exterior paints durability) by paint manufacturers combining these pigments with the proper vehicle. They are clear, unchanging in tint, high in spreading rate and hiding power and durable. The effects of the hydrogen sulphide and sulphur dioxide gases present in town and city smoke are reduced to a minimum when paints based on these permanently white pigments are used. The manufacture and consumption of Lithopone-Zinc Oxide base paints have grown tremendously within the past few years, until today a great majority of paint manufacturers have such a paint in their lines.

Zinc Oxide

In Interior Paints—To increase the luster and smoothness, and to stabilize the color, are the main functions of Zinc Oxide in interior paint. Zinc Oxide is extremely fine in particle size and bright, and its presence in sufficient amounts gives luster to paint finishes.

The use of Zinc Oxides in interior paint finishes is second only to that of Zinc Sulphide pigments.

The finest grades of white and tinted enamels are made from French Process Zinc Oxide. Its use gives a smooth plate glass finish and high luster.

Both French Process and American Process Zinc Oxides are extensively used for flat wall paints and gloss finishes in conjunction with Lithopone and the other Zinc Sulphide pigments. Greater permanence is given such interior finishes by the addition of Zinc Oxide and settling in the can is minimized.

In Exterior Paints—Superior color, more lasting brightness, and longer life combined with reasonable cost are characteristics of the modern outside house paints made by paint manufacturers.

Zinc Oxide, in sufficient quantity, makes paint go farther and last longer when scientifically compounded by paint manufacturers with other pigments and the proper vehicle. Zinc Oxide is the only opaque white paint pigment which tends to dry to a hard film with linseed oil, and is most effective in preventing the destructive action of the sun's ultra-violet rays on exterior paint films. Another important advantage of Zinc Oxide in paint is that its presence either prevents or greatly lessens the formation of mildew.

Zinc Oxide in paint retards chalking, reduces fading, and produces a smooth, firm film that retains its beauty.

All of the approximately 500 paint manufacturers who make outside white house paints use from 20% to 60% of Zinc Oxide.

"Cryptone" (High Zinc Sulphide Pigments) in High Hiding Paints

An increasing interest in high hiding paints has resulted from the use of quick drying enamels, lacquers and outside paints of greater opacity. In order to increase the hiding power without disturbing the pigment-vehicle ratio, Cryptone, a white pigment of very high hiding power, is being used. Cryptone is made on both a barium base and a calcium base to provide the range of qualities desired for various types of paints.

Interior finishes made with Cryptone alone give complete hiding with one coat. They have the brightness, luster and good leveling qualities which architectural finishes require.

In outside paints barium base Cryptone is used, always accompanied by Zinc Oxide, which gives durability to all exterior paint finishes. The permanence of that finish is also aided by the Cryptone, for as the Zinc Sulphide content increases in a raw or refined linseed oil vehicle, it lends greater powers of resistance to distintegration due partly to greater opacity to the ultra-violet rays, and the paint remains intact for a longer time.

The Cryptones are high Zinc Sulphide pigments. The chief characteristic of the Cryptones is their high hiding power, which is approximately 30% greater than ordinary Lithopone, as measured by the cryptometer. Calcium base Cryptone has bulking value second to no other opaque white paint pigment.

Cryptone in its present improved form maintains the position it has always held, namely: leading the high strength pigments on the basis of hiding power per dollar.

XX Zinc Sulphide

In decorative paints—interior and exterior—labor represents 60% to 85% of the cost of painting. "XX" Zinc Sulphide is beginning to be used here in the interest of saving coats where the application of fewer coats is desirable.

The most important use for Zinc Sulphide in the field of protective coatings is in industrial specialties, 4-hour enamels and lacquers. In many of these, the utmost hiding power is wanted—in others, high luster with high opacity, and again, especially in the case of 4-hour enamels and lacquers, high hiding power with low pigmentation.

The characteristics of "XX" Zinc Sulphide have extended its use in industrial specialties, flat and gloss lacquers, and enamels that have to cover solidly in one coat or dark surfaces hard to obscure. It is the highest in hiding power of the Zinc pigments.

O'BRIEN VARNISH CO.

Varnishes, Enamels, Paints, Stains and Lacquers
"America's Finest Finishes" Since 1875

SOUTH BEND, IND.

BRANCH OFFICES

NEW YORK, N. Y. CHICAGO, ILL. DETROIT, MICH. MINNEAPOLIS, MINN.

Products

A full and complete line of VARNISHES, PAINTS, ENAMELS, WALL FINISHES, STAINS and other FINISHING MATERIALS for every conceivable purpose. Each and every product bearing the famous O'Brien trade-mark is of the highest quality in every detail and represents the type of material which the architect can specify with positive assurance of satisfactory results to all parties concerned.

O'Brien's Enamel with 2-Hour Drying

A supergrade enamel in every detail. Phenol-formaldehyde and bakelite synthetic resins instead of fossil gums; titanium oxide in place of zinc; tung oil instead of linseed; and a complete system of newly-invented manufacturing processes are but a few of the many differences between O'Brien's 2-Hour and other high-grade architectural enamels. These differences and variations impart many new and improved qualities and properties to O'Brien's 2-Hour—the more important of which and the resulting advantages to the architect are as follows:

2-Hour Drying—"Cleaner" finishes with fewer dust and lint specks, and quicker completion of surface finishing.

Easier Working—More work per day on the part of the painter.

Better Leveling—Smoother finishes with less sandpapering between coats.

Greater Hiding—Maximum purity and fullness of color with fewer coats.

Incredible Durability—The very utmost in service to your client. It makes positively no difference whether the surface be inside or outside—of wood, plaster, wall board, concrete, brick or metal—O'Brien's Enamel, with 2-hour drying, is as fine, if not the finest, coating obtainable for its finishing or refinishing.

Enamel Specifications

Preparation—Wood must be dry, sandpapered smooth, dusted thoroughly and all grease, oil and soiled spots cleaned off before finishing is started. All sap streaks and knots shall be given a coat of shellac and allowed to dry overnight before prime coat is applied.

Plaster, brick or concrete surfaces must be clean and dry, and all scale and loose particles removed by wire brushing.

Each coat must be allowed to dry and harden throughly and be properly sandpapered wherever sanding is necessary before the succeeding coat is applied.

Note: Where plaster or concrete is "green" or strong in alkali, include the following clause: "Apply a neutralizing coat of zinc sulphate, using from 1 to 3 lbs. dissolved in gal. of water. Allow to dry and then remove all loose crystals by brushing."

Five-coat Work

Specification No. 1—*Non-resinous Woods*—White pine, poplar, etc.
First Coat—O'Brien's 4-Hour Enamel Undercoat reduced to priming consistency (not to exceed 10%) with pure, raw linseed oil.
Second Coat—O'Brien's 4-Hour Enamel Undercoat, no thinning or reducing.
Third Coat—O'Brien's 4-Hour Enamel Undercoat, no thinning or reducing.
Fourth Coat—O'Brien's Enamel, with 2-hour drying, as it comes from the can.
Fifth Coat—O'Brien's Enamel, with 2-hour drying, as it comes from the can.

Specification No. 2—*Hard, Resinous Woods*—Yellow pine, birch, etc.
First Coat—O'Brien's 4-Hour Enamel Undercoat reduced to priming consistency (not to exceed 10%) with pure spirits of turpentine.
Second Coat—O'Brien's 4-Hour Enamel Undercoat, no thinning or reducing.
Third Coat—O'Brien's 4-Hour Enamel Undercoat, no thinning or reducing.
Fourth Coat—O'Brien's Enamel, with 2-hour drying, as it comes from the can.
Fifth Coat—O'Brien's Enamel, with 2-hour drying, as it comes from the can.

Four-coat Work

While the five-coat systems outlined above are recommended for the very finest work, satisfactory results may be obtained in four coats where costs are an important consideration. In preparing specifications for four-coat work, omit the "third coat" from the foregoing systems.

Specification No. 3—*Plaster, Concrete, Brick and Wallboard*—
First Coat—O'Brien's 4-Hour Enamel Undercoat mixed with an equal amount of O'Brien's No. 701 Wall Size.
Second Coat—O'Brien's 4-Hour Enamel Undercoat, no thinning.
Third Coat—O'Brien's Enamel, with 2-hour drying, without thinning.
Fourth Coat—O'Brien's Enamel, with 2-hour drying, without thinning.

Specification No. 4—*Steel Columns, Sheet Metal, Piping, etc.*—
First Coat—O'Brien's No. 701 Size mixed in equal proportions with O'Brien's 4-Hour Enamel Undercoat.
Second Coat—O'Brien's 4-Hour Enamel Undercoat, no thinning.
Third Coat—O'Brien's Enamel, with 2-hour drying, without thinning.
Fourth Coat—O'Brien's Enamel, with 2-hour drying, without thinning.

Hand Rubbed Work

For a flat, hand rubbed finish on enamel work, include the following clause: "Allow last coat of enamel to dry for 24 hours and then rub to a dull finish with powdered pumicestone and water."

Eggshell and Hand Polished Work

Specifications covering either an *eggshell* or hand polished finish should include the following clause: "Allow finishing coat of enamel to harden for 24 hours, rub to a dull finish with powdered pumicestone and water and polish back to luster selected with rottenstone and oil."

O'Brien's Varnish with 2-Hour Drying

Waterproof, weatherproof, extremely durable—in fact, this varnish possesses every desirable quality and property, each and every one of which has been developed to a very high degree of efficiency and perfection. It is, for example, just as tough, hard and wear-resisting as the best grades of floor varnish—will stand a longer and more severe water and weather test than high-grade spar varnishes—has all the easy working and rubbing and polishing properties of fine interior finishing varnishes, and may be specified for the very finest of interior or exterior work with positive assurance of an exceptional finish in every detail.

Varnish Specifications

Preparation—All wood must be dry, sandpapered smooth, dusted thoroughly and all grease, oil and soiled spots cleaned off before finishing is started.

Each coat must be allowed to dry and harden thoroughly and be properly sandpapered wherever sandpapering is necessary before the succeeding coat is applied.

Specification No. 1—*Close Grain Woods*—
First Coat—O'Brien's Pyramid Paste Oil Stain, color to be selected. Wipe off surplus before stain is thoroughly dry. When dry, fill all nailholes and repair all other surface imperfections in an approved manner.
Second Coat—O'Brien's (2-Hour) Varnish, thinned 10% with pure spirits of turpentine.
Third Coat—O'Brien's (2-Hour) Varnish, as it comes from the can.
Fourth Coat—O'Brien's (2-Hour) Varnish, as it comes from the can.

Specification No. 2—*Open Grain Woods*—
First Coat—O'Brien's Pyramid Paste Oil Stain, color to be selected. Wipe off surplus before drying and, when dry, fill all nailholes and repair all other surface imperfections in an approved manner.
Second Coat—O'Brien's Pyramid Stained Paste Filler, same shade as stain, to be wiped off *across* the grain of the wood, packing the filler into the pores.
Third Coat—O'Brien's (2-Hour) Varnish, thinned 10% with pure spirits of turpentine.
Fourth Coat—O'Brien's (2-Hour) Varnish, without thinning or reducing.
Fifth Coat—O'Brien's (2-Hour) Varnish, without thinning or reducing.

Natural Effects—No Staining—Omit "first coat" from Specifications No. 1 and No. 2 and specify O'Brien's Pyramid *Natural* Paste Filler for "second coat" in Specification No. 2.

Eggshell Finish—Allow finishing coat of O'Brien's (2-Hour) Varnish to dry for 24 hours and then rub down to an eggshell luster with powdered pumicestone and oil.

Flat, Rubbed Finish—Allow last coat of O'Brien's (2-Hour) Varnish to dry for 24 hours and then rub to a flat finish with powdered pumicestone and water.

Polished Finish—Allow final coat of O'Brien's (2-Hour) Varnish to dry for 24 hours. Rub with pumicestone and water. Clean carefully and polish back to luster selected with rottenstone and oil.

PITTSBURGH PLATE GLASS CO.

Manufacturers of Glass, Paint, Varnish, Lacquer and Brushes for All Purposes

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Grant Building, PITTSBURGH, PA.

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ARCHITECTURAL SPECIFICATIONS FOR PAINTING AND VARNISHING

General Conditions

General

The general conditions and instructions to bidders as applied on the general contract, apply also on the painting contract.

Scope of Work

The work to be done by the painting contractor includes the furnishing of all material, labor, tools and equipment which shall be required to complete the painting and finishing of the building as specified.

Exceptions

The painting contract does not include shop coats.

Workmanship

All work shall be done in a workmanlike manner and by skilled mechanics. All materials shall be evenly spread and smoothly flowed on and shall be free from runs or sags, and no paint, varnish or enamel shall be applied until preceding coat is thoroughly dry and hard.

No exterior painting shall be done in rainy, damp or frosty weather or until the surface is thoroughly dry.

No interior painting or finishing shall be permitted until the building has been thoroughly dried out by artificial heat.

Exterior oil paints shall be allowed to dry at least 48 hours between coats. Interior paints shall be allowed to dry at least 24 hours between coats.

Enamels and varnishes shall be allowed to dry at least 48 hours between coats unless noted in the detail specifications and shall be sanded lightly between coats with No. 0 sandpaper and dusted before succeeding coat is applied.

After applying paste wood fillers, excess shall be carefully and neatly cleaned from the surface by rubbing across the grain. All nail holes shall be filled with putty, tinted to match finish.

Preparation of Surfaces

The painting contractor shall be wholly responsible for the finish of his work, and, therefore, shall not commence any part of it until the surface is in proper condition in every respect. If the painting contractor considers any surface so unsuitable for the proper finish of his work that it cannot be rectified by slight sanding, he shall notify the Architect of this fact in writing before any materials are applied and he shall not apply any material until the unsuitable surfaces have been made satisfactory, or the Architect has instructed him to proceed with the work.

All knots or sappy spots shall be given one coat of shellac at least 10 hours before painting.

All necessary puttying of nail holes, cracks and blemishes shall be done after the priming coat has become hard and dry and before the second coat is applied, and the putty shall match the shade of the finish coat.

On old paint the surface shall be first brushed with a wire brush or sandpapered and where it is scaling badly, shall be scraped or burned off.

All greasy or oily metal surfaces shall be cleaned with turpentine or benzine before applying any materials. All scale or rust shall be removed by scraping or wire brushing.

No paint shall be applied to concrete that has not aged for at least 30 days. Wire brush to remove all loose or scaling particles.

The painting contractor shall be expected to correct all hot spots and alkali present in masonry surfaces that are to be painted, and no work will be accepted that is blemished by these factors.

Any masonry surfaces which can possibly be alkaline shall be given a neutralizing coat of zinc sulphite wash, using 3 or 4 pounds to each gallon of water. After this wash, the walls shall be allowed to dry thoroughly before any paint is applied and all loose crystals which may have formed shall be brushed off.

Galvanized iron shall be washed with a solution of copper sulphate, using 8 ounces dissolved in one gallon of warm water. The surface must show a uniform black color. Any bright metallic spots that remain must be scoured with steel wool and again washed with the copper solution until the entire area is black in color. When dry, priming coat of paint may be applied.

Materials

All materials used under painting contract shall be as manufactured by the PITTSBURGH PLATE GLASS CO. and shall be delivered on the work in the original sealed containers.

All mixing required shall be done on the premises, and the materials shall be thoroughly stirred and agitated. No materials shall be reduced or changed in any way except as and when specified, and thinners must be pure.

Any tinting or matching of colors shall be done under the supervision of the Architect. In all cases a sample shall be applied on the job and the Architect must give his approval of it before the work is actually begun.

Protection of Property

The painting contractor shall be responsible for the condition of the building in his charge. He shall protect adjacent work and materials as well as his own.

Inspection

Every facility shall be provided for inspection of the work at any time by the Architect or his authorized representative.

Any work not conforming to these specifications shall be cleaned off and repainted at the expense of the contractor.

Removal

When the work is completed, the painting contractor shall remove all surplus materials, scaffold, etc., and he shall clean off all misplaced paint, varnish, etc., so as to leave the premises in perfect condition, acceptable to the Architect.

SPECIFICATION NO. 1

Metal Paint

Iron or Steel Surfaces—Ornamental Iron Normal Exposure

Ironhide Paint

Three Coat Work—

First Coat—Ironhide—Inhibitive Red.
Second Coat—Ironhide—Inhibitive Brown.
Third Coat—Ironhide—Finishing Black or shade as selected.

Two Coat Work—

First Coat—Ironhide—Inhibitive Red or Brown.
Second Coat—Ironhide—Finishing Black or shade as selected.

Liquid Graphite Paint

Three Coat Work—

First Coat—Ironhide—Inhibitive Red or Brown.
Second Coat—Liquid Graphite (natural).
Third Coat—Liquid Graphite (natural).

Two Coat Work—

First Coat—Ironhide—Inhibitive Red or Brown.
Second Coat—Liquid Graphite (natural).

SPECIFICATION NO. 2

Metal Paint

Iron or Steel Surfaces Abnormal Exposure

Recommendations should be obtained from manufacturer to cover abnormal cases.

See Architectural Specification Book for Detailed Description of Products Mentioned Above.

SPECIFICATION NO. 3
Metal Paint
Iron or Steel Surfaces
Hot Surfaces

Recommendations should be obtained from manufacturer after describing specific conditions involved.

SPECIFICATION NO. 4
Metal Paint
Metal Roofs

Pittsburgh Barn and Roof Paint

First Coat—Pittsburgh Barn and Roof Paint (red or gray).
Second Coat—Pittsburgh Barn and Roof Paint (red or gray).

Liquid Graphite

First Coat—Ironhide—Inhibitive Red.
Second Coat—Liquid Graphite (natural).

Ironhide

First Coat—Ironhide—Inhibitive Red.
Second Coat—Ironhide—Inhibitive Red or shade as selected.

SPECIFICATION NO. 5
Metal Paint
Galvanized Iron

First Coat—Ironhide—Inhibitive Red.
Second Coat—Ironhide—Inhibitive Brown.
Third Coat—Ironhide—Finishing Black or selected shade, or Sun-Proof Liquid Paint, shade as selected.

Note: Observe precautions given under last paragraph of "Preparation of Surfaces" on previous page.

SPECIFICATION NO. 6
Aluminum Paint
Iron or Steel Surfaces
Normal Exposures

Pittsburgh Aluminum Paint Liquid

Three Coat Work—
First Coat—Ironhide—Inhibitive Red.
Second Coat—Aluminum Paint Liquid No. 20.
Third Coat—Aluminum Paint Liquid No. 20.

Two Coat Work—
First Coat—Ironhide—Inhibitive Red.
Second Coat—Aluminum Paint Liquid No. 20.

Note: Aluminum Paint requirements should be prepared from day to day by mixing together one gallon Aluminum Paint Liquid (number as specified) and two pounds Aluminum Bronze.

For lower grade paint substitute "Aluminum Paint Liquid No. 30."

SPECIFICATION NO. 7
Aluminum Paint
Iron or Steel Surfaces
Hot Surfaces

Pittsburgh Aluminum Paint Liquid

First Coat—Aluminum Paint Liquid No. 40.

Note: Aluminum Paint requirements should be prepared from day to day by mixing together one gallon Aluminum Paint Liquid (number as specified) and two pounds Aluminum Bronze.

SPECIFICATION NO. 8
Aluminum Paint
Exterior Surfaces—Wood
Normal Exposure

Pittsburgh Aluminum Paint Liquid

First Coat—Aluminum Paint Liquid No. 50.
Second Coat—Aluminum Paint Liquid No. 20.

Note: Aluminum Paint requirements should be prepared from day to day by mixing together one gallon Aluminum Paint Liquid (number as specified) and two pounds Aluminum Bronze.

For lower grade of paint substitute Aluminum Paint Liquid No. 30 for No. 20.

SPECIFICATION NO. 9
Aluminum Paint
Interior Surfaces—Plaster and Wallboard

Pittsburgh Aluminum Paint Liquid

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount.
Second Coat—Aluminum Paint Liquid No. 20.

Note: Aluminum Paint requirements should be prepared from day to day by mixing together one gallon Aluminum Paint Liquid (number as specified) and two pounds Aluminum Bronze.

SPECIFICATION NO. 10
Aluminum Paint
Interior Surfaces—Wood

Pittsburgh Aluminum Paint Liquid

First Coat—Aluminum Paint Liquid No. 50.
Second Coat—Aluminum Paint Liquid No. 20.

Note: Aluminum Paint requirements should be prepared from day to day by mixing together one gallon Aluminum Paint Liquid (number as specified) and two pounds Aluminum Bronze.

SPECIFICATION NO. 11
Enamel Paint
Interior Surfaces—Ornamental Iron

Banzai, Waterspar or Plasco Enamel

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount
or
Pitcairn Tector, each gallon reduced with 1 quart of Turpentine.

Second Coat—Banzai Double Cover Undercoater
or
Velumina Silk White.

Third Coat—Banzai Double Cover Undercoater
or
Velumina Silk White.

Fourth Coat—Banzai Enamel
or
Waterspar Enamel (Slow-drying)
or
Waterspar Enamel (Quick-drying)
or
Plasco Enamel
or
Special Enamels (information on request).

Note: Above Enamels, Gloss or Eggshell, in shades as selected.

See Architectural Specification Book for Detailed Description of Products Mentioned Above.

SPECIFICATION NO. 12
Enamel Paint
Metal Trim and Ceilings

Banzai Enamel

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount,
or
Pitcairn Tector, each gallon reduced with 1 quart of Turpentine.
or
Second Coat—Banzai Double Cover Undercoater.
Third Coat—Banzai Double Cover Undercoater, each gallon reduced with 1 gallon Banzai Enamel.
Fourth Coat—Banzai Enamel, Gloss or Eggshell, shade as selected.

Waterspar or Plasco Enamel

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount,
or
Pitcairn Tector, each gallon reduced with 1 quart of Turpentine.
Second Coat—Plasco Undercoater
or
Velumina Silk White.
Third Coat—Waterspar Enamel (slow-drying), each gallon reduced with 1 gallon Plasco Undercoater,
or
Plasco Enamel, each gallon reduced with 1 gallon Plasco Undercoater.
Fourth Coat—Waterspar Enamel (slow-drying),
or
Waterspar Enamel (quick-drying),
or
Plasco Enamel.

Note: These Enamels, Gloss, in shade as selected.

SPECIFICATION NO. 13
Enamel Paint
Radiators

First Coat—Velumina Flat Wall Paint, each gallon reduced with ¼ gallon Boiled Linseed Oil.
Second Coat—(Optional) Velumina Flat Wall Paint, shade as selected.
or
Waterspar Enamel, Gloss, shade as selected.

SPECIFICATION NO. 14
Enamel Paint
Exterior Surfaces—Wood
Normal Exposure

Banzai Enamel

First Coat—Snolite, each gallon reduced with 1¼ gallon Raw Linseed Oil, ¼ gallon Turpentine, ¼ pint Compo Drier.
Second Coat—Snolite, each gallon reduced with ⅜ gallon Raw Linseed Oil, ⅜ gallon Turpentine, ¼ pint Compo Drier.
Third Coat—Banzai Enamel, Gloss or Eggshell.
Fourth Coat—Banzai Enamel, Gloss or Eggshell.

SPECIFICATION NO. 15
Enamel Paint
Exterior Surfaces—Wood
Abnormal Exposure

Recommendations should be obtained from manufacturer to cover abnormal cases.

SPECIFICATION NO. 16
Enamel Paint
Exterior Surfaces—Wood Porch Floors and Canvas Decks

Florhide Enamel

Three Coat Work—

First Coat—Florhide Enamel, shade as selected, each gallon reduced with ½ gallon of Pure Linseed Oil.
Second Coat—Florhide Enamel, shade as selected, each gallon reduced with ¼ gallon of Pure Linseed Oil.
Third Coat—Florhide Enamel, shade as selected, each gallon reduced with ¼ gallon of Pure Linseed Oil.

Two Coat Work—

First Coat—Florhide Enamel, shade as selected, each gallon reduced with ½ gallon of Pure Linseed Oil.
Second Coat—Florhide Enamel, shade as selected, each gallon reduced with ¼ gallon of Pure Linseed Oil.

SPECIFICATION NO. 17
Enamel Paint
Exterior and Interior Surfaces—Cement Floors

Florhide Enamel

First Coat—Florhide Enamel, shade as selected, each gallon reduced with 1 pint Leptyne or Turpentine.
Second Coat—Florhide Enamel, shade as selected.

SPECIFICATION NO. 18
Enamel Paint
Interior Surfaces—Plaster, Concrete and Brick Walls

Banzai Enamel

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount.
Second Coat—Banzai Double Cover Undercoater, each gallon reduced with ¼ gallon Boiled Linseed Oil.
Third Coat—Banzai Double Cover Undercoater.
Fourth Coat—Banzai Enamel, Gloss or Eggshell, flowed on.

Sun-Glo Finish

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount.
Second Coat—Sun-Glo Finish, shade as selected.
Third Coat—Sun-Glo Finish, shade as selected.

SPECIFICATION NO. 19
Enamel Paint
Interior Surfaces—Wood Trim

Banzai Enamel

First Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine,
or
Banzai Double Cover Undercoater, each gallon reduced with ¼ gallon Boiled Linseed Oil.
Second Coat—Banzai Double Cover Undercoater.
Third Coat—Banzai Enamel, each gallon reduced with 2 gallons of Banzai Double Cover Undercoater.
Fourth Coat—Banzai Enamel, Gloss or Eggshell.

Sun-Glo Finish

First Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.
Second Coat—Sun-Glo Finish.
Third Coat—Sun-Glo Finish in shade desired.

See Architectural Specification Book for Detailed Description of Products Mentioned Above.

SPECIFICATION NO. 20
House Paint
Exterior Surfaces—Wood
Normal Exposure

Sun-Proof Liquid Paint

Three Coat Work—Non-Resinous Woods—

First Coat—Sun-Proof Liquid Paint, shade as selected, each gallon reduced with 3 pints of pure raw Linseed Oil, 1 pint of Leptyne or Turpentine.

Second Coat—Sun-Proof Liquid Paint, shade as selected, each gallon reduced with 1 pint of Leptyne or Turpentine.

Third Coat—Sun-Proof Liquid Paint, shade as selected.

Three Coat Work—Resinous Woods—

First Coat—Sun-Proof Liquid Paint, shade as selected, each gallon reduced with 1 quart of Pitcairn Tector and 1 pint of Leptyne or Turpentine.

Second Coat—Sun-Proof Liquid Paint, shade as selected, each gallon reduced with 1 pint of Leptyne or Turpentine.

Third Coat—Sun-Proof Liquid Paint, shade as selected.

Two Coat Work—

Apply first and third coats as specified above, omitting the second coat.

Note: Do not mix more First Coat than will be used in one day.

SPECIFICATION NO. 21
House Paint
Exterior Surfaces—Wood
Abnormal Exposure

Snolite

Three Coat Work—Non-Resinous Woods—

First Coat—Snolite, tinted with Oil Color to shade as selected, each gallon reduced with 1¼ gallon Raw Linseed Oil, ¼ gallon Turpentine, ¼ pint Pitcairn Compo Drier.

Second Coat—Snolite, tinted with Oil Color to shade as selected, each gallon reduced with ⅜ gallon Raw Linseed Oil, ⅜ gallon Turpentine, ¼ pint Pitcairn Compo Drier.

Third Coat—Snolite, tinted with Oil Color to shade as selected, each gallon reduced with ⅞ gallon Raw Linseed Oil, ⅛ gallon Turpentine, ¼ pint Pitcairn Compo Drier.

Three Coat Work—Resinous Woods—

First Coat—Snolite, tinted with Oil Color to shade as selected, each gallon reduced with ⅝ gallon Raw Linseed Oil, ½ gallon Pitcairn Tector, ⅛ gallon Turpentine.

Second Coat—Snolite, tinted with Oil Color to shade as selected, each gallon reduced with ⅜ gallon Raw Linseed Oil, ½ gallon Turpentine, ¼ pint Pitcairn Compo Drier.

Third Coat—Snolite, tinted with Oil Color to shade as selected, each gallon reduced with ⅞ gallon Raw Linseed Oil, ⅛ gallon Turpentine, ¼ pint Pitcairn Compo Drier.

Two Coat Work—

Apply first and third coats as specified above, omitting the second coat.

Note: When considerable amounts of Oil Colors are used, add proportionate amounts of Oil, Turpentine and Compo Drier.

SPECIFICATION NO. 22
Flat Wall Paint
Interior Surfaces—Plaster and Wallboard

Velumina Wallhide System

Two Coat Work—

First Coat—Velumina Wallhide First Coater, each gallon reduced with 2 pints of Leptyne or Turpentine, Leptyne being preferred. Tint with not to exceed 1 quart of Velumina Wallhide Interior Wall Paint of Color selected for finishing coat.

Second Coat—Velumina Wallhide Interior Wall Paint, shade as selected (Flat White, Satin White, or Stipple White).

Three Coat Work—

First Coat—Velumina Wallhide First Coater untinted, each gallon reduced with 2 pints of Leptyne or Turpentine, Leptyne being preferred. Allow to dry over night.

Second Coat—Velumina Wallhide First Coater, each gallon reduced with 2 pints of Leptyne or Turpentine, Leptyne being preferred, and tinted with 1 quart of Velumina Wallhide Interior Wall Paint of color selected for finishing coat. Allow to dry over night.

Third Coat—Velumina Wallhide Interior Wall Paint, shade as selected (Flat White, Satin White, or Stipple White). Use as supplied.

SPECIFICATION NO. 23
Flat Wall Paint
Metal Trim and Ceiling

Velumina Wallhide System

Two Coat Work—

First Coat—Velumina Wallhide First Coater, each gallon reduced with 2 pints of Leptyne or Turpentine, Leptyne being preferred, and tinted with not to exceed 1 quart of Velumina Wallhide Interior Wall Paint of color selected for finishing coat.

Second Coat—Velumina Wallhide Interior Wall Paint, shade as selected (Flat White, Satin White, or Stipple White).

Three Coat Work—

First Coat—Velumina Wallhide First Coater untinted, each gallon reduced with 2 pints of Leptyne or Turpentine, Leptyne being preferred. Allow to dry over night.

Second Coat—Velumina Wallhide First Coater, each gallon reduced with 2 pints of Leptyne or Turpentine, Leptyne being preferred, and tinted with one quart of Velumina Wallhide Interior Flat Wall Paint of color selected for finishing coat. Allow to dry over night.

Third Coat—Velumina Wallhide Interior Wall Paint, shade as selected (Flat White, Satin White, or Stipple White). Use as supplied.

SPECIFICATION NO. 24
Flat Wall Paint
Interior Surfaces—Plaster or Wallboard
Metal Trim and Ceilings

Velumina Wallhide System

One Coat Repaint Work—

Touch-up all plaster repairs with Velumina Wallhide First Coater. Allow to dry over night.

First Coat—Velumina Wallhide Interior Wall Paint, shade as selected (Flat White, Satin White, or Stipple White). Use as supplied.

SPECIFICATION NO. 25
Industrial Wall Paint

Interior Surfaces—Plaster, Cement and Wood

Alba-Lux

First Coat—Alba-Lux Flat, each gallon reduced with ¼ gallon Boiled Linseed Oil.

Second Coat—Alba-Lux, Eggshell or Gloss.

Velumina Wallhide

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount.

Second Coat—Alba-Lux, Gloss, Eggshell or Flat.

SPECIFICATION NO. 26
Shingle Stain

Wood Shingles—New or Old Work

Tor-On Shingle Stain

First Coat—Tor-On Shingle Stain, shade as selected, each gallon reduced with ¼ gallon Boiled Linseed Oil (dipped for 15 minutes).

Second Coat—Tor-On Liquid Shingle Stain, shade as selected.

SPECIFICATION NO. 27
Cement Paint

Exterior Surfaces—Cement, Stucco and Brick Walls

Cementhide

Three Coat Work—

First Coat—Cementhide Priming Liquid, each gallon reduced with 1 quart Cementhide, shade as selected.

Second Coat—Cementhide, shade as selected, each gallon reduced with ¼ gallon Cementhide Priming Liquid.

Third Coat—Cementhide, shade as selected, each gallon reduced with Leptyne or Turpentine if necessary.

Two Coat Work—

First Coat—Cementhide, shade as selected, each gallon reduced with ½ gallon Cementhide Priming Liquid.

Second Coat—Cementhide, shade as selected, each gallon reduced with Leptyne or Turpentine if necessary.

Note: For Gloss Finish substitute Sun-Proof Liquid Paint for Cementhide.

SPECIFICATION NO. 28
Plastic Paint

Plaster, Concrete, Brick and Wood

Plastic Velumina

First Coat—Velumina Flat Wall Paint, each gallon reduced with ¼ to 1 gallon Boiled Linseed Oil, depending upon porosity of surface.

Second Coat—Plastic Velumina applied with brush or plasterer's trowel.

Plastic Velumina—On Keene's Cement Plaster

First Coat—Velumina Wallhide First Coater, each gallon reduced with 2 pints of Leptyne or Turpentine.

Second Coat—Velumina Wallhide First Coater, each gallon reduced with 2 pints of Leptyne or Turpentine.

Third Coat—Plastic Velumina applied with brush or plasterer's trowel.

Velhide System—Pittsburgh Tiffany Wall Finishes

First Coat—Velumina Wallhide First Coater, each gallon reduced with not to exceed 3 pints of Leptyne or Turpentine, 2 pints being the average amount.

Second Coat—Velumina Wallhide Finishing Coat Satin White, tinted, or Velumina Flat Wall Paint, reduced with equal parts of Velumina Blending and Glazing Liquid. Spot and blend this mixture onto the wall; follow immediately by rolling loosely crumpled chamois over surface. (Do not apply undue pressure during rolling operation.) Roll chamois in varied directions to eliminate "pattern" effects. Wash chamois in turpentine frequently to remove paint.

SPECIFICATION NO. 29
Cold Water Paint

Interior Surfaces—Plaster and Wallboard

First Coat—Kalkamo Wall Size.

Second Coat—Kalkamo Wall Finish.

Note: For Acoustical Surfaces, or surfaces designed for sound-deadening, Kalkamo is ideal. Oil paints are not recommended because of their sealing properties, which tend to make the acoustical surfaces less porous and thus cause them to reflect sound instead of absorbing it.

SPECIFICATION NO. 30
Natural Varnish

Exterior Surfaces—Wood

Open Grain

First Coat—Pittsburgh Natural Paste Wood Filler, properly reduced with Leptyne or Benzine, brushed well into the grain.

Second Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.

Third, Fourth, Fifth Coats—200 Transparent Waterspar Quick-Drying Varnish.

SPECIFICATION NO. 31
Natural Varnish

Exterior Surfaces—Wood

Close Grain

First Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.

Second, Third, Fourth Coats—200 Transparent Waterspar Quick-Drying Varnish.

SPECIFICATION NO. 32
Stain and Varnish

Exterior Surfaces—Wood

Open Grain

First Coat—Pitcairn Oil Stain, shade as selected.

Second Coat—Pitcairn Spirit of Lacquer or Pure Shellac.

Third Coat—Pittsburgh Natural Paste Wood Filler, properly reduced with Leptyne or Benzine, brushed well into the grain.

Fourth, Fifth, Sixth Coats—200 Transparent Waterspar Quick-Drying Varnish.

See Architectural Specification Book for Detailed Description of Products Mentioned Above.

SPECIFICATION NO. 33
Stain and Varnish
Exterior Surfaces—Wood
Close Grain

First Coat—Pitcairn Oil Stain, shade as selected.
Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.
Third, Fourth, Fifth Coats—200 Transparent Waterspar Quick-Drying Varnish.

SPECIFICATION NO. 34
Natural Varnish
Interior Surfaces—Wood Trim
Open Grain

First Coat—Pittsburgh Natural Paste Wood Filler, properly reduced with Leptyne or Turpentine, brushed well into the grain.
Second Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.
Third Coat—Pitcairn Aged Finishing Spar Varnish.
Fourth Coat—(Natural) Pitcairn Aged Finishing Spar Varnish; (Dull) Pitcairn Flat Finish
or
Lavax Interior Flat
or
Pitcairn Aged Finishing Spar Varnish rubbed with pumice stone and rubbing oil.
Fifth Coat—(Optional) Pitcairn Aged Finishing Spar Varnish.
Note: Substitute Pitcairn Master Painter's Spar where economy is factor.

SPECIFICATION NO. 35
Natural Varnish
Interior Surfaces—Wood Trim
Close Grain

First Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.
Second Coat—Pitcairn Aged Finishing Spar Varnish.
Third Coat—(Natural Pitcairn Aged Finishing Spar Varnish; (Dull) Pitcairn Flat Finish
or
Pitcairn Flat Finish
or
Pitcairn Aged Finishing Spar Varnish rubbed with pumice stone and rubbing oil.
Fourth Coat—Pitcairn Aged Finishing Spar Varnish.
Note: Substitute Pitcairn Master Painter's Spar where economy is factor

SPECIFICATION NO. 36
Wax Finish
Interior Surfaces—Wood Trim
Open Grain

First Coat—Pittsburgh Natural Paste Wood Filler, properly reduced with Leptyne or Turpentine, brushed well into the grain.
Second Coat—Pitcairn Aged Floor Spar.
Third Coat—Waterspar Wax, Paste or Liquid.
Fourth Coat—(Optional) Waterspar Wax, Paste or Liquid.
Note: Final coats polished by hand rubbing.

SPECIFICATION NO. 37
Wax Finish
Interior Surfaces—Wood Trim
Close Grain

First Coat—Pitcairn Aged Floor Spar.
Second Coat—Waterspar Wax, Paste or Liquid
Third Coat—(Optional) Waterspar Wax, Paste or Liquid.
Note: Final coats polished by hand rubbing.

SPECIFICATION NO. 38
Stain and Varnish
Interior Surfaces—Wood Trim
Open Grain

First Coat—Pitcairn Wood Stain, shade as selected.
Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.
Third Coat—Pittsburgh Paste Wood Filler.
Fourth Coat—Pitcairn Aged Finishing Spar Varnish.
Fifth Coat—(Natural) Pitcairn Aged Finishing Spar Varnish; (Dull) Pitcairn Flat Finish
or
Lavax Interior Flat
or
Pitcairn Aged Finishing Spar Varnish rubbed with pumice stone and rubbing oil.
Sixth Coat—(Optional) Pitcairn Aged Finishing Spar Varnish.
Note: Substitute Pitcairn Master Painter's Spar where economy is factor.

SPECIFICATION NO. 39
Stain and Varnish
Interior Surfaces—Wood Trim
Close Grain

First Coat—Pitcairn Wood Stain, shade as selected.
Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.
Third Coat—Pitcairn Aged Finishing Spar Varnish.
Fourth Coat—(Natural) Pitcairn Aged Finishing Spar Varnish; (Dull) Pitcairn Flat Finish
or
Lavax Interior Flat
or
Pitcairn Aged Finishing Spar Varnish rubbed with pumice stone and rubbing oil.
Fifth Coat—(Optional) Pitcairn Aged Finishing Spar Varnish.
Note: Substitute Pitcairn Master Painter's Spar where economy is factor.

SPECIFICATION NO. 40
Stain and Wax
Interior Surfaces—Wood Trim
Open Grain

First Coat—Pitcairn Wood Stain, shade as selected.
Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.
Third Coat—Pittsburgh Natural Paste Wood Filler.
Fourth Coat—Waterspar Wax, Paste or Liquid.
Fifth Coat—Waterspar Wax, Paste or Liquid.
Note: Final coats polished by hand rubbing.

SPECIFICATION NO. 41
Stain and Wax
Interior Surfaces—Wood Trim
Close Grain

First Coat—Pitcairn Wood Stain, shade as selected.
Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.
Third Coat—Waterspar Wax, Paste or Liquid.
Fourth Coat—(Optional) Waterspar Wax, Paste or Liquid.
Note: Final coats polished by hand rubbing.

See Architectural Specification Book for Detailed Description of Products Mentioned Above.

SPECIFICATION NO. 42

Natural Varnish

Interior Surfaces—Wood Floors

Hard Wood—Open Grain

First Coat—Pittsburgh Natural Paste Wood Filler.

Second Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.

Third Coat—Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.

Fourth Coat—(Natural) Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.
(Dull) Pitcairn Flat Finish
or
Pitcairn Aged Floor Spar Varnish rubbed with pumice stone and rubbing oil.
(Waterproof) Waterspar Transparent Varnish.

Fifth Coat—(Optional) Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.

SPECIFICATION NO. 43

Natural Varnish

Interior Surfaces—Wood Floors

Hard Wood—Close Grain or Soft Wood—Close Grain

First Coat—Pitcairn Tector, each gallon reduced with ½ gallon of Leptyne or Turpentine.

Second Coat—Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.

Third Coat—(Natural) Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.
(Dull) Pitcairn Flat Finish
or
Pitcairn Aged Floor Spar Varnish rubbed with pumice stone and rubbing oil.
(Waterproof) Waterspar Transparent Varnish.

Fourth Coat—(Optional) Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.

SPECIFICATION NO. 44

Wax Finish

Interior Surfaces—Wood Floors

Hard Wood—Open Grain

First Coat—Pittsburgh Natural Paste Wood Filler.

Second Coat—Pitcairn Aged Floor Spar Varnish.

Third Coat—Waterspar Wax, Paste or Liquid.

Fourth Coat—(Optional) Waterspar Wax, Paste or Liquid.

Note: Final wax coats polished by hand rubbing.

SPECIFICATION NO. 45

Wax Finish

Interior Surfaces—Wood Floors

Hard Wood—Open Grain or Soft Wood—Close Grain

First Coat—Pitcairn Aged Floor Spar Varnish.

Second Coat—Waterspar Wax, Paste or Liquid.

Third Coat—(Optional) Waterspar Wax, Paste or Liquid.

Note: Final wax coats polished by hand rubbing.

SPECIFICATION NO. 46

Stain and Varnish

Interior Surfaces—Wood Floors

Hard Wood—Open Grain

First Coat—Pitcairn Oil Stain, shade as selected.

Second Coat—Pitcairn Spirit Lacquer
or
Shellac Wash Coat.

Third Coat—Pittsburgh Paste Wood Filler.

Fourth Coat—Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.

Fifth Coat—(Natural) Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.
(Dull) Pitcairn Flat Finish
Pitcairn Aged Floor Spar Varnish rubbed with pumice stone and rubbing oil.
(Waterproof) Waterspar Transparent Varnish.

Sixth Coat—(Optional) Pitcairn Aged Floor Spar Varnish.

SPECIFICATION NO. 47

Stain and Varnish

Interior Surfaces—Wood Floors

Hard Wood—Close Grain or Soft Wood—Close Grain

First Coat—Pitcairn Oil Stain, shade as selected.

Second Coat—Pitcairn Spirit Lacquer
or
Shellac Wash Coat.

Third Coat—Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.

Fourth Coat—(Natural) Pitcairn Aged Floor Spar Varnish
or
100 Waterspar Quick-Drying Varnish.
(Dull) Pitcairn Flat Finish
or
Pitcairn Aged Floor Spar Varnish rubbed with pumice stone and rubbing oil.
(Waterproof) Waterspar Transparent Varnish.

Fifth Coat—(Optional) Pitcairn Aged Floor Spar Varnish.

SPECIFICATION NO. 48

Stain and Wax

Interior Surfaces—Wood Floors

Hard Wood—Open Grain

First Coat—Pitcairn Oil Stain, shade as selected.

Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.

Third Coat—Pittsburgh Natural Paste Wood Filler.

Fourth Coat—Waterspar Wax, Paste or Liquid.

Fifth Coat—(Optional) Waterspar Wax, Paste or Liquid.

Note: Final wax coats polished by hand rubbing.

SPECIFICATION NO. 49

Stain and Wax

Interior Surfaces—Wood Floors

Hard and Soft Wood—Close Grain

First Coat—Pitcairn Oil Stain, shade as selected.

Second Coat—Pitcairn Spirit Lacquer or Pure Shellac.

Third Coat—Waterspar Wax, Paste or Liquid.

Fourth Coat—Waterspar Wax, Paste or Liquid.

Note: Final wax coats polished by hand rubbing.

See Architectural Specification Book for Detailed Description of Products Mentioned Above.

PRATT & LAMBERT-INC.

Varnish, Enamel & Lacquer Makers

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In the following condensed specifications this company embodies the fruits of over 80 years' experience in studying wood finishing conditions and in working out materials and methods which best fulfill requirements. The attainment of success is evident from the use of Pratt & Lambert Varnish Products in some of the world's best known buildings.

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Sample panels showing standard effects obtainable with Pratt & Lambert stains, fillers, varnishes and enamels, will be sent on request. If some distinctive finish is required, specify the wood to be used and the general color desired, and the architect's ideas will be carried out on specially made sample panels. Address your request to the Architectural Service Department at the nearest office. The opportunity to be of service will be welcomed.

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Most wood finishing problems are solved in the Pratt & Lambert Specification Manual (A. I. A. File No. 25c), which gives complete specifications for every kind of finish.

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PRATT & LAMBERT VARNISH PRODUCTS

"61" Quick Drying Spar Varnish—For all exterior purposes.

"61" Quick Drying Varnish—In Clear Gloss and Dull Finish, for floors and trim.

"61" Enamel Undercoating—Quick drying, for use under lacquer and oil enamels.

"38" Preservative Varnish—For interior trim.

Tonetic Flat Varnish—Dries perfectly flat.

Filtex—A practical first coater for soft woods.

Oil Stains—For soft close grain woods.

Acid Stains—For hard open and close grain woods.

Paste Fillers—For filling open grain woods.

Vitralite, *the Long-Life Enamel*—in gloss and eggshell.

Vitralite Enamel Undercoating—For wood and metal.

Vitralite Cement Coating—Resists the alkali in cement.

"61" Floor Enamel—For wood and cement floors.

Okene Floor Preservative—For floors subject to hard usage.

Lyt-all—A line of superior wall coatings including Stippling Gloss, Stippling Flat, Flowing Flat, Glazing Liquid, Double Duty Primer, Undercoating, Flat, Gloss, Eggshell, Cement Coating, Fume Proof Gloss, Fume Proof Flat and Exterior Cement Coating.

CONDENSED SPECIFICATIONS

Exterior Work—Varnish Finish

Hard Woods—Open Grain

(Oak, Mahogany, Walnut, Ash, Chestnut, etc.)

FILLED, VARNISH FINISH—1 coat Paste Filler; 3 coats "61" Quick Drying Spar Varnish.

FILLED, STAINED, VARNISH FINISH—1 coat Paste Filler; 1 coat Oil Stain; 3 coats "61" Quick Drying Spar Varnish.

Hard and Soft Woods—Close Grain

(Birch, Maple, Beech, Cherry, Pine, Fir, Spruce, Gum, Poplar, etc.)

NATURAL, VARNISH FINISH—3 coats "61" Quick Drying Spar Varnish.

STAINED, VARNISH FINISH—1 coat Oil Stain; 3 coats "61" Quick Drying Spar Varnish.

Exterior Work—Enamel Finish

Wood and Metal

ENAMEL FINISH—2 coats lead and oil; 1 coat Vitralite Enamel, Gloss.

Cement, Concrete, Stucco and Brick

ENAMEL FINISH—GLOSS—1 coat Vitralite Cement Coating; 2 coats Vitralite Enamel, Gloss.

ENAMEL FINISH—FLAT—2 coats Vitralite Cement Coating.

Exterior Floors—Enamel Finish

Hard and Soft Woods—Close Grain, and Cement

ENAMEL FINISH—2 coats "61" Floor Enamel.

Interior Wood Floors—Varnish Finish

Hard Woods—Open Grain

(Oak, Mahogany, Walnut, Ash, Chestnut, etc.)

FILLED, VARNISH FINISH—GLOSS—1 coat Paste Filler; 3 coats "61" Quick Drying Varnish, Clear Gloss.

FILLED, VARNISH FINISH—DULL—1 coat Paste Filler; 2 coats "61" Quick Drying Varnish, Clear Gloss; 1 coat "61" Quick Drying Varnish, Dull Finish.

FILLED, STAINED, VARNISH FINISH—GLOSS—1 coat Paste Filler; 1 coat Oil Stain; 3 coats "61" Quick Drying Varnish, Clear Gloss.

FILLED, STAINED, VARNISH FINISH—DULL—1 coat Paste Filler; 1 coat Oil Stain; 2 coats "61" Quick Drying Varnish, Clear Gloss; 1 coat "61" Quick Drying Varnish, Dull Finish.

Hard and Soft Woods—Close Grain

(Birch, Maple, Beech, Cherry, Pine, Fir, etc.)

NATURAL, VARNISH FINISH—GLOSS—3 coats "61" Quick Drying Varnish, Clear Gloss.

NATURAL, VARNISH FINISH—DULL—2 coats "61" Quick Drying Varnish, Clear Gloss; 1 coat "61" Quick Drying Varnish, Dull Finish.

STAINED, VARNISH FINISH—GLOSS—1 coat Oil Stain; 3 coats "61" Quick Drying Varnish, Clear Gloss.

STAINED, VARNISH FINISH—DULL—1 coat Oil Stain; 2 coats "61" Quick Drying Varnish, Clear Gloss; 1 coat "61" Quick Drying Varnish, Dull Finish.

Interior Floors—Enamel Finish

Hard and Soft Woods—Close Grain, and Cement

ENAMEL FINISH—2 coats "61" Floor Enamel.

Interior Floors—Preservative Finish

Hard and Soft Woods—Close Grain, Terrazzo, Magnesite and Cork

PRESERVATIVE FINISH—1 coat Okene Floor Preservative.

Interior Trim—Varnish Finish

Hard Woods—Open Grain

(Oak, Mahogany, Walnut, Ash, Chestnut, etc.)

FILLED, VARNISH FINISH—GLOSS OR RUBBED—1 coat Paste Filler; 1 coat shellac; 2 coats "38" Preservative Varnish (specify if to be rubbed).

FILLED, VARNISH FINISH—DULL—1 coat Paste Filler; 1 coat shellac; 1 coat "38" Preservative Varnish; 1 coat "61" Quick Drying Varnish, Dull Finish.

NATURAL, VARNISH FINISH—FLAT—1 coat shellac; 1 coat Tonetic Flat Varnish.

STAINED, FILLED, VARNISH FINISH—GLOSS OR RUBBED—1 coat Acid Stain; 1 coat Paste Filler; 1 coat shellac; 2 coats "38" Preservative Varnish (specify if to be rubbed).

STAINED, FILLED, VARNISH FINISH—DULL—1 coat Acid Stain; 1 coat Paste Filler; 1 coat shellac; 1 coat "38" Preservative Varnish; 1 coat "61" Quick Drying Varnish, Dull Finish.

STAINED, VARNISH FINISH—FLAT—1 coat Acid Stain; 1 coat shellac; 1 coat Tonetic Flat Varnish.

Hard Woods—Close Grain

(Birch, Maple, Beech, Cherry, etc.)

NATURAL, VARNISH FINISH—GLOSS OR RUBBED—1 coat shellac; 2 coats "38" Preservative Varnish (specify if to be rubbed).

NATURAL, VARNISH FINISH—DULL—1 coat shellac; 1 coat "38" Preservative Varnish; 1 coat "61" Quick Drying Varnish, Dull Finish.

STAINED, VARNISH FINISH—GLOSS OR RUBBED—1 coat Acid Stain; 1 coat shellac; 2 coats "38" Preservative Varnish (specify if to be rubbed).

STAINED, VARNISH FINISH—DULL—1 coat Acid Stain; 1 coat shellac; 1 coat "38" Preservative Varnish; 1 coat "61" Quick Drying Varnish, Dull Finish.

Soft Woods—Close Grain

(Pine, Fir, Spruce, Redwood, Gum, Poplar, Cypress, etc.)

NATURAL, VARNISH FINISH—GLOSS OR RUBBED—1 coat Filtex; 2 coats "38" Preservative Varnish (specify if to be rubbed.)

NATURAL, VARNISH FINISH—DULL—1 coat Filtex; 1 coat "38" Preservative Varnish; 1 coat "61" Quick Drying Varnish, Dull Finish.

STAINED, VARNISH FINISH—GLOSS OR RUBBED—1 coat Oil Stain; 1 coat Filtex; 2 coats "38" Preservative Varnish (specify if to be rubbed).

STAINED, VARNISH FINISH—DULL—1 coat Oil Stain; 1 coat Filtex; 1 coat "38" Preservative Varnish; 1 coat "61" Quick Drying Varnish, Dull Finish.

Interior Work—Enamel Finish

Wood and Metal

FIVE COAT ENAMEL FINISH—GLOSS OR RUBBED—1 coat lead and oil; 2 coats Vitralite Enamel Undercoating; 2 coats Vitralite Enamel, Gloss (specify if to be rubbed).

FIVE COAT ENAMEL FINISH—EGGSHELL—1 coat lead and oil; 2 coats Vitralite Enamel Undercoating; 1 coat Vitralite Enamel, Gloss; 1 coat Vitralite Enamel, Eggshell.

FOUR COAT ENAMEL FINISH—GLOSS OR RUBBED—1 coat lead and oil; 1 coat Vitralite Enamel Undercoating; 1 coat mixture equal parts Vitralite Enamel Undercoating and Vitralite Enamel, Gloss; 1 coat Vitralite Enamel, Gloss (specify if to be rubbed).

FOUR COAT ENAMEL FINISH—EGGSHELL—1 coat lead and oil; 1 coat Vitralite Enamel Undercoating; 1 coat mixture equal parts Vitralite Enamel Undercoating and Vitralite Enamel, Gloss; 1 coat Vitralite Enamel, Eggshell.

Plaster and Keene's Cement

ENAMEL FINISH—GLOSS—1 coat Lyt-all Double Duty Primer; 1 coat Vitralite Enamel Undercoating; 2 coats Vitralite Enamel, Gloss.

ENAMEL FINISH—EGGSHELL—1 coat Lyt-all Double Duty Primer; 1 coat Vitralite Enamel Undercoating; 1 coat Vitralite Enamel, Gloss; 1 coat Vitralite Enamel, Eggshell.

Cement, Concrete, Stucco and Brick

ENAMEL FINISH—GLOSS—1 coat Vitralite Cement Coating; 2 coats Vitralite Enamel, Gloss.

ENAMEL FINISH—FLAT—2 coats Vitralite Cement Coating.

Plaster Walls—Wall Coating

STIPPLED FINISH—GLOSS—1 coat Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Gloss, stippled.

STIPPLED, GLAZED, STARCHED FINISH—FLAT—1 coat Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Flat, stippled; 1 coat Lyt-all Glazing Liquid (specify tint and treatment); 1 coat starch.

STIPPLED, STARCHED FINISH—FLAT—1 coat Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Flat, stippled; 1 coat starch.

STIPPLED FINISH—FLAT—1 coat Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Flat, stippled.

FLAT—1 coat Lyt-all Double Duty Primer; 1 coat Lyt-all Flowing Flat.

Canvased Walls—Wall Coating

STIPPLED FINISH—GLOSS—2 coats Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Gloss, stippled.

STIPPLED, GLAZED, STARCHED FINISH—FLAT—2 coats Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Flat, stippled; 1 coat Lyt-all Glazing Liquid (specify tint and treatment); 1 coat starch.

STIPPLED, STARCHED FINISH—FLAT—2 coats Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Flat, stippled; 1 coat starch.

STIPPLED FINISH—FLAT—2 coats Lyt-all Double Duty Primer; 1 coat Lyt-all Stippling Flat, stippled.

FLAT—2 coats Lyt-all Double Duty Primer; 1 coat Lyt-all Flowing Flat.

Industrial Walls—Wall Coating

Wood, Plaster, Brick and Tile

GLOSS—1 coat Lyt-all Undercoating; 1 coat Lyt-all Gloss.

EGGSHELL—1 coat Lyt-all Undercoating; 1 coat Lyt-all Eggshell.

FLAT—2 coats Lyt-all Flat.

Cement and Concrete

GLOSS—1 coat Lyt-all Cement Coating; 1 coat Lyt-all Gloss.

EGGSHELL—1 coat Lyt-all Cement Coating; 1 coat Lyt-all Eggshell.

FLAT—1 coat Lyt-all Cement Coating; 1 coat Lyt-all Flat.

Industrial Walls—Fume Proof Wall Coating

Wood, Plaster, Brick and Tile

GLOSS—1 coat Lyt-all Undercoating; 1 coat Lyt-all Fume Proof Gloss.

FLAT—1 coat Lyt-all Undercoating; 1 coat Lyt-all Fume Proof Flat.

Cement and Concrete

GLOSS—1 coat Lyt-all Cement Coating; 1 coat Lyt-all Fume Proof Gloss.

FLAT—1 coat Lyt-all Cement Coating; 1 coat Lyt-all Fume Proof Flat.

THE REARDON COMPANY

Manufacturers of Cement Paint, Plastic Paint, Cold Water Paint and Kalsomine, Patching Plaster, Water Putty and Wall Size

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For Plaster and Modex, see Manufacturers' Index

Bondex Waterproof Cement Paint—The Perfect Stucco Finish

Bondex is a decorative material designed especially for use on stucco, concrete and cinder block and building tile, brick, stone, hollow tile, and other porous unpainted masonry wall surfaces. While described as a waterproof cement paint, it is much more than a paint, for it imparts color, waterproofs and preserves in one operation. It comes in the form of a dry powder and is made ready for use by mixing with cold water. Furnished in white and sixteen tints, which may be intermixed to produce an endless variety of shades. Bondex is applied with a brush or spray; it bonds with the surface and forms an integral part of the wall itself. It has been styled "The Paint Eternal."



U. S. Letters Patent 1749923

Warning: As Bondex adheres and bonds to porous masonry surfaces only, it cannot be used on wood, wall board of any kind, metal, glass, or other non-porous surfaces.

Uses to Which Bondex May Be Put

Bondex is being used to beautify and preserve stucco, concrete and common brick structures of all types, for waterproofing basements, on side walls of concrete swimming pools, on the interior and exterior of concrete and unglazed tile silos, and on all types of porous masonry walls. Neither acid nor alkali fumes, or the elements, will affect Bondex in any way.

Bondex is packaged only in 100-pound net steel drums and 5-pound cans.

Specifications

Preparation of Surface—All surfaces (specify) shall be coated with two coats of Bondex Waterproof Cement Paint as manufactured by THE REARDON COMPANY, and shall be applied in accordance with the manufacturer's directions.

All masonry surfaces shall be cleaned of all dirt, grease, efflorescence, paint, whitewash, kalsomine, etc., before Bondex is applied.

Caution: Bondex must be applied to a porous surface in order that it may perform its function of digging in and bonding, consequently all foreign matter must be removed from the surface before Bondex is applied. Oil paint or enamel should be removed by sandblasting—sometimes a strong solution of lye, or a 20% solution of muriatic acid (hydrochloric) will answer—kalsomine and whitewash should be washed off with water and a stiff brush or broom; grease remaining from forms may be removed with the acid wash described above.

Applied properly and to the proper type of surface, Bondex will last just as long as the surface.

Colors and Packages

Bondex is made in pure white and a variety of tints, a list of which follows:

100—Old Spanish White
101—Cream
102—Light Blue
103—Spanish Buff
104—Gray
105—Pink
106—Buff
107—Green
108—Brick Red
109—Stone Gray
110—Ivory
111—Lavender
112—Blue
113—Tan
114—Light Green
115—Terra Cotta
116—Brown
117—Adobe

Winter Application

When applying Bondex in freezing weather, or to a surface containing frost, add alcohol to water in the following proportions:

18 to 30 above zero..9 pints water
Formula 1 Alcohol....1 pint
10 to 17 above zero..8 pints water
Formula 1 Alcohol....2 pints
Zero to 9 above.....7½ pints water
Formula 1 Alcohol....2½ pints

The quantities above are to be mixed with ten pounds of Bondex.

Mixing

Use clean metal pails. To each ten pounds of Bondex slowly add three quarts (US Standard) of water, stirring as added until mixture is smooth and free from lumps; then add two additional quarts of water and stir in thoroughly. Let mixture stand 15 minutes before using.

Caution: Do not mix more Bondex than is required for a half-day's use. It will set if allowed to stand overnight and be worthless next day. Mix just enough for four hours' use.

Do not use hands in mixing, as Bondex is alkaline; use a paddle.

Apply with wide brush (4-in. Dutch or Stucco) or spray machine.

Caution: Do not allow to stand in spray or hose, etc.

Curing

All surfaces (except Magnesite Stucco) should be wetted down thoroughly before Bondex is applied, as Bondex requires moisture for the proper setting, or curing.

On Magnesite Stucco, very good results may be obtained, but instead of wetting the surface as customary the surface must be perfectly DRY when Bondex is applied. If there are any cracks or holes in the surface, fill them with a magnesite plaster. The second coat of Bondex must be applied within four to six hours after the first coat. To insure a satisfactory job, two coats must be applied the same day.

Highlighting and Two-tone Effects

First apply base coat, then use sponge or brush and work other colors in, preferably while base coat is still damp.

Covering Capacity

Ten pounds of Bondex, mixed at the ratio of one pint of water to each pound of Bondex, will cover from 80 to 120 square feet of surface, two coats.

Samples, Literature, etc.

Samples, color charts and full information on Bondex will be gladly sent without obligation. Communicate with nearest Plant.

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Manufacturers of Paints, Varnishes, Enamels and Lacquers

18th and Garfield Streets, KANSAS CITY, MO.

Seidlitz Products

Manufacturers of a complete line of PAINTS, VARNISHES, STAINS, FILLERS, UNDERCOATERS and LACQUERS including:

Long Oil Spar Finish, Long Oil Quick Drying Floor Varnish, Long Oil Finishing Varnish, Long Oil Flat Varnish, 4-Hour Floor and Finishing Varnish, Long Oil White Enamel, Long Oil Undercoat, Seid-Lac (4-hour Enamel), Half Tone (Subdued Gloss Finish), Oiltone Flat Wall Finish, Wall Sealing Primer, Litho Lite Mill-white, Penetrating Stains, Paste Fillers, and Durmo, "The Finish Eternal."

TRADE-MARK

Specification Manual

We will be glad to send you our Specification Manual, giving specifications for Seidlitz Long Oil Paint and Varnish Products, for use on walls, woodwork, floors, etc. Made to fit standard specification files.

Should information be desired on any wood finishing problem we would welcome the opportunity to be of service. Address letters to main office—18th and Garfield Streets, Kansas City, Mo.



Original Container

Seidlitz Long Oil Quick Drying Floor Varnish

The very highest type of floor varnish that it is possible to produce, using nothing but pure vegetable oils, hard fossil gum and thinners. Being long in oil it is very lasting and wear resisting. Has a satisfying richness and depth. Stands up under the pounding, grinding wear that floors receive. Specify same as for any first class floor varnish.

Seidlitz Long Oil White Enamel

A heavy snow white enamel which produces an almost porcelainlike finish. Made of the finest grade of French process zinc oxide, especially refined and treated linseed oil, the palest possible drying agents, pure turpentine, and nothing else.

It is equally adaptable for the finest grade of interior enameling, or for outside and exposed surfaces. It is made in either gloss or eggshell finish, also the following colors: white, ivory, cafe au lait and gray. Specify same as any first grade enamel.

Seidlitz Long Oil Undercoat

Produces a smooth, hard, opaque surface, a perfect foundation for all enamel work. Enamel does not perish into this hard drying undercoat but is held on the surface where its beauty, richness and brilliance can be appreciated. Has great hiding power. Specify same as for any first grade enamel undercoat.

Seidlitz Half Tone

A subdued gloss paint made on an oil base for interior walls and woodwork where a rich half gloss is desired. Has exceptional hiding or covering power. Washes readily. Produces a much richer appearing wall than is possible with flat paint. Recommended for hotels, hospitals, public buildings, etc. Comes in white and eight beautiful tints. For specifications see Seidlitz Specification Manual.

Seidlitz Oiltone Flat Wall Finish

The finest quality of wall finish that can be produced. Dries with a rich velvety sheen that is washable. Covers a maximum number of square feet per gallon. Made in white and tints. For specifications see Seidlitz Specification Manual.

Seidlitz Wall Sealing Primer

A pigmented, special oil base primer and first coater that will be found as nearly perfect as possible to manufacture for the priming or first coating of new plaster walls. One coat of Wall Sealing Primer and one coat of Oiltone Flat Wall Finish will produce the equal of the average three-coat job. Specify same as any first grade wall size.

Seidlitz Litho Lite Mill-white

Stays white and reflects light. A satin-smooth, snow white interior finish of exceptional luster, made of treated oils, which, when combined with the pigment, produce a true white that is permanent and will not turn yellow. Made particularly for walls and woodwork. It can be brushed or sprayed. Its great spreading capacity, durability and ease of cleansing make Litho Lite economical to apply and to maintain. Recommended for factories, schools, public buildings, bakeries, laundries, institutions, residences, office buildings and hotels. Specify same as for any first grade mill-white.

Seidlitz Long Oil Surfacer

An elastic undercoat, primer or filler for wood, metal, plaster, galvanized iron, glass, etc. It prevents or stops checking, alligatoring, or peeling of paints, varnishes, enamels, etc. Will increase the elasticity of any paint, varnish, or enamel either for inside or outside use. For specifications see Seidlitz Specification Manual.

Durmo, "The Finish Eternal"

A transparent finishing material that resists all the elements to a greater degree than varnish, lacquer, shellac, etc. Durmo never turns white, even when subjected to strong alkali, acid, perfumes, alcohol or water, either hot or cold.

Satisfaction with Durmo is guaranteed for interior or exterior use to finish and preserve the surface of school seats and desks, laboratory and office equipment, floors, furniture, doors, refrigerators, showcases, trucks, boats, etc.



Original Container









Original Containers for Seidlitz Long Oil Enamel, Oiltone, Half Tone and Litho Lite

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Satinette White Enamel—For finest enamel work. Gloss, flat and rubbed effect.

All Oyl Enamel—A master painter's enamel. White, ivory and gray. Gloss, flat and rubbed effect.

S.V.W. Flattine Washable Wall Paint—A non-glossy oil paint. Supplied in 16 colors.

S.V.W. Klean-Kote—A gloss finish for interior decoration, supplied in 8 delicate colors and white.

S.V.W. Wonder Koat—A medium gloss finish in 8 pastel shades and white.

S.V.W. 2-2-4 Kwickwork Enamel—A gloss, decorative enamel which dries in 2 to 4 hours. In 24 beautiful colors.

Preparatory Coats for New Work

Satinette Undercoat—An exceedingly opaque coating for use under Satinette Enamel.

All Oyl Undercoat—Its dense covering coupled with excellent leveling, permits a good two-coat finish when used in connection with All Oyl Enamel.

S.V.W. 2-2-4 Kwickwork Undercoat—Dries in 4 hours for use under 2-2-4 Kwickwork Enamels.

S.V.W. Pigmented Wall Sealer—A priming coat for use on interior walls and ceilings. Forms the proper foundation to prevent suction. Owing to its opacity, serves as one coat.

For Floors

Koverflor—A gloss, opaque enamel-like coating for inside and outside wood and cement floors. Superprotective and hard drying. Water, weather, oil and grease proof. Seals surface against all destructive forces. Supplied in 17 decorative colors, also black, white and clear.

Elastica Floor Varnish—A gloss varnish that dries overnight. Exceedingly elastic and durable. Recommended for finest work.

S.V.W. Four-hour Floor Varnish—Dries in 4 hours. Is waterproof, has excellent luster and is long wearing.

Standard Floor Preservative—A straw colored varnish-like material, applied with a wide floor sweeping brush.

Particularly recommended for wooden floors in public buildings where protection against wear and dust are required at small cost.

For Stained Surfaces

Kleartone Oil and Acid Stains—Non-fading, penetrating, lasting. Economical because they do not require sponging of the wood before or sandpapering after application.

Kleartone Paste Wood Fillers—For filling open grained woods. Supplied in 5 shades, also white.

SHORT FORM GENERAL SPECIFICATIONS

(For detailed specifications, see S.V.W. Architectural Reference Book)

Note: In enameling, varnishing or painting, ample light and ventilation are necessary to insure proper drying and hardening. Surfaces should be dry, free from grease, oil and dirt. Allow plenty of time between coats for drying.

Application of Enamels

On new wood, all sappy places should be given a coat of pure white shellac. Apply one or two coats of Enamel Undercoat, followed by one or two coats of Enamel, sandpapering with 00 sandpaper between each coat.

Application of Wall Finishes

New plaster walls should have a priming coat of S.V.W. Pigmented Wall Sealer. When dry, apply one or more coats of finish selected.

Application of Varnishes

For finest work, three coats are recommended, the first coat thinned with about 1 pint pure spirits of turpentine to the gallon of varnish. Sandpaper lightly with 00 paper between coats.

Application of Stains

Close Grain Woods—Apply stain of color selected and when thoroughly dry, apply one coat S.V.W. Kleartone Sealer (see S.V.W. Reference Book for shade required). When dry, apply varnish coats.

Open Grain Woods—Apply stain as above. When dry, apply Kleartone Paste Wood Filler in shade selected, wiping it off across the grain with burlap or excelsior before it sets. After 24 hours, apply Kleartone Sealer. Surface is then ready for varnish coats.

Application of S.V.W. Koverflor

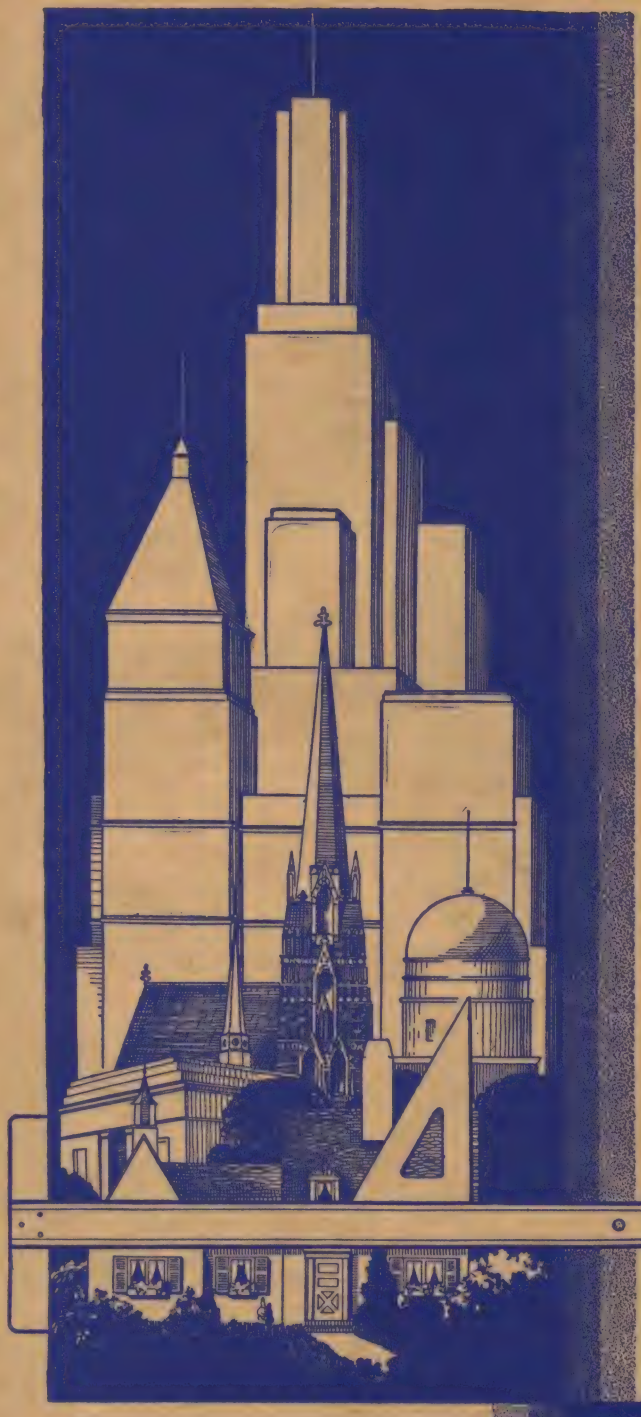
Two coats are recommended for finest results.

On *cement* surfaces, thin first coat with at least 3 pints to 2 quarts of pure spirits of turpentine to gallon of Koverflor. Brush in well and allow to dry at least 24 hours. Follow with second coat in body as received in container, permitting at least 24 hours for drying.

On *exposed wood* surfaces first coat should have added to it 1 pint linseed oil and 1 pint pure spirits of turpentine to 1 gallon Koverflor. Second coat add linseed oil but omit turpentine.

On *interior wood* surfaces, omit oil and add 1 quart pure spirits turpentine to first coat. Second coat use Koverflor as received in container.

Note: A cement floor should not be treated with Koverflor until it has been down at least 6 weeks, and then only if it is dry. To safeguard against alkali wash floor with a solution of 10% muriatic acid and 90% water. Allow this to remain on floor 5 minutes, after which floor should be washed with clear cold water and allowed to dry out 10 days before applying Koverflor.





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FOREWORD TO SPECIFICATIONS

The following specifications, unless otherwise stipulated, are intended to cover the entire field of finishing walls, floors and woodwork. They are in reality three sets of specifications, covering as they do the usual paint, varnish, stain, or enamel finish, as well as Opex Architectural Lacquer finish, either spray or brush application.

Before using the specifications it is necessary to refer to the index, which will be found to be cross-referenced, wherever either paint or varnish, or lacquer might be possible. For additional information, address THE SHERWIN-WILLIAMS Co., Department of Architectural Service, 101 Prospect Avenue, N. W., Cleveland, Ohio, or any of the branch offices listed on the preceding page.

METAL PROTECTIVE COATINGS

Specification No. 1

Exterior Exposure

Discussion—In the following specification, which applies to buried or exposed steel alike, Sherwin-Williams Kromik Metal Primer and Sherwin-Williams Metalastic are called for. Kromik Metal Primer is specified because of its particular suitability for use as a protective coating to be applied directly to metal. Metalastic is specified on account of its particular suitability as a final protective coating which will staunchly guard against danger to the undercoats.

In the manufacture of Sherwin-Williams Kromik Metal Primer, chromates play a highly important part. Authorities are agreed that the use of chromates is a very wise procedure in a metal protective primer intended to be applied direct to the metal surface for the prevention of rust. In tests extending over a period of five years or more, all paints containing chromates have made a uniformly excellent showing. Chemists explain the function of chromates as having the tendency to render the surface of steel passive, or in other words, chromates reduce the tendency of the metal surface to set up galvanic action or electric currents within itself. An interesting application of this principle is found in the use of ferro chromes in the manufacture of so-called stainless steel cutlery. Another interesting test is the well-known Sherwin-Williams razor blade test in which the razor blade—submerged in water carrying a certain percentage of chromates—remains bright a year after the razor blade submerged in untreated water has been reduced to rust.

Kromik Metal Primer has the following advantages for use on structural steel as compared with red lead, which is recognized as a standard material with many years standing for this type of work and which is a most excellent paint in itself: Kromik is noticeably easy to apply, especially in difficult and inaccessible members; it is not affected by sulphur compounds in the air and shows markedly greater durability where it lies unprotected on the job for any period of time. Kromik inhibits corrosion and shows a very favorable lower material cost. Kromik is Sherwin-Williams' standard recommendation for a priming coat on all metal work.

Sherwin-Williams Metalastic is our standard specification for finishing coats on structural steel work. It is specified for the second and third coats and is a protective coating of the graphite type. Metalastic is a full oil paint which dries to a tough, durable and exceedingly impervious film with high water shedding properties. It is particularly fitted for use over Kromik Metal Primer because these two products have the same degree of elasticity and expand and contract with the metal to the same degree. Where this relationship does not hold, there is a decided tendency in the finishing coat to break, thereby ending its usefulness as a metal protective coating.

Sherwin-Williams has no particular type of paint or pigment to exploit. We make a complete line of metal protective paints and our specification of Kromik Metal Primer with Metalastic for finishing coats has been recommended as standard because we believe it embodies the best painting practice considered from every side of the question.

Specification—Before applying the priming coat or shop coat, all rust, mill scale, grease or foreign matter of any kind shall be completely removed from the surface to be painted. No painting shall be done in wet or freezing weather, nor shall paint be applied to any wet or damp surface. Paint shall be used in the consistency received from the manufacturer. No thinner shall be added without the written approval of the architect or engineer.

The priming or shop coat shall be applied before steel is shipped to site. All riveted and bolted connections, as well as parts inaccessible after erection, shall receive two coats of Kromik Metal Primer. The second coat (first field coat) shall consist of Sherwin-Williams Metalastic Brown. Any portions of the surface which have been abraded in transit shall be "spotted" with Kromik Metal Primer prior to the application of the second coat. When the second coat is dry, a full coat of Sherwin-Williams Metalastic, Black, shall be applied.

Specification No. 2

Iron or Steel Surfaces Exposed to Acid Fumes

Before applying the priming coat or shop coat, all rust, mill scale, grease or foreign matter of any kind shall be completely removed from the surface to be painted. No painting shall be done in wet or freezing weather, nor shall paint be applied to any wet or damp surface. Paint shall be used in the consistency received from the manufacturer. No thinner shall be added without the written approval of the architect or engineer.

A priming or shop coat of Sherwin-Williams Kromik Metal Primer shall be applied before steel is shipped to site. All riveted and bolted connections, as well as parts inaccessible after erection, shall receive two coats of Kromik Metal Primer. Any portions of the surface which have been abraded in transit shall be "spotted" with Kromik Metal Primer prior to the application of the second coat (first field coat). The second and third coats shall consist of Sherwin-Williams Non-Corrodible Acid Resisting Paint, Black.

Specification No. 3

Hot Surfaces (Stacks, Flues, Pipes, etc.)

Before applying paint, all rust, dirt and grease shall be thoroughly cleaned off the surface to be painted. Paint shall be applied as it comes from the package. The priming coat shall consist of Sherwin-Williams Salamander Black, which, when dry, shall be second coated with the same material.

Specification No. 4

Exterior Ornamental Iron Work (Flat Black Finish)

Before applying the priming coat, all rust, mill scale, grease and other foreign matter shall be completely removed from the surface to be painted. No painting shall be done in wet or freezing weather, nor shall paint be applied on wet or damp surfaces. The first two coats shall be applied in the consistency supplied by the manufacturer.

The priming or shop coat shall consist of Sherwin-Williams Kromik Metal Primer and shall be applied prior to shipment of metal to the site. The second coat shall consist of Sherwin-Williams Metalastic Black. Any portions of the surface which

METAL PROTECTIVE COATINGS (Continued)

have become abraded in transit shall be "spotted" with Kromik Metal Primer prior to the application of the Metalastic paint. The third coat shall consist of Sherwin-Williams Quick Drying Color Black, thinned with turpentine, and when thoroughly mixed, raw linseed oil shall be added. The mixture shall be in proportion of two parts of black *by bulk* to one part of turpentine and one part of linseed oil *by bulk*.

Specification No. 5

Verde Antique Finish on Exterior (or Interior) Metal Work

Before applying any paint, all rust, grease, resin, dirt, etc., shall be removed from the surface of the metal. The priming coat shall consist of Sherwin-Williams Kromik Metal Primer, to be applied in the consistency supplied by the manufacturer. The priming coat shall be applied prior to the shipment of the metal to the site. Any portions of the surface which have been abraded in transit, shall be "spotted" with Kromik Metal Primer prior to the application of the second coat. The second coat shall consist of SWP (Sherwin-Williams Prepared Paint) shade No. 393. The third coat shall consist of a brush-stipple coat of SWP No. 355, tinted with Sherwin-Williams First Quality Oil Color Paris Green, to the shade desired by the architect.

Specification No. 6

Painting of Galvanized Iron

All galvanized iron surfaces to be painted, such as gutters, down-spouts, etc., shall receive a priming coat of Sherwin-Williams Galvanized Iron Primer prior to the application of any paint.

DAMPPROOFING OF FOUNDATIONS

Specification No. 7

Discussion—Sherwin-Williams Antydamp is applied to the exterior of concrete or masonry foundations below grade, to prevent the penetration of moisture through foundation walls, and thereby making dry basement walls possible. Antydamp is a damp-resisting, alkaliproof, acidproof, black paint of asphalt type. It is very heavy in body, and will remain in a semi-tacky and elastic condition indefinitely, thereby preventing the cracking of the film with the resultant penetration of dampness into the foundation walls.

Sherwin-Williams Antydamp will cover approximately 25 to 40 square feet, two coats to the gallon. It comes ready for application and is applied cold, except in very cold weather when it is necessary to heat slightly before applying.

Antydamp should be applied in full coats without endeavoring to brush the material out too much, because the heavier the coating is, the more protection it affords. In applying Antydamp, it is recommended that a three or four-knot roofing brush be used.

Where there is a presence of hidden springs or marshy land, or hydrostatic pressure in any form around the foundation, the use of two coats of Antydamp is not sufficient. Under these conditions, it will be necessary to alternate at least two layers of cheap burlap or felt paper with Antydamp. Special instructions regarding procedure to be followed will be supplied upon request.

Specification—The exterior of all foundation walls below grade, prior to any backfilling, shall be dampproofed by the application of two full coats of Sherwin-Williams Antydamp Foundation Damp-Proofing in the consistency supplied by the manufacturer. Twenty-four hours shall be allowed for drying between the first and second coats, and at least 24 hours shall be permitted to elapse after the second coat has been applied, before backfilling. This dampproof material shall be applied with a three or four-knot roofing brush.

Note: Sufficient space shall be provided, in digging the excavations, for men to have room to apply Antydamp to all parts of the foundation surface.

WOOD PRESERVATIVE

Specification No. 8

Discussion—Sherwin-Williams Carbolic-ol, specified as a wood preservative, is as strong, penetrating and permanent a wood preservative as can be produced. It is a non-volatile oil, obtained through coal-tar distillation, which may be applied to the wood either by the brush or dip method and will remain permanently in the pores of the wood, thereby preserving it for the longest possible time.

Specification—All wood which is to be buried in the ground shall be treated with one coat of Sherwin-Williams Carbolic-ol, which shall be applied in the consistency supplied by the manufacturer.

PAINTING AND STAINING OF EXTERIOR SURFACES

Specification No. 9

Wood Surfaces (New) to Paint

Discussion—SWP (Sherwin-Williams Prepared Paint) represents the best of technical knowledge in the production of paint for general outside use today. The architect may specify SWP for outside painting on wood buildings or for finishing coats on outside metal work where special colors are required not found in our Metalastic line and may have a definite feeling of assurance that SWP will present a better appearance and wear for a longer time than any paint possible to mix by hand. A man is not able to purchase raw materials and mix the paint himself that will equal SWP. Mechanical efficiency and handwork cannot be compared; the painter's facilities for measuring proportions of pigments accurately cannot be compared with factory equipment; hand stirring can never equal machine grinding; and the certainty of uniformity in the various ingredients is decidedly in favor of factory production.

Sherwin-Williams honestly believe that no finer paint can possibly be made for painting outside buildings than SWP.

SWP is made in 32 colors and white. It is a combination of strictly pure carbonate of lead, sulphate of lead, zinc oxide and titanium pigment. The liquids are strictly pure linseed oil and turpentine. SWP is a *perfectly balanced* paint from the standpoint of scientific paint manufacture and will render the greatest satisfaction from the standpoint of beauty, economy and years of service.

For Color Samples, see S-W Pages 5 and 7.

(Note Specification No. 10.)

Specification—Before commencing work on exterior painting, the contractor shall make sure by careful inspection that the surface to be painted is thoroughly dry and shall continue this vigilance throughout the time during which the exterior painting is being done, so that no painting shall be done under unfavorable conditions, such as immediately after a rain or during wet or frosty weather.

Different kinds of lumber, however, require different treatment, and we have, therefore, suggested special treatment for certain kinds as mentioned. The greatest care should be taken in following the directions.

Where the wood shows pitchy spots, these spots and all knots should first be coated with the best orange shellac after the priming coat is applied.

SWP

SHERWIN-WILLIAMS PAINT PREPARED

TRIM COLOR: 355 461 Gloss White

354 Sea Green

TRIM COLOR: 496 355 Gloss White 499

360 Cream Gray

496 388 498

485 Warm Drab

496 360 Gloss White

351 Stone

496 360 498 393

391 Quaker Drab

498 354 360

355 Sage Green

Gloss White 357

363 Slate

TRIM COLOR: Gloss White 353 355

479 Pearl Gray

For Porch Ceilings etc.

464 Sky Blue

Gloss White 355 353

357 Silver Gray

Gloss White 360 363

353 Light Lead

For Porch Ceilings etc.

369 Blue

461 Gloss White

460 Apple Green

TRIM COLOR: 355 461 499 486

496 Ivory

Gloss White 461 499

387 Canary Yellow

Gloss White 499 398 461

375 Colonial Yellow

496 393 388

385 Straw

388 355 393 498

462 Cream

393 486 499 388

470 Golden Yellow

396 Gloss White 498

394 Primrose Yellow

Also Black and White

(See also S-W Page 7)

Please do not detach samples. Complete color cards sent upon request.

Continued on next page

Inches 1 2 3 4 5 6 7 8
Centimetres 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
TIFFEN Color Control Patches © The Tiffen Company, 2007
Blue Cyan Green Yellow Red Magenta White 3/Color Black



PAINTING AND STAINING OF EXTERIOR SURFACES (Continued)

New Wood (Outside)—*First Coat*—On new soft wood or old weathered lumber a gallon of SWP should be thinned with one gallon raw linseed oil and one quart pure turpentine.

For resinous woods, such as yellow pine or cypress, add two quarts turpentine and one quart raw linseed oil to each gallon of paint.

After the priming coat has been permitted to dry, all nail-holes, cracks, and other defects shall be filled in with linseed oil and whiting putty.

Second Coat—For soft woods add one pint pure turpentine.

Third Coat—Apply SWP as it comes from the can. If thinning seems necessary, thin slightly, using pure raw linseed oil.

Repainting Work (Outside)—Same as above, except omit first or priming coat.

Specification No. 10

(Alternative to Specification No. 9)

Wood Surfaces (New) to Paint

Discussion—Where the architect desires to leave the mixing of the paint for use on exterior wood surfaces to the discretion of his painting contractor, the specification of Sherwin-Williams Zilo is advised in preference to straight white lead. It is a generally recognized fact that a definite percentage of zinc oxide added to a white lead paint is greatly beneficial to the paint. It tends to eliminate objectionable chalking, thereby lengthening the life of the paint; it increases its whiteness and improves the gloss and spreading power of the paint.

The U. S. Government and the majority of State Governments and railways insist upon a percentage of zinc oxide in paints specified for the painting of exterior surfaces because of the fact that white lead, when used alone, shows a marked tendency to objectionable chalking and necessitates repainting at a much earlier date than paints which include a proportion of zinc oxide.

Zilo is a 100% pure product and every pound is guaranteed pure. Zilo is offered not as a lead substitute, but as superior to white lead, when used alone.

THE SHERWIN-WILLIAMS CO. will be very glad to provide specifications on the amount of linseed oil, turpentine and drier for any purpose desired upon request.

Specification No. 11

White Lead

In all specifications requiring the specification of white lead when used alone, specify Sherwin-Williams ODP White Lead, which is a strictly pure white lead (lead carbonate), and ground in strictly pure linseed oil. ODP Lead is extremely fine and very white. Each keg of the material bears the following strong guarantee of quality:

"This package is warranted to contain nothing but Strictly Pure White Lead, ground in Strictly Pure Linseed Oil, and we will pay one ounce of gold for every ounce of adulteration that it may be found to contain."

Specification No. 12

Exterior Wood Surfaces (Old) to Paint

Discussion—The following specification deals with the refinishing of previously painted exterior wood surfaces. One of the main features which the architect should watch is that, before applying the first coat of paint, all loose paint is removed from the surface by wire-brushing, scraping, or burning, that the surface is thoroughly dry, and that all knots and pitchy places which are evident through the old film are properly sealed with pure Orange Shellac. The advisability of using SWP (Sherwin-Williams Paint) is discussed under Specification No. 9.

See Color Samples on S-W Pages 5 and 7.

Specification—Before commencing the painting of exterior surfaces, the contractor shall make sure, through careful inspection, that the surface to be painted is thoroughly dry and in proper condition for refinishing, and shall continue his vigilance throughout the time during which the exterior painting is being done. The first coat shall consist of SWP (Sherwin-Williams Paint) thinned with one pint of pure raw linseed oil and one pint of turpentine added to each gallon. After sufficient time has been allowed for drying, a second coat consisting of SWP, thinned with one pint of raw linseed oil to the gallon, shall be applied.

Specification No. 13

Wood Surfaces (New) to Stain

(For Staining Shingles, see Specification No. 15.)

Discussion—Where the architect desires to stain and preserve exterior wood surfaces without hiding the grain of the wood, Sherwin-Williams Preservative Shingle Stain, described in Discussion under Specification No. 15, is recommended for the purpose.

The stain is made of light-fast colors and a wood preservative of which refined creosote oil is an important ingredient.

Specification—The exterior woodwork indicated shall be finished with two brush coats of Sherwin-Williams Preservative Shingle Stain, which shall be applied in the consistency supplied by the manufacturer.

Specification No. 14

Concrete, Cement or Stucco Walls to Paint

Discussion—The architect appreciates the advisability of painting exterior concrete or stucco walls. This is advisable for two reasons: first, the control of the decorative effect in color, as required by the type of building, which paint affords, and the ease in which the building can be cleaned up in appearance and the change of color scheme effected. Second, painting a concrete wall renders it watertight and prevents the appearance of hair line cracks and chipping off caused by the penetration of moisture and frost.

Sherwin-Williams Stucco and Concrete Paint is an oil paint designed for outside exposure, but which dries to a semi-gloss finish. It does not destroy the interesting texture of the stucco wall as does a gloss finish, but retains the effect for which stucco is specified.

Specification—All exterior concrete wall surfaces shall receive two coats of Sherwin-Williams Stucco and Concrete Paint in the color selected by the architect. Before proceeding with the painting, the painting contractor shall make sure through careful inspection that the surface to be painted is thoroughly dry and free from dirt.

Any salts or efflorescence on the surface to be finished, shall be carefully scraped off and the surface washed with a solution of zinc sulphate (1½ to 2 pounds to the gallon of water). Let dry thoroughly.

The first coat shall be thinned with two quarts of Sherwin-Williams Stucco and Concrete Paint Reducer to the gallon of paint. At least 48 hours shall be allowed for the first coat to dry, after which the second coat shall be applied.

Specification No. 15

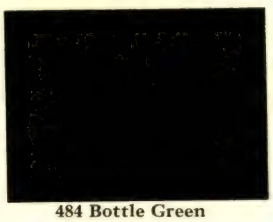
Wooden Shingles (New) to Stain

Discussion—Sherwin-Williams Preservative Shingle Stains are called "preservative" because they contain creosote, a well-known preservative of all vegetable

Continued on next page

SWP

SHERWIN-WILLIAMS PAINT PREPARED

TRIM COLOR		TRIM COLOR		TRIM COLOR	
496 498 354		375 391 496			475 391 496 Very durable for brick work
	383 Pea Green		499 Antique Brown		367 Red
496 460 354 498		375 388 387 393			382 Gloss White 496
	461 Willow Green		486 Golden Brown		*362 Fr. Crown Green Med.
For Doors, Sash, Store Fronts, etc.		375 385 387			
	*498 Moss Green		393 Tobacco Brown		382 Rich Maroon
498 391		382 Gloss White 496			387 391 393
	484 Bottle Green		475 Bronze Green		388 Modern Brown

(See also S-W Page 5)

Please do not detach color samples. Complete color cards sent upon request.

*Colors marked * higher in price.

PAINTING AND STAINING OF EXTERIOR SURFACES (Continued)

tissue. Creosote fills the wood with a fatty substance and unites with the sappy part in forming a peculiar compound which resists organic decomposition. It also has the property of preventing the formation of fungus growths.

Sherwin-Williams Preservative Shingle Stains are penetrating and exceedingly permanent, both as to color and preservative value. Since refined creosote oil is used in these stains, which is free from the rank odor of crude creosote, Sherwin-Williams Shingle Stains do not have the unpleasant odor many times found in products of this type.

Specification—All wooden shingles shall receive one dip coat of Sherwin-Williams Preservative Shingle Stain in the consistency supplied by the manufacturer and in the color selected by the architect. The shingles shall be dipped two-thirds their length in Shingle Stain and thrown aside in loose piles until dry. After the shingles have been laid, one brush coat of Sherwin-Williams Preservative Shingle Stain of like color shall be applied as it comes from the original container.

Specification No. 16

Metal Roofs (to Paint)

Discussion—The architect has a choice of specifying Metalastic or SWP (Sherwin-Williams Prepared Paint), the merits of which are covered in the discussion in Specifications Nos. 1 and 9, respectively. The two points which should be watched particularly are that the roof must be dry and free from grease, rosin, etc., and second, that if roof is of galvanized iron, the primer shall be Sherwin-Williams Galvanized Iron Primer. Any finishing coat desired may be applied over Galvanized Iron Primer. Where Galvanized Iron Primer is used, this takes the place of the first coat, and two subsequent coats of paint in the desired color will be sufficient.

Continued on next page

PAINTING AND STAINING OF EXTERIOR SURFACES (Continued)

Specification—Before beginning painting of the roof the contractor shall make sure that the roof is free from all grease, rosin, acid and dirt, and that the surface is perfectly dry. Three brush coats of Sherwin-Williams Metalastic, or where a lighter shade is desired, SWP (Sherwin-Williams Paint) shall be applied to the metal roofing in the consistency supplied by the manufacturer. (See Discussion where roof is of galvanized iron.)

Specification No. 17

Woodwork—Stained and Varnished Finish

Discussion—For the staining and varnishing of exterior woodwork, the use of Sherwin-Williams Oil Stain is recommended in preference to other types of stains, such as Sherwin-Williams Acid Stain, Sherwin-Williams Handcraft Stain (spirit penetrating). The reason for this is that varnish may be applied directly over oil stains, whereas the other types mentioned require sealing with a thin coat of shellac to prevent bleeding of the stain into the finishing coat of varnish which interferes with proper drying.

Varnish may be applied directly over any and all of the Sherwin-Williams Oil Stains with the exception of Rich Mahogany and Brown Mahogany. These require the use of a sealing coat of shellac before varnishing and are not recommended for exterior use.

It is preferable not to use shellac in exterior finishing, where avoidable, for the reason that this material is not sufficiently elastic to withstand the extreme expansion and contraction produced by changes in temperature. In many instances when open grain woods are used, such as oak, chestnut, walnut, and mahogany, the color of the wood can be modified sufficiently through the use of Sherwin-Williams Paste Wood Fillers, the dark colors of which carry a certain amount of staining power.

See Color Samples on S-W Pages 11 and 15.

Specification—All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

Apply one coat of Sherwin-Williams Oil Stain in the shade selected by the architect. Let dry thoroughly.

Open grain woods require filling with Sherwin-Williams Paste Wood Filler. This is furnished in paste form to be reduced to brushing consistency with benzine. Apply in the color selected by the architect and when the material is partly set, wipe off across the grain of the wood with burlap or excelsior, then wipe clean with a soft cloth. Allow 24 hours for the filler to dry. Apply three coats of Sherwin-Williams Rexpar Varnish as follows:

First coat to be thinned with pure turpentine in the proportion of one pint to the gallon. Second and third coats are to be applied in the consistency supplied by the manufacturer. Allow sufficient time for drying between coats and sand first two coats lightly with No. 00 sandpaper. Leave last coat in full gloss or for rub finish, specify: "When sufficiently dry, rub the varnish to a dull finish with powdered pumicestone and water."

Note: Where acid stains or handcraft stains are specified, a thin coat of pure shellac shall be applied in place of the first coat of Rexpar Varnish.

Specification No. 18

Porch Floors and Canvas Decks (New) to Paint

Discussion—Sherwin-Williams Porch and Deck Paint is made for porch floors, decks and similar heavy duty surfaces. It dries hard to withstand the scuffing of feet. Porch and Deck Paint has a good gloss and will give complete satisfaction in service and appearance.

Specification—Three coats of Sherwin-Williams Porch and Deck Paint in the color selected by the architect shall be applied. The first coat shall be thinned with one quart of pure turpentine to the gallon of paint. The second coat shall be thinned with one pint of pure turpentine to the gallon of paint, and the third coat shall be applied as it comes from the container. Sufficient time for thorough drying shall be allowed between coats.

Specification No. 19

Porch Ceilings—Natural Varnish Finish

Discussion—A spar varnish is recommended for all varnish surfaces exposed to the weather. A spar varnish contains a high percentage of oil in relation to the gums. This gives it elasticity to accommodate itself to expansion and contraction caused by changing temperature, and provides the power to resist weathering. We recommend Sherwin-Williams Rexpar made originally for use on airplanes and unsurpassed for exterior finishing.

Specification—All porch ceilings shall be finished with three coats of Sherwin-Williams Rexpar Varnish. The first coat shall be thinned in the proportion of one pint of pure turpentine to one gallon of Rexpar. The second and third coats shall be applied without thinning. Forty-eight hours shall be allowed between coats for drying and the first and second coats shall be lightly sanded with No. 00 sandpaper before applying the succeeding coat.

Specification No. 20

Enamel Finish on New Wood and Metal Surfaces

Discussion—Old Dutch Enamel Gloss is unreservedly recommended by Sherwin-Williams for exterior enamel finishing. The architect may depend upon this specification and have full confidence that the finish obtained with this enamel will last for years under the most severe tests.

A most convincing proof of the endurance of Old Dutch Enamel exposed to climatic conditions is found in the fact that leading railways of the country have been using "Old Dutch" for years for the exterior finishing of coaches with complete satisfaction. These cars are exposed to every conceivable climatic condition, ranging from the arid heat of sun baked deserts to the piercing cold of the mountain regions.

Old Dutch Enamel is classed as a long-oil enamel, due to the fact that there is a much larger percentage of specially treated linseed oil in Old Dutch than is possible to incorporate in enamels of the varnish type, hence the life of this enamel is naturally much longer than that of enamels of other types. Old Dutch Enamel has a fine texture, splendid gloss and depth of tone which it retains even after years of exposure.

Where the surface to be finished is of galvanized iron, one coat of Sherwin-Williams Galvanized Iron Primer should be applied as the priming coat.

See S-W Page 9 for Color Samples of Old Dutch Enamel.

Specification—The contractor shall determine through careful inspection whether surface to be finished is dry and in proper condition for finishing. After the priming coat is applied, all knots and pitchy places must be given a coat of pure Orange Shellac.

First Coat—Apply SWP Flat White, reduced in the proportion of one pint raw linseed oil and one pint turpentine to the gallon of paint.

Second Coat—Apply SWP Flat White just as it comes from the can. If it seems too heavy for certain work, thin slightly with equal parts pure raw linseed oil and pure turpentine.

Continued on next page

SHERWIN-WILLIAMS

STUCCO AND CONCRETE PAINT


Coral Tint


Cream


Tan


Cream Gray

Canary Yellow


Sea Green


Terra Cotta


Gray

Also White

BRIGHT TRIM COLORS

These trim colors are of the very finest quality and are furnished in consistency ready for use.


*Spanish Orange


*Spanish Blue


*Verdas Green


*Cardinal Red

*These colors higher in price.

Old Dutch Enamel

White (Gloss)

Old Ivory (Gloss)


French Gray (Gloss)

Please do not detach color samples. Complete color cards sent upon request.

Continued on next page

Third Coat—Apply S-W Old Dutch Enamel and SWP Flat White mixed in equal parts.

Fourth Coat—Apply S-W Old Dutch Enamel just as it comes from the package.

Note: S-W Old Dutch Enamel Dull Finish is not designed for exterior use. Old Dutch Enamel Gloss only is recommended for exterior exposure.

Note: The fifth or final enamel coat is to be applied as soon as the fourth coat is sufficiently dry to permit. If, for any unforeseen circumstances, the fourth coat becomes hard before the fifth coat is applied, the fourth coat shall be "mossed" before applying the final coat.

For best results, sand the first and second coats to a smooth surface with No. 0 sandpaper. The third coat shall be sanded smooth with nothing coarser than No. 0000 sandpaper.

FINISHING OF INTERIOR FLOORS

General Discussion

Floors get peculiarly severe wear. It is essential that if satisfaction is to be secured from a floor of any kind, the proper type of finish must be selected and applied in a manner which will insure the right kind of results.

Preparation of the Surface—No floor finish can make up for lack of care in proper preparation of the floor to receive the finish. The surface, whether it be of wood or cement, should be thoroughly dry. Finishing over floors containing dampness is certain to result in the peeling off of the finish later on. After scraping wood floors, sweep out shavings and dirt, and sandpaper to perfectly clean, smooth surface. All spots should be removed before finishing the room. Sweep broom-clean. It is considered a good practice to pick up loose dust by wiping with a cloth dampened with gasoline.

Priming Coat—Under no circumstances should a liquid filler or shellac be used as a first coater on a wood floor that is to be varnished. It is a common saying that a chain is no stronger than its weakest link. Certainly, no varnish finish is any stronger than its grip upon the floor. Varnish applied directly to the wood penetrates into the wood, obtaining a bond with it. Where shellac or liquid filler is used, these finishes prevent varnish from obtaining this bond with the wood, and they themselves have little or no penetration, lying practically entirely on the surface of the wood. No matter how tough or elastic the varnish, a blow that will loosen the shellac or liquid filler and break its hold upon the wood, will bring off the varnish finish with it.

Mar-not Fast-Dri Varnish is specified for the finishing of hardwood floors because we honestly believe it possesses the most desirable qualifications for the purpose. Mar-not Fast-Dri is a varnish made to walk on. It dries with a real luster that wears and continues to look well under service. It retains a refined appearance which harmonizes with fine furniture.

Try your favorite test on Mar-not Fast-Dri Varnish. Take a hammer and dent the wood as deeply as you wish—Mar-not Fast Dri will still cling. Try scratching it—it will not powder or chip. Of course Mar-not Fast-Dri Varnish is water-resisting. Leaky radiators, wet umbrellas and raining in at the windows cause no damage to the Mar-not Fast-Dri floor.

Staining and Filling Floors—The three woods in most general use for flooring in the United States are oak and maple for hardwood floors and edge-grain pine for softwood floors. Maple and pine are close-grain woods and require no filler. Oak is an open-grain wood and paste wood filler is required to fill the pores of the wood, both for appearance and for service.

Sherwin-Williams Paste Wood Filler is made of high grade silex, color pigment, varnish, oil and a slight amount of drier. It is furnished in paste form and is to be reduced with benzine to a consistency of thick cream for brushing. It is then brushed over the surface of the wood and allowed to stand until partly set, indicated by a partial dulling down of the wet gloss. The surplus filler is then wiped off across the grain of the wood, using burlap or excelsior, which forces the filler into the pores of the wood, leaving the surface level and ready for the varnish. Wipe clean with a soft cloth.

A very practical method of darkening the tone of an oak floor consists in using Sherwin-Williams Paste Wood Filler in one of the dark colors which will fill the pores of the wood and darken it in one operation. For a natural oak finish, transparent paste filler should be specified.

In order to stain maple or pine, specify Sherwin-Williams Oil Stain, as a paste filler cannot be used on close-grain woods, due to the absence of pores. Such shades as Silver Gray or exceedingly dark shades are not possible to obtain with an oil stain. For this purpose specify Sherwin-Williams Handcraft Stains which, however, will require sealing with shellac before finishing.

Note: These finishes are rarely specified where a full varnish finish is desired, and in this case, a straight shellac finish would be in order, finishing with wax.

Finishing of Stair Treads

The finishing of stair treads is a problem in itself, especially where the stairs are not to be carpeted or protected from the characteristic scraping and scuffing of climbing feet.

Where stair treads are to be finished in an oak color or left in the color of the natural wood, they may be finished in the same manner as recommended for floors, but in much of the modern residential work the scheme of interior decoration calls for staining the stair treads a dark mahogany or walnut color. The type of stain used to produce this effect is such that a floor varnish should not be applied directly over the stain. A spirit penetrating stain or an acid stain used to produce these darker effects reacts on the varnish if applied directly over the stain, resulting in poor drying, so that the finish frequently remains "tacky" or sticky.

In a case of this kind there is no choice but to use a coat of thin pure white shellac to seal the stain into the wood before applying the varnish. Only just enough shellac should be used to seal the stain effectively. For this purpose specify Sherwin-Williams Pure White Shellac (cut four pounds to the gallon), reduced equal parts with denatured alcohol. This will result in a shellac of the proper consistency. After the shellac is dry, three coats of Sherwin-Williams Mar-not Fast-Dri Varnish should be applied, sanding lightly between coats when dry. For a dull finish, rub with powdered pumice and oil, or apply a finishing coat of Mar-not Satin Finish.

Specification No. 21

Natural Varnished Finish on New Floors

See Opex Lacquer Specification No. 21-A

The floors shall be perfectly smooth before any varnish is applied, and shall be thoroughly cleaned of all dust, stains, etc. (For open-grain wood only. The wood shall then be filled with Sherwin-Williams Paste Filler, Transparent, which before becoming hard shall be wiped off across the surface with burlap or excelsior. After allowing twenty-four hours for drying, the

Continued on next page

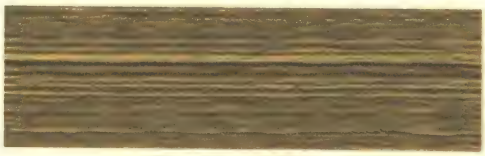
SHERWIN-WILLIAMS STAINS



Silver Gray Handcraft Stain
On Quarter Sawed White Oak
(With White Toner)



Nut Brown Handcraft Stain
On Southern Pine
Formerly Brown Oak



Silver Gray Oil Stain
On Southern Pine



Extra Dark Mahogany Handcraft Stain
On Birch



Weathered Handcraft Stain
On Quarter Sawed White Oak
Formerly Weathered Oak



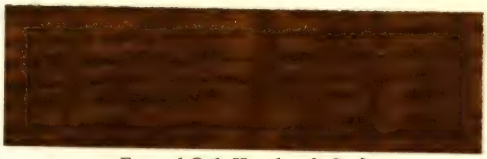
Colonial Oak Oil Stain
On Southern Pine



Walnut Handcraft Stain
On Gum



Nut Brown Handcraft Stain
On Quarter Sawed White Oak
Formerly Brown Oak



Fumed Oak Handcraft Stain
On Quarter Sawed White Oak



Dark Colonial Mahogany Acid Stain
On Mahogany



Adam Brown Handcraft Stain
On Mahogany



Light Mahogany Acid Stain
On Mahogany



Weathered Handcraft Stain
On American Walnut
Formerly Weathered Oak



Antique Brown Mahogany Acid Stain
On Mahogany

(Continued on S-W Page 15)

Please do not detach color samples. Color cards sent upon request.

FINISHING OF INTERIOR FLOORS (Continued)

surface shall be sanded with No. 0 sandpaper to a smooth surface.) Three coats of Sherwin-Williams Mar-not Fast-Dri Varnish shall then be applied. The first coat shall be thinned in proportion of one pint of pure turpentine to one gallon of Mar-not. The second and third coats shall be applied as the varnish comes from the original container, allowing sufficient time for hardening and sanding lightly with No. 00 sandpaper between coats.

(For dull finish, include the following sentence in specification: The last coat, after sufficient time has been allowed for hardening, shall be rubbed to a dull finish with powdered pumicestone and oil, or apply a finishing coat of Mar-not Satin Finish.)

Specification No. 22

New Hardwood Floors—Open Grain Wood—Stained and Varnished

See Opex Lacquer Specification No. 22-A

The floors shall be perfectly smooth before any finish shall be applied. Floors shall be thoroughly cleaned of all dust, stains, etc. A first coat, consisting of Sherwin-Williams Paste Wood Filler, in the color* selected by the architect, shall be applied, which before becoming hard shall be wiped off clean across the grain with excelsior or burlap. Allow twenty-four hours for drying. Three coats of Sherwin-Williams Mar-not Fast-Dri Varnish shall then be applied. The first coat shall be reduced in the proportion of one pint of pure turpentine to one gallon of Mar-not Fast-Dri. The two subsequent coats shall be applied as the varnish comes from the original container, allowing sufficient time for drying, and sanding lightly with No. 00 standpaper between coats.

(For a dull finish, include the following sentence in specification: (a) The last coat, when sufficiently hard, shall be rubbed with pumicestone and oil to a dull finish or (b) A finishing coat of Mar-not Satin Finish shall be applied. Dries dull without rubbing or waxing.)

Specification No. 23

New Hardwood Floors—Close Grain Wood—Stained and Varnished

See Opex Lacquer Specification No. 23-A

The floors shall be perfectly smooth before any finish is applied and shall be thoroughly cleaned of all dust, stains, etc. One coat of Sherwin-Williams Oil Stain in the color* selected by the architect shall then be applied. After twenty-four hours have been allowed for the stain to dry, three coats of Sherwin-Williams Mar-not Fast-Dri Varnish shall be applied, the first coat of which shall be thinned in proportion of one pint of pure turpentine to one gallon of Mar-not Fast-Dri. The second and third coats of Mar-not Fast-Dri shall be applied in the consistency supplied by the manufacturer, allowing sufficient time for drying, and sanding lightly with No. 00 sandpaper between coats.

(For a dull finish: The last coat, after allowing sufficient time for hard drying, shall be rubbed to a dull finish with powdered pumicestone and oil, or a finishing coat of Mar-not Satin Finish shall be applied. Dries dull without rubbing or waxing.)

Specification No. 24

Waxed Finish for New Floors (Natural)

The floors shall be perfectly smooth before any finish shall be applied and shall be cleaned of all dust, stains, etc. (Where the floors are of open-grain wood, use the following: One coat of Sherwin-Williams Paste Filler, Transparent, shall be applied, which before becoming set shall be wiped off clean across the grain with burlap or excelsior. Allow twenty-four hours for drying.) One coat of Sherwin-Williams Floor-Seal shall then be applied. Let dry and sand lightly with No. 00 sandpaper, then apply two coats of Sherwin-Williams Prepared Wax, polishing both coats to a high polish, finishing with a weighted polishing brush or polishing machine.

Specification No. 25

New Floors—Open Grain Wood—Stained and Waxed Finish

Floors shall be perfectly smooth before any finish shall be applied, and shall be thoroughly cleaned of all dust, stains, etc. A first coat consisting of Sherwin-Williams Paste Filler, in the color* selected by the architect, shall be applied, which before becoming set shall be wiped off across the grain with burlap or excelsior. After allowing twenty-four hours for filler to harden thoroughly, a coat of Sherwin-Williams Floor-Seal shall be applied, as it comes from the package. Let dry and sandpaper lightly with No. 00 sandpaper. Two coats of Sherwin-Williams Prepared Wax shall then be applied, polishing each coat to a hard, polished finish with a weighted polishing brush or polishing machine.

*Very dark stained effects require a special specification.

Specification No. 26

New Floors—Close Grain Wood—Stained and Waxed Finish

Floors shall be perfectly smooth before any finish shall be applied, and shall be thoroughly cleaned of all dust, stains, etc. A first coat consisting of Sherwin-Williams Oil Stain, in the color* selected by the architect, shall then be applied. After allowing the stain a few minutes to set up, wipe surface of the wood with soft cloth. Allow stain twenty-four hours to dry. Apply one coat of Sherwin-Williams Floor Seal. Let dry and sandpaper lightly with No. 00 sandpaper. Apply two coats of Sherwin-Williams Prepared Wax, polishing both coats to a hard, polished surface with a weighted polishing brush or polishing machine.

Specification No. 27

New Softwood Floors—Stained and Varnished Finish

See Opex Lacquer Specification No. 27-A

The floors shall be perfectly smooth before any finish is applied and shall be thoroughly cleaned of all dust, stains, etc. One coat of Sherwin-Williams Flo-Lac (varnish stain) in the color selected by the architect, thinned with one pint of pure turpentine to each gallon of Flo-Lac, shall be applied.

Note: If a deeper tone is desired, apply a second coat of Flo-Lac.

The second and third coats, consisting of Sherwin-Williams Mar-not Fast-Dri Varnish, shall then be applied as it comes from the package. Sufficient time shall be allowed for drying and the surface shall be lightly sanded with No. 00 sandpaper between coats.

Specification No. 28

New Softwood Floors—Painted Finish

Full assortment of colors. Color card on request.

See Opex Lacquer Specification No. 28-A

The floors shall be thoroughly dry and cleaned of all dust, dirt, grease, etc., before any paint shall be applied. Three coats of Sherwin-Williams Floor Enamel shall be applied. The first coat shall be thinned with pure turpentine in the proportion of one pint of turpentine to the gallon of paint. Second and third coats shall be applied without thinning.

Specification No. 29

New Cement Floors—Painted Finish

Full assortment of colors. Color card on request.

The contractor shall make sure that all cement floors to be painted are properly drained and are *thoroughly dry* and free from alkali, dust, dirt and grease, before beginning work. Three coats of Sherwin-Williams Floor Enamel in the color selected by the architect shall be applied, the first coat being thinned in proportion of one and one-half pints raw linseed oil and one pint of pure turpentine to the gallon of paint. The second and third coats shall be applied in the consistency supplied in original container. (Where economy is the consideration, a satisfactory job can be secured with two coats—but three coats will wear better.)

Specification No. 30

New Cement Floors—To Harden and Seal

Discussion—Where cement floors are to undergo heavy wear, the floors can be materially hardened, dustproofed and sealed by three applications of Sherwin-Williams Concrete and Cement Hardener. One gallon of Concrete and Cement Hardener will treat from 60 to 100 square feet of cement surface, three applications, varying with the porosity of the surface. However, in estimating the quantity of this material required, it is recommended that 70 square feet be taken as basis for estimate.

*Very dark stained effects require a special specification.

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SHERWIN-WILLIAMS STAINS

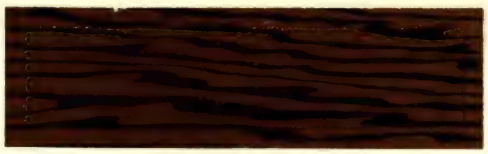
(Continued from S-W Page 11)



Early English Handcraft Stain
On Birch



Fumed Oak Acid Stain
On Quarter Sawed White Ok



Walnut Handcraft Stain
On Douglas Fir



Silver Gray Acid Stain
On Quarter Sawed White Oak
With Flat-Tone Silver Gray as a Toner

Please do not detach color samples. Complete color cards sent upon request.

FINISHING OF INTERIOR FLOORS (Continued)

Sherwin-Williams Concrete and Cement Hardener is a colorless liquid and will not change the color or texture of the natural cement floor.

Specification—Cement floors *not to be painted* shall be treated with three applications of Sherwin-Williams Concrete and Cement Hardener. The first application shall be reduced in proportion of one part of Hardener to two parts of water. The second application shall consist of equal parts of Hardener and water. The third application shall be in proportion of two parts of Hardener to one part of water. Apply by flushing on surface and brushing out.

Specification No. 31

Finishing of School Room and Gymnasium Floors and Other Floors Subjected to Hard Wear

Discussion—There is such a thing as a wood floor being subjected to so much wear that it is not practical to finish it with a paint or varnish or any "surface" finish. Schoolroom floors and department stores are outstanding examples of this type of surface. The scuffing of the children's feet rapidly wears the paint or varnish in the aisles and under the desks, with the result that the floor soon takes on a mottled appearance.

For this reason many architects have in the past resorted to the use of hot boiled linseed oil and turpentine, feeling that even though it is not possible to give the floors an attractive finish they may at least be preserved. However, it has been found that the treatment of the floors in this manner is not sanitary. The linseed oil tends to collect and hold dust, dirt and germs; it discolors the floors and makes them difficult to clean properly.

THE SHERWIN-WILLIAMS CO. has developed a special product for treating floors of this nature, which is highly popular and for which the demand is growing in leaps and bounds as more people become familiar with the product. This product is known as Floor-Seal.

Floor-Seal is a special wood floor hardener. Floor-Seal hardens the wood from within and makes it highly resistant to wear. It also seals the surface and preserves the wood. One treatment with Floor-Seal each year will usually preserve the floor in first class shape indefinitely. The surface film soon disappears, but long after all sign of the finish is lost to the eye, Floor-Seal is still in prime condition and goes on protecting the floor against wear and penetration of dirt and moisture. The Floor-Seal floor is very easy to keep clean.

Specification—All wood floors to be treated with Floor-Seal shall be smooth, clean and free from all grease, stains, etc. One application of Sherwin-Williams Floor-Seal shall be made in the consistency supplied by the manufacturer. Allow sufficient time for drying between coats.

Specification No. 32

Finishing of Ballroom Floors

Discussion—Ballroom floors present a special problem in floor finishing. Here is a floor on which neither a varnish finish nor a shellacked finish is suitable. The finish must be thoroughly tough and elastic, yet must be slippery to enable dancing with ease. For this purpose, Sherwin-Williams Floor-Seal is recommended as a foundation for two finishing coats of S-W Prepared Wax. This finish in itself, however, would not wear indefinitely unless S-W Dancing Floor Wax be sprinkled over the surface each time before the floor is used. This renews finish and keeps floor in excellent condition.

Specification—The ballroom floor shall be surfaced perfectly smooth before any finish shall be applied and shall be thoroughly cleaned of all dust, dirt, grease, stains, etc. A first coat consisting of Sherwin-Williams Floor-Seal shall be applied

Continued on next page

by brush with reasonable liberality. When dry, sand lightly. Two coats of Sherwin-Williams Prepared Wax (Paste) shall then be applied and rubbed to a hard, polished surface with a polishing brush or polishing machine. (Prior to using the floor for dancing, sprinkle Sherwin-Williams Dancing Floor Wax over the surface.)

Specification No. 33

Hardwood Floors (Old) to Revarnish

Discussion—This specification is intended for floors where only the varnish finish is in bad condition, but the floor itself is in good condition. The old varnish finish should be thoroughly sanded and the floor washed with a strictly pure linseed oil soap, such as Sherwin-Williams Flaxoap. No floors should be washed with cheap soaps or cleansers which abound in free alkali as the wood may absorb the alkali during the process of cleaning, which in time cannot help but cause injury to the varnish film. All stains and spots should be thoroughly removed with a solution of oxalic acid. Where the floor is too worn to permit a clear varnish finish, we recommended Flo-Lac Varnish Stain, Specification No. 34, or Floor Enamel, Specification No. 35.

Specification—The floors which are to be refinished shall be thoroughly sanded to remove the gloss of the old finish and then washed with Sherwin-Williams Flaxoap, a 100 per cent pure linseed oil soap. Rinse thoroughly to remove all trace of soap from floors. All spots shall be removed by bleaching with oxalic acid or sanding and scraping. When the floor is thoroughly dry, two coats of Sherwin-Williams Mar-not Fast-Dri Varnish shall be applied. The first coat shall be reduced in proportion of one pint of pure turpentine to one gallon of varnish. The second coat shall be applied as it comes from the original container. Sufficient time for drying be allowed and the surface should be sanded lightly with No. 00 sandpaper between coats.

Note: Where the old varnish finish is in bad condition and the floors in good condition, it may be advisable to remove the old varnish from the surface with Sherwin-Williams Taxite, paint and varnish remover. If this is done, the floor should be wiped off thoroughly with waste saturated with benzine. When dry, the floor can then be refinished, following the specification for refinishing of new floors.

Specification No. 34

Discolored Hardwood and Softwood Floors—Grained, Stained and Varnished

The floors shall be thoroughly scrubbed with warm water and Sherwin-Williams Flaxoap (a 100% pure linseed oil soap). Rinse thoroughly and let dry. After all grease and dirt have been removed and the surface thoroughly dry, apply two coats of Sherwin-Williams Flo-Lac Ground Color. When dry, grain surface with Sherwin-Williams Graining Preparation, using a regular half round graining tool, a steel graining comb, an old whisk broom, or simply stippling with a cloth, depending upon the texture desired. Apply one coat of Sherwin-Williams Flo-Lac (Varnish Stain) in the color selected, reducing slightly with turpentine if required for easy brushing.

Note: If deeper tone found desirable, apply second coat of Flo-Lac.

As a protective finish, which will prevent the color varnish coat from wearing thin and causing the floor to look spotty, apply a coat of Sherwin-Williams Mar-not Varnish in the consistency supplied by the manufacturer. Sufficient time should be allowed for thorough drying between coats, and all coats except the last should be lightly sanded with No. 00 sandpaper.

Specification No. 35

Old Floors, to Paint

Discussion—Sherwin-Williams Floor Enamel is made for floors. It will stand up under service and continue to look well under hard wear. This paint dries well and hard and does not become sticky or tacky in warm weather.

Specification—All old floors shall be thoroughly cleaned with warm water and Sherwin-Williams Flaxoap (a 100 per cent pure linseed oil soap) before painting. When the floor is thoroughly dry, two coats of Sherwin-Williams Floor Enamel, in the color selected by the architect, shall be applied, thinning the first coat in the proportion of one pint of pure turpentine to one gallon of paint.

PAINTING AND DECORATING OF INTERIOR WALLS

Specification No. 36

Washable Flat Finish—Smooth, Sand Finish and Textured Plasters, Composition Board, Canvas Covered Walls

Discussion—Sherwin-Williams Flat-Tone is a washable oil paint for interior use which dries with a dull, flat finish of exquisite visual texture. Flat-Tone was the pioneer of the modern wall and ceiling decoration. Today it is probably the best known wall finish in the world. It will be found adorning the walls of public buildings in not only this country, but better classes of buildings in Canada, Mexico, Philippine Islands, China, Australia, England and the Argentine as well.

Its beauty of finish is probably the leading characteristic of Flat-Tone, but of almost equal importance is its durability, its sanitary qualities and its economy. The painter likes Flat-Tone because of its ease of application, strong hiding power, property of leveling out well, with freedom from brush marks. Of equal importance to the painter is its unusual wet edge which permits him to get back into it long after other flats have set to the point where brushing is impossible. Even with this slow early drying, it still dries hard over night under average drying conditions. It can be stippled if desired to eliminate any trace of brush marks, but for regular stipple work we recommend Wall Paint No. 96 (Heavy Body) (See Specification No. 41) which is similar to Flat-Tone except it has been bodied up to produce a more pronounced stipple.

Satisfactory finishing of walls is only possible where the surface has been sealed tight to prevent the finishing coat from striking in, thereby giving a spotty or non-uniform effect. Sherwin-Williams Wall Primer and Sealer is made especially for first coat work on walls and should be used according to specifications. (See Specification No. 40.)

The following specifications are recommended as being the most practical where Flat-Tone is applied on new walls and ceilings.

Specification—The contractor shall inspect the walls and ceilings before starting work to make sure that the surfaces to be painted are dry and in proper condition for finishing.

First Coat—Apply Sherwin-Williams Wall Primer and Sealer according to Specification No. 40. (If hot spots or suction are evident in the plaster after the first coat has been applied according to specifications, the architect should be notified at once as they will need touching up with another coat of Wall Primer and Sealer.)

Second Coat—Apply Sherwin-Williams Flat-Tone.

Note: Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient. When three-coat work is planned, the addition of two quarts of Wall Primer and Sealer to the gallon of Flat-Tone for the second coat will present a tighter and improved surface on which to apply the third coat.

Special Note: Painting Newly Plastered Surfaces—THE SHERWIN-WILLIAMS CO. never advocates the painting of plastered walls which have not been given an opportunity to dry out thoroughly. If "green" plastered walls are painted, there is always danger. However, there are certain occasions where walls which have not been given sufficient time to dry out thoroughly must be painted for commercial reasons; apply one coat Wall Primer and Sealer (see Specification No. 40). Where indications point to the presence of alkali (hot spots), we recommend washing the surface with a solution of 1½ to 2 pounds of zinc sulphate in a gallon of water.

This should be brushed on the surface and sufficient time should then be allowed for drying before the first coat of Sherwin-Williams Wall Primer and Sealer is applied. We, of course, do not guarantee that this procedure will prevent dis-

Continued on next page

SHERWIN-WILLIAMS SEMI-LUSTRE

Ivory White

Cream

Cream Gray

Canary Yellow

Silver Gray

Buff

Taupe (New)

Poudre Blue

Pale Green

Light Pink

Bright Sage

Orchid

SEMI-LUSTRE COLOR BLENDS

Poudre Blue and White

Taupe (New) and White

Bright Sage and White

Light Pink and White

Please do not detach color samples. Color cards sent upon request.

Continued on next page

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

solving of the finish nor that it will not peel. This danger is always present when "green" plaster must be painted.

Specification—Repainting—Remove all soot, dirt, grease or loose paint. Apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. If the surface is porous apply one coat of Wall Primer and Sealer over the entire surface. On surfaces in fairly good condition or where portions of the wall are fairly tight, add two quarts Sherwin-Williams Flat-Tone to the gallon of Sherwin-Williams Wall Primer and Sealer.

For the second coat Sherwin-Williams Flat-Tone should be applied as it comes in the package.

Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient under normal drying conditions.

Specification No. 36Y

Semi-Lustre Finish—Smooth, Sand Finish and Textured Plasters, Composition Board, Canvas Covered Walls

Discussion—Sherwin-Williams Semi-Lustre has a soft, mellow lustre and is used where the glare of a gloss finish is objectionable and where it is necessary to have a more durable and more washable surface than is possible with a flat wall paint. The following specifications are recommended as being the most practical where Semi-Lustre is used on walls and ceilings:

Specification—The contractor shall inspect the walls and ceilings before starting work to make sure that the surfaces to be painted are dry and in proper condition for finishing.

First Coat—Apply Sherwin-Williams Wall Primer and Sealer according to Specification No. 40. (If hot spots or suction are evident in the plaster after the first coat has been applied according to specifications, the architect should be notified at once as they will need touching up with one coat of Wall Primer and Sealer.)

Second Coat—Apply Sherwin-Williams Semi-Lustre, using it just as it comes from the package.

Notes: Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient. Where three-coat work is planned apply Semi-Lustre just as it comes from the package.

Note Special Note: "Painting newly plastered surfaces" under Specification No. 36.

Specification—*Repainting*—Remove all soot, dirt, grease or loose paint. Apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. If the surface is porous apply one coat of Wall Primer and Sealer over the entire surface. On surfaces in fairly good condition or where portions of the wall are fairly tight, add two quarts Sherwin-Williams Semi-Lustre to the gallon of Sherwin-Williams Wall Primer and Sealer.

For the second coat Sherwin-Williams Semi-Lustre should be applied as it comes in the package.

Allow to dry thoroughly between coats. Twenty-four hours is usually sufficient under normal drying conditions.

Specification No. 37

Flat-Tone Multi-Color Effects on New Walls—Rough or Smooth Plaster, Canvas Covered Walls, or Plaster Board

See Opex Lacquer Specification No. 37-A

Discussion—Flat-Tone Multi-Color Effects make it possible for the decorator to produce an endless variety of color and texture effects with Flat-Tone through the simple means of stippling the color with a sponge. (See samples of Flat-Tone Multi-Color Effect on S-W Page.) This is a development in interior decoration introduced to the architects of this country by THE SHERWIN-WILLIAMS CO. The process has been used effectively in all types of buildings, ranging from residences to clubs, hotels, theaters and public buildings. Flat-Tone Multi-Color Effects have the very practical advantage of not showing finger marks or soil as readily as plain colors, although they are of course every bit as washable as Flat-Tone.

The colors to be used in securing the various Flat-Tone Multi-Color Effects are specified for each effect and may be used as they come from the original container, although for best results the addition of Flat-Tone Mixing Size to each stipple color is recommended, in the proportion of one part of size to three parts of Flat-Tone. (Except in certain instances where a particular effect is required as specified.)

Multi-Color Effects are applied over a foundation color of Flat-Tone. (See specification.)

For stippling, use a sponge of good, even, open texture. A large sponge is desirable for plain surfaces, although the decorator will find smaller sponges very helpful for use in corners and inaccessible areas. Stippling the wall with the top of the sponge produces a speckled print while the bottom of the sponge yields a lacy print of a very interesting texture and is recommended. Wash the sponge out in warm, clean water and trim the bottom with large shears to a smooth printing surface, clipping out any large solid chunks which would be likely to make a daub. Test the sponge on the window pane or a piece of dry newspaper to determine the kind of print it will give.

When ready to stipple—which can be done as soon as the foundation coat is flatted out fairly hard—pour out a small quantity of the first stipple color on a piece of board or tin, as convenient. Use the sponge fairly damp in stippling and rub the bottom of it into the paint so as to thoroughly cover the surface. Tap the sponge once or twice on a dry paper to remove surplus paint and stipple directly on to the wall. Use a straight firm stroke. Do not use a twisting or turning motion. Apply each print of the stipple next to the preceding one until the surface is entirely covered. Reload the sponge as often as necessary.

Where two or more stipple colors are specified, the next color may follow immediately if convenient. It is not necessary to wait until the first coat is dry or hard. Clean the sponge out in gasoline and rinse in water after finishing stippling or before changing to another color.

A painter of average ability and intelligence can, with very little practice, turn out a most suitable job of Flat-Tone Multi-Color work by following the brief directions given here. The cost of Multi-Color work using two coats for the foundation color should not exceed three-coat straight work because of the rapidity with which the Multi-Color stipple is applied. The amount of material required for applying a stipple coat is negligible. A quart of stipple color is easily enough for a fair sized living room.

Specification—After the contractor has inspected the wall surfaces to be painted to insure that they are perfectly dry and in proper condition for finishing, apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40, tinted to the shade of Flat-Tone selected with S-W First Quality Oil Colors. (If hot spots or suction are evident in the plaster after the first coat has been applied according to specifications, the architect should be notified at once as additional spotting coat will be necessary.)

Allow to dry thoroughly before recoating. Twenty-four hours is usually sufficient under normal drying conditions.

The second coat should be Sherwin-Williams Flat-Tone in the color selected by the architect for the ground color and should be applied just as it comes in the package. As soon as this ground coat has been applied and approved by the architect, the surface shall be sponge stippled with the color of Flat-Tone specified as the stipple color following detailed printed directions issued by THE SHERWIN-WILLIAMS CO. for producing Flat-Tone Multi-Color Effects.

Specification No. 38

Flat-Tone System Finish on New Walls (Glazed or "Tiffany" Effects)—Rough or Smooth Plaster, Canvas Covered Walls, or Wall Board

Discussion—Flat-Tone System Effects, frequently designated as Tiffany Effects, are produced over a foundation color of Flat-Tone or S-W Semi-Lustre.

Continued on next page

SHERWIN-WILLIAMS

Flat-Tone

Ivory
78 Per Cent

Caen Stone
74 Per Cent

Flat-Tone Canary Yellow
73 Per Cent

Pale Green
50 Per Cent

Silver Gray and Caen Stone
56 Per Cent

Cream
77 Per Cent

Ivory Tan
58 Per Cent

Bright Sage and Ivory Tan
51 Per Cent

Shell Pink and Cream
60 Per Cent

Buff
60 Per Cent

Buff and Cream
67 Per Cent

Bright Sage
47 Per Cent

Shell Pink
59 Per Cent

Olive Tan
43 Per Cent

Olive Tan and Sky Blue
43 Per Cent

Silver Gray and Pale Green
47 Per Cent

Silver Gray and Sky Blue
46 Per Cent

Buff and Silver Gray
48.7 Per Cent

Bright Sage and Shell Pink
45 Per Cent

Forest Green and Sky Blue
22 Per Cent

Shell Pink and Silver Gray
45 Per Cent

Orchid
63 Per Cent

Silver Gray
42 Per Cent

Forest Green and Olive Tan
21 Per Cent

Cream Gray
63 Per Cent

Pale Green and Ivory Tan
58 Per Cent

Olive Tan and Ivory Tan
44 Per Cent

Forest Green
20 Per Cent

Sky Blue
62 Per Cent

Cocoanut Brown
19 Per Cent

Percentages indicate light reflections factors

Please do not detach color samples. Complete color cards sent upon request.

Continued on next page

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

The finishing glaze coat is produced with Flat-Tone Glazing Liquid which is tinted to the desired color with S-W First Quality Oil Colors. This coat is stippled as applied, using a cloth, sponge, or brush depending upon the texture or kind of print or pattern desired. The translucent quality of this glaze coat permits the color of the ground coat to show through to a certain extent resulting in a luminous depth of color not possible to produce with a flat paint alone. This form of decoration costs more both in material and labor than three-coat flat work, but possesses decorative and architectural characteristics indispensable for certain treatments, such as "antique plaster," Tiffany work, etc. Flat-Tone Glaze System Effects are easy to wash and do not show soil readily.

See Color Samples on S-W Page 19.

Specification—After the contractor has inspected the wall surfaces to be finished to insure that they are perfectly dry and in proper condition for finishing, apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40 tinted to the shade of ground color selected, with Sherwin-Williams First Quality Oil Colors. (If hot spots or suction are evident in the plaster after the first coat has been applied according to the specification, the architect should be notified at once as spotting coat will be necessary.)

Second coat shall consist of Sherwin-Williams Wall Paint No. 96 (Heavy Body), stippled when desired. This should be thoroughly dry and hard before glazing.

If heavy texture is not desired, use Flat-Tone instead of Wall Paint No. 96.

Note: Sherwin-Williams Wall Paint No. 96 (Heavy Body), when used as it comes in the package, produces, when stippled, a beautiful pebble round stipple so much desired under glazing. Also produces a different, entirely new wall effect when tinted and stippled on plain walls, paneled walls above new colored tiles in bath rooms, etc. (see Specification No. 41).

As soon as the ground coat is approved by the architect, the surface shall be coated with Sherwin-Williams Flat-Tone Glazing Liquid, tinted with the glaze color specified for the effect desired—the depth of color or the intensity to be approved by the architect (Optional: The glaze coat shall be applied so as to graduate in tone, from a dark color at the base of the wall to a mere tint at the top).

Specification No. 39

Flat-Tone and Plastic Pigment

Discussion—Sherwin-Williams Flat-Tone and Plastic Pigment is a paint product with which painters are familiar. It is really Flat-Tone, brought up to the consistency desired by the painter himself, made by simply stirring Plastic Pigment into the Flat-Tone.

Plastic Pigment dries hard, and with it rough effects in any design are possible. Real textured walls result—low relief, so frequently to be desired. The great saving over rough plaster is something that bears consideration. Flat-Tone and Plastic Pigment can be applied over nearly any variety of wall surface. When applied, you have a *painted* wall—not one that needs painting.

Specification—*New Unpainted Surfaces*—Plaster and wood, or any porous material, such as wall board, canvas, etc., require sealing with a coat of S-W Wall Primer and Sealer. Let this dry hard.

Previously Painted Surfaces—This refers to surfaces painted with an oil paint. Loose or scaly paint should be scraped off and these bare spots sealed as for new work. Flat-Tone Plastic Pigment may then be applied.

Walls painted with water paint should be washed clean, allowed to dry, then sealed in the same manner as for new work.

Glossy finishes should be sandpapered dull to provide a tooth and assure proper adhesion.

Portion of Plastic Pigment Required—For medium textures, mix in the proportion of twenty-five pounds of Plastic Pigment to five gallons of Flat-Tone. To a gallon of this mixture add from one-half to one pint of S-W Japan Drier.

It is recommended that this mixture be allowed to stand overnight before using. In this proportion the material will be easily applicable with a brush, and will hold its form or print on the surface perfectly. More Plastic Pigment may be added for higher relief.

If the surface is to be glazed, it is important that it be absolutely tight. In this case it is recommended that one coat of Wall Primer and Sealer, tinted to the desired shade, be applied before glazing.

The various shades of Flat-Tone will be only very slightly changed by the addition of Plastic Pigment. Any shade may be used successfully.

Specification No. 40

Wall Primer and Sealer

Discussion—Wall Primer and Sealer is just what the name implies, a primer and sealer for all types and kinds of walls in mills, public and office buildings and homes.

The first coat must stop suction, it must seal the surface. It must have tightness with sufficient tooth to permit satisfactory bonding of the succeeding coat. This matter was given careful consideration in the development of Sherwin-Williams Wall Primer and Sealer as was also, easy working, which would allow the painter to get over a large area. Sherwin-Williams Wall Primer and Sealer is so balanced in pigment, oil, gum and thinner as to get the maximum in all of these essentials that are so important to the painter as well as to make possible highly satisfactory finished results.

Specification—Apply Wall Primer and Sealer as it comes from the package except on a hard, tight, putty-coat plaster, particularly where it has been troweled to a high glaze. In this case it is sometimes desirable to add from a pint to a quart of Flat-Tone, Wall Paint No. 96, or XXX Enamel Undercoater (whichever is being used on the next coat) to the gallon of Wall Primer and Sealer. (For tinting, use only Sherwin-Williams First Quality Oil Colors.)

Before the wall paint is applied, the surface should be carefully inspected by the contractor, and if any flat spots appear as a result of incomplete sealing, or if flat streaks show over a crack or patch, all such surfaces should be given another coat of Wall Primer and Sealer.

Allow sufficient time for thorough drying before applying succeeding coat. Under normal conditions 24 hours will be sufficient.

On such surfaces as sized muslin, sanitas or primed metal, use equal quantities of Wall Primer and Sealer and Flat-Tone for the first coat.

Specification—Repaint Work—Remove all soot, dirt, grease and loose paint. Apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches.

Spongy porous surfaces (applies particularly to surfaces previously painted with a number of coats of flat wall paint) should be given a coat of Sherwin-Williams Wall Primer and Sealer. (This is necessary even though the paint film is in good condition since a surface on which a number of coats of flat wall paint have been applied is as porous or more so than the original plaster.)

Specification No. 41

Wall Paint No. 96 (Heavy Body)

Discussion—This is practically Flat-Tone with added pigment to give it a heavier body. This product works very satisfactory under the brush despite its heavy body and is an ideal product for stippling, giving that soft round pebbly effect now so much in demand in place of the sharp stipple effects obtained with lead and oil or other flat wall paints. (The sharp effects can also be obtained with Wall Paint No. 96 when desired, by simply extending the length of time before stippling.)

It is especially desired by some painters for use on old surfaces with dark colors which are difficult to cover. One coat Sherwin-Williams Wall Primer and Sealer and one coat Sherwin-Williams Wall Paint No. 96 (Heavy Body) produces a very satisfactory two-coat job over such surfaces. It carries a trifle more sheen than regular Flat-Tone which is desired by some painters who use it in large office buildings, hotels, etc.

Specification—Apply one coat Sherwin-Williams Wall

Continued on next page

TEXTURE EFFECTS IN

SHERWIN-WILLIAMS FLAT-TONE

FLAT-TONE MULTI-COLOR

Multi-Color Effect No. 48



Multi-Color Effect No. 78



Multi-Color Effect No. 25

Multi-Color Effect No. 34



Multi-Color Effect No. 47



Multi-Color Effect No. 57



Multi-Color Effect No. 79

FLAT-TONE SYSTEM



System Effect No. 29



System Effect No. 36



System Effect No. 79



System Effect No. 69



System Effect No. 67



System Effect No. 75



System Effect No. 68

Please do not detach color samples. THE SHERWIN-WILLIAMS CO. will be glad to supply you with as many as you require upon request.

Continued on next page

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

Primer and Sealer according to Specification No. 40. Follow with one coat of Sherwin-Williams Wall Paint No. 96 (Heavy Body) applied just as it comes in the package for stipple work.

Note: Where surface is not to be stippled the coat of Sherwin-Williams Wall Paint No. 96 should be applied, first reducing each gallon with about ½ pint turpentine.

Tiffany Effects—See Specification No. 38.

Specification No. 42

Enamelastic Enamel Finish for Walls

Discussion—Sherwin-Williams Enamelastic is a full oil enamel that is exceptionally easy working with good flowing, fullness and covering and unusual staying white qualities.

Specification—Three Coat New Work on Walls—See that the surface to be finished is perfectly dry and free from all loose plaster dust. Apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40.

For the second coat apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine and one quart Enamelastic to the gallon.

For the third and final coat apply Sherwin-Williams Enamelastic Gloss or Satin Finish reduced with ¼ pint pure turpentine to the gallon.

For satisfactory two coat enamel work on walls omit the second coat. On such work apply Enamelastic over Wall Primer and Sealer. (First and third coats as above.)

Allow to dry thoroughly between coats.

Specification—Refinishing Walls with Enamelastic—Remove all soot, dirt, grease and loose paint and apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. Porous surfaces such as walls previously painted with a number of coats of flat wall paint (which are often more porous than the original plaster) should be coated with Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40.

The second coat should consist of XXX Enamel Undercoater reduced with one quart Enamelastic and one pint pure turpentine to the gallon.

For the third coat apply Enamelastic Gloss or Satin Finish reduced with ¼ pint pure turpentine to the gallon.

Note: If surface is in good condition and tight, omit the coat of Wall Primer and Sealer.

Allow to dry thoroughly between coats.

To match special shades submitted by the architect, tint with Sherwin-Williams First Quality Oil Colors.

Specification No. 42X

Enamelo-Enamel Finish for Walls

Discussion—Sherwin-Williams Enamelo is intended for interior use where time will not permit the use of the slower drying Enamelastic which is a full oil enamel. Enamelo dries dust free in one and one-half hours, hard in six to eight hours and very hard in twenty-four hours.

Although it is a varnish enamel, it has easy working, flowing, fullness and covering which qualities are quite unusual in this type of enamel.

Specification—Three Coat New Work on Walls—See that the surface to be finished is perfectly dry and free from all loose plaster dust. Apply one coat Sherwin-Williams Wall Primer and Sealer according to Specification No. 40.

For the second coat apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine and one quart Enamelo to the gallon.

For the third and final coat apply Sherwin-Williams Enamelo just as it comes from the package.

For satisfactory two coat enamel work on walls omit the second coat. On such work apply Enamelo over Wall Primer and Sealer. (First and third coats as above.)

Allow to dry thoroughly between coats.

Specification—Refinishing Walls with Enamelo—Remove all soot, dirt, grease and loose paint and apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. Porous surfaces such as walls previously painted with a number of coats of flat wall paint (which is often more porous than the original plaster) should be coated with Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40.

The second coat should consist of XXX Enamel Undercoater reduced with 1 pint of turpentine and 1 quart Enamelo to the gallon.

For the third coat apply Enamelo just as it comes from the package.

Note: If the surface is in good condition and tight, omit the coat of Wall Primer and Sealer.

Allow to dry thoroughly between coats. To match special shades submitted by the architect, tint with Sherwin-Williams First Quality Oil Colors.

If Enamelo is too heavy for certain work thin slightly with pure turpentine only.

Specification No. 43

Old Dutch Enamel Finish

Discussion—For the best grade of enamel finish on walls, the following specification is recommended.

On New Walls—

Specification—(4 Coat Work)—Care should be taken to see that the surface to be finished is perfectly dry and free from all dust and grease. Apply a first coat of Sherwin-Williams Wall Primer and Sealer according to Specification No. 40.

For the second coat apply Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon.

The third coat should consist of XXX Enamel Undercoater and Old Dutch Enamel mixed in equal parts and thinned with one pint pure turpentine.

For the fourth and last coat apply Sherwin-Williams Old Dutch Enamel reduced with about ¼ pint pure turpentine to the gallon.

Allow to dry thoroughly between coats.

Where special shades are made to match sample submitted by architect, Sherwin-Williams First Quality Oil Colors should be used for tinting.

Old Walls—

Specification—Refinishing Walls with Old Dutch Enamel—Remove all soot, dirt, grease and loose paint and apply one coat Sherwin-Williams Wall Primer and Sealer to all bare spots and patches. Porous surfaces such as walls previously painted with a number of coats of flat wall paint (often more porous than the original plaster) should be coated with Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40.

The second coat should consist of Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine and one quart of Old Dutch Enamel to the gallon.

For the third coat apply Sherwin-Williams Old Dutch Enamel reduced with about ¼ pint pure turpentine to the gallon.

Allow to dry thoroughly between coats.

Note: For three coat work omit the second coat.

Specification No. 44

XXX Enamel Undercoater—New Walls

Discussion—Unquestionably the best enamel undercoater on the market today. It is easy brushing and flows out smoothly when directions are followed. It has very easy sanding almost as easy as shellac. In its manufacture special consideration has been given to tightness of surface. XXX Enamel Undercoater seals tight, which is responsible for the satisfactory way in which it holds out enamel.

Specification—See Specifications No. 42, and 43.

Specification No. 45

Enamel Finish on Keene's Cement

Opex Lacquer Specifications No. 46A.

Follow Specification No. 43 for Old Dutch Enamel finish or Specification No. 42 for the more economical Enamelastic finish, following same instructions as are given for new plaster.

Specification No. 46

Interior Brick, Tile or Concrete Walls to Paint—Dull Finish

Follow Specifications No. 36 or No. 41.

If special shade is used tint with Sherwin-Williams First Quality Oil Colors to color selected by architect.

Note: For semi-gloss finish specify Sherwin-Williams Semi-Lustre Wall Paint in place of either Flat-Tone or Wall Paint No. 96 (Heavy Body).

Continued on next page

PAINTING AND DECORATING OF INTERIOR WALLS (Continued)

Specification No. 47

Save-Lite for Mill Walls

Discussion—Save-Lite is furnished in three types of finishes: Flat White, Gloss White, and Eg-Shel White.

Sherwin-Williams Save-Lite Eg-Shel Finish is our standard recommendation for the painting of walls and ceilings in mills, loft buildings, service corridors, printing establishments and in all workrooms where it is of the utmost importance to provide the maximum amount of working light with proper diffusion so as to avoid eye strain which results from the use of glossy paints which reflect the light and in fact even produce hard shadows as well as high lights. A room finished in Save-Lite Eg-Shel White will be found on accurate measurement to be lighter than a similar room finished in gloss white.

Save-Lite Eg-Shel White provides all the ease of cleaning found in the gloss finishes. It washes easier and retains its whiteness longer than a flat wall finish. Save-Lite is enjoying a remarkable success and is being used in many of the most prominent manufacturing plants in the country as a standard upkeep product.

Specification—Before painting walls and ceilings, the contractor shall make certain through careful inspection that the surfaces to be painted are in proper condition. New surfaces, such as plaster, wood, composition, etc., should be properly sealed with Sherwin-Williams Wall Primer and Sealer. One or more spray coats, or not less than two brush coats of Save-Lite should be applied, to within five feet of the floor. Old surfaces may not need the sealer, but the same painting specifications apply.

For hand brushing; Save-Lite Eg-Shel White can be used as it comes in the package. If it seems too heavy for certain work, thin slightly with S-W Reducer No. 74 or Pure Turpentine.

For spray application; material should be thinned using from one pint to one quart of S-W Reducer No. 74 or Pure Turpentine to the gallon of Eg-Shel White. Air drying time to recoat, 24 hours.

A dado five feet in height with a three-inch strip of different color at the top shall be painted with two coats of S-W Dado Enamel in the color selected by the Architect.

Specification No. 48

Save-Lite Fume-Resisting White Finish for Interior Walls and Ceilings

Discussion—Architects and Engineers have occasion frequently to specify a wall finish for laboratories and manufacturing plants where it is essential to use Fume-Resisting Paints for finishing walls and ceilings.

Through continuous research and experimenting in rubber mills and manufacturing plants, Sherwin-Williams has developed a White Paint which will resist the action of sulphur fumes and other acid fumes without turning color badly. This White Paint is furnished in three degrees of gloss: Save-Lite Fume-Resisting Flat White; Save-Lite Semi-Gloss White; Save-Lite Gloss White.

In developing each one of these products, THE SHERWIN-WILLIAMS CO. have arrived at a formula which we believe represents material that will meet the requirements of the maintenance engineer for the painting of interior walls and ceilings in industrial plants where considerable acid fumes are present. In manufacturing these finishes we have incorporated the proper combination of pigments and especially prepared vehicles which make it possible for these products to retain their whiteness under heat and ordinary chemical fumes.

Save-Lite Fume-Resisting White Finishes are resistant to the ordinary types and concentrations of fumes arising from sulphur, chlorine, ammonia and tobacco, such conditions as prevail in rubber plants, laundries, bakeries, dye and starching rooms in textile mills and cure rooms in cigar factories.

Specifications—Before proceeding with the painting of all walls, ceilings, etc., contractor shall inspect the surfaces to be painted to insure the fact that they are in proper condition for finishing. New surfaces such as plaster, wood, composition board, etc., should be properly painted with S-W Wall Primer and Sealer. One or more spray coats or not less than two brush coats should be applied. Old surfaces may not need the Sealer but the same painting specifications apply.

For hand brushing, Fume-Resisting Finishes should be applied as they come from the package. If too heavy for certain work, thin slightly with S-W Reducer No. 74 or Pure Turpentine. For spraying these materials should be thinned, using from one pint to one quart of Reducer No. 74 or Pure Turpentine to the gallon of Fume-Resisting White. Air-drying time to recoat, 24 hours.

Specification No. 49

New Plaster Walls—Water Paint Finish

A first coat consisting of Sherwin-Williams Wall Primer and Sealer or Sherwin-Williams Flat-Tone Mixing Size, reduced one-third with turpentine or benzine, shall be applied to the wall to stop suction and seal the wall.

After sufficient time has been allowed for drying, a second coat consisting of Sherwin-Williams Decotint, in color selected by the architect, mixed with water in accordance with the manufacturer's directions for applicatoin, shall be applied with a wide kalsomine brush, care being taken to secure perfect covering.

Specification No. 50

Washable Flat Painted Finish for Walls Previously Finished with an Oil Paint

All cracks, holes, etc., shall be carefully filled with plaster or plaster of paris, as the case requires, to a level surface. All loose plaster, paint, dirt, grease, etc., shall be removed from the surface before any paint is applied. All newly plastered sections shall receive a priming coat consisting of Sherwin-Williams Wall Primer and Sealer applied according to Specification No. 40. Then follow specifications given for repainting under Specification No. 36 or Specification No. 41.

Specification No. 51

Dampproofing Interior Walls Above Grade (Plaster Bond)

Discussion—Sherwin-Williams Plaster Bond is a specially prepared paint of the asphalt type which is applied, *without heating*, on inside brick, tile or concrete walls above grade before plaster is applied, to serve as a dampproofing and to do away with the necessity for furring or lathing.

Sherwin-Williams Plaster Bond may be applied by either brush or spray method. If the brush method is to be used, a three or four-knot roofing brush is recommended, although a Tampico brush may be used, if desired. Sherwin-Williams Plaster Bond dries slowly, and twenty-four hours after it has been applied, it is in the tacky condition which is ideal for the application of plaster. As the plaster dries out, the Plaster Bond also dries, resulting in a tenacious bond. Sherwin-Williams Plaster Bond covers 400 to 500 square feet to the gallon, one coat—varying with the porosity of the wall.

The outstanding features of Sherwin-Williams Plaster Bond are as follows:

Dampproof walls.

Prevents staining of plaster.

Makes furring or lathing unnecessary; thereby saving space in rooms and reducing construction costs.

Eliminates space between plaster and wall and thus does away with breeding spaces for vermin.

Aids in fireproofing by eliminating wood and spaces between walls and plaster.

Note: This material is not designed or intended for use on ceilings or coves and should never be used for anything but perpendicular wall work.

Specification—The inside surfaces of the brick, tile or concrete exterior walls above grade which are to be plastered, shall be dampproofed with Sherwin-Williams Plaster Bond. All surfaces to be treated shall be dry and clean, and free from frost. One full coat of Plaster Bond shall be applied in the consistency supplied by the manufacturer. Care shall be taken that the entire surface is thoroughly covered. A retouching or "spotting coat" shall be applied to those sections where any voids or pinholes appear after the Plaster Bond has been absorbed into the walls. When complete, the surface shall have a uniform black appearance.

First coat of plaster shall be applied between twenty-four and seventy-two hours after the Plaster Bond has been applied.

FINISHING OF INTERIOR WOOD TRIM

General Discussion

No one appreciates more than the architect the decorative value of properly finished woodwork. This section, therefore, is offered to provide information in the simplest and most useful form which will enable the architect to specify the definite procedure necessary to produce the desired effect.

Open and Close Grain Woods—The majority of hardwoods, with the exception of maple, are open grain; i. e., have open pores which follow the figure at the grain. The decorator turns this characteristic to advantage when it is desirable to emphasize the character of the grain. For example, mahogany finishes are improved through emphasizing the grain with a black or red-black paste filler. Silver gray finishes are improved by using a light colored toner, either white or gray, which usually is lighter than the general color of the wood. Several years ago the mission finish was popular. This consisted of a stain and a light coat of shellac and dull varnish. It left the pores of the wood unfilled and served only to protect the wood, retaining a sort of craftsman quality. The same idea is used in so-called open pore finishes for walnut furniture and woodwork.

Close-grain woods have no open pores and do not require the use of a paste filler. Needless to say, a paste filler is an additional coat in the finishing process and naturally adds to the cost of the finish. Architects should bear this in mind when selecting wood trim, where cost of finishing is an important factor.

In order to differentiate readily between open-grain and close-grain woods, so that architects may know which of these woods require paste wood filler in the finishing process and which do not, a list of the better known American building woods under each type is given hereunder:

Open-Grain Woods

Ash	Chestnut	Mahogany	Rosewood
Butternut	Elm	Oak	Walnut
		Hickory	

Close-Grain Woods

Basswood	*Cherry	Hemlock	Redwood
Beech	Cypress	Maple	Spruce
*Birch	Fir	Pine	Sycamore
Cedar	Gumwood	Poplar	Whitewood

*Will take a paste filler where desired to emphasize the grain.

Varnishes for Interior Finishing—Sherwin-Williams offers two varnish leaders for interior woodwork trim—Scar-not Varnish for a full varnish, and Sherwin-Williams Velvet Finish Varnish 1044 for a dull rubbed effect.

Scar-not Varnish has the following characteristics. It is full in body to provide a rich varnish film that will enhance the grain of the wood and afford body enough to permit rubbing down to a high polish, where required. Scar-not dries to an exceedingly hard film, does not chip easily and does not powder white when scratched. It will not soften to print under ordinary heat of warm dishes. Scar-not is an exceedingly rugged finish, but can be rubbed to a beautiful, soft dull finish with powdered pumicestone and oil.

Velvet Finish Varnish is a finishing varnish only, intended to eliminate the necessity of hand rubbing for a dull finish. It is intended to be used either over Scar-not for a final coat or over shellac for a dull or mission effect. Velvet Finish Varnish is water-resisting and will not spot white. It works easily and satisfactorily.

To Produce an Imitation Rubbed Effect on Interior Wood Trim (Flat Drying Varnish)—Where the architect does not care to go to the expense of a genuine rubbed varnish job, an effect can be secured by using Sherwin-Williams Velvet Finish Varnish, which so closely imitates the genuine rubbed effect that frequently experts, at first glance, mistake work done with this varnish for a genuine rubbed finish.

Velvet Finish is applied as the finishing coat over one or two coats of Sherwin-Williams Scar-not Varnish. This varnish is water-resisting and will not spot white. A highly satisfactory job of finishing can easily be secured with Velvet Finish Varnish. This varnish does not show any laps or brush marks, as is the case with many varnishes on the market which were designed to sell in competition with this famous Sherwin-Williams product.

Even where Scar-not Varnish is specified to be rubbed in the final coat, it is advisable to use Sherwin-Williams Velvet Finish Varnish on any finely carved sections of wood, as it is difficult for the finisher to get into all of the tiny crevices when rubbing down a gloss varnish used on carved woodwork.

A Few Things to Watch in the Application of Varnish—When varnishing is being done and while the varnish is drying, the premises should be kept as free from dust as possible.

No varnishing should be done in a room in which the temperature is below 70 degrees Fahrenheit, or the resulting finish may appear to be full of specks. This action of the varnish is called "pitting."

Varnish should always be stored in a warm place. If applied when cold, the resulting finish may be the same as when varnish is applied in a cold room. Varnish takes on a "specky" appearance and these tiny specks are plainly visible in the finished surface. When a varnish is in this condition, it is said to be "chilled" and should be placed in a warm room, until the temperature of the varnish is approximately that of the room, when the varnish will again return to normal condition.

Drafts in rooms in which varnish is drying, many times cause the varnish to "pit" or "flat."

A Few Words About Stains—THE SHERWIN-WILLIAMS CO. manufactures three types of stains, namely, Oil Stains, Handcraft Stains (Spirit Penetrating) and Acid Stains. Each type of stain has its own definite mission.

Specification No. 52

New Interior Open Grain Woodwork (Stained and Varnished Finish)

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork, which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

Apply one coat of Sherwin-Williams Stain in the shade selected by the architect. After sufficient time has been allowed for drying, one coat of Sherwin-Williams Paste Filler, in the color selected by the architect, shall be applied, and before the filler has become hard the surface shall be wiped off across the grain with burlap or excelsior. Twenty-four hours shall be allowed for drying, after which a thin coat of Sherwin-Williams Marvelac, or pure shellac, shall be applied, and lightly sanded when dry. Two coats of Sherwin-Williams Scar-not Varnish shall then be applied. Sufficient time for drying shall be allowed between coats.

(*For a dull finish:* The last coat of varnish, when thoroughly hard, shall be rubbed to a dull finish with powdered pumice stone and oil. Or one coat of Sherwin-Williams Velvet Finish No. 1044 shall be used in place of the final coat of Scar-not Varnish for producing an imitation rubbed effect.)

FINISHING OF INTERIOR WOOD TRIM (Continued)

Note: Silver Gray Stain is not recommended for use over woods other than light toned woods such as white oak, white birch and maple.

Pure white shellac, only, should be used as a sealing coat over Silver Gray Stain.

Specification No. 53

New Interior Close Grain Woodwork (Stained and Varnished Finish)

See Opex Lacquer Specification No. 53-A.

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork, which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

One coat of Sherwin-Williams Stain in the shade selected by the architect shall be applied. When dry apply one very thin or wash coat of pure white shellac or Sherwin-Williams Marvelac and sand lightly when dry with No. 0 sandpaper. Two coats of Sherwin-Williams Scar-not Varnish shall then be applied. Sufficient time for thorough drying shall be allowed and the surface sanded between coats with No. 00 sandpaper.

(*For a dull finish:* The surface shall be rubbed, when hard, with powdered pumice stone and oil to a dull finish. Or an imitation rubbed effect can be obtained by substituting Sherwin-Williams Velvet Finish No. 1044 for the final coat of Scar-not Finish.)

Specification No. 54

New Interior Open Grain Woodwork (Natural Varnished Finish)

See Opex Lacquer Specification No. 53-A.

All woodwork shall be dry, clean and smooth, before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork, which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

One coat of Sherwin-Williams Transparent Paste Filler shall be applied, but before the filler has become hard, shall be wiped off across the grain with burlap or excelsior. After allowing forty-eight hours for the filler to dry, the surface shall be sanded smooth with No. 0 sandpaper. One coat of Sherwin-Williams Scar-not Varnish, thinned with one pint pure turpentine to each gallon, shall then be applied. A second and third coat of the same varnish shall also be applied in the consistency supplied by the manufacturer, allowing sufficient time for thorough drying and sanding lightly with No. 00 sandpaper between coats.

(*For a dull finish:* The surface, when thoroughly hard, shall be rubbed with powdered pumice stone and oil or water to a dull finish. Or an imitation rubbed effect may be obtained by substituting Sherwin-Williams Velvet Finish Varnish No. 1044 for the final coat of Scar-not Varnish.)

Specification No. 55

New Interior Close Grain Woodwork (Natural Varnished Finish)

See Opex Lacquer Specification No. 53-A.

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

Three coats of Sherwin-Williams Scar-not Varnish shall be applied. The first coat shall be thinned in proportion of one pint of pure turpentine to each gallon of varnish. The second and third coats shall be applied as the material comes from the original container. Sufficient time for thorough drying shall be allowed and the surface shall be lightly sanded with No. 00 sandpaper, between coats.

(*For a dull finish:* The surface, when sufficiently hard, shall be rubbed to a dull finish with powdered pumice stone and oil or water. Or an imitation rubbed effect finish can be obtained by substituting Sherwin-Williams Velvet Finish Varnish No. 1044 for the final coat of Scar-not.)

Specification No. 56

New Interior Open Grain Woodwork (Stained and Waxed Finish)

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

A coat of Sherwin-Williams Stain, in the shade selected by the architect, shall be applied. When the surface is sufficiently dry, one coat of Sherwin-Williams Paste Wood Filler, in the color selected by the architect, shall be applied, but before the filler is hard, the surface shall be wiped off across the grain with burlap or excelsior (where mission effect is desired, paste filler coats may be omitted). One coat of Sherwin-Williams Marvelac, or pure shellac, shall be applied, which when sufficiently dry shall be sanded lightly with No. 00 sandpaper. Two coats of Sherwin-Williams Prepared Wax shall then be applied, wiping off the surplus wax and bringing the surface to a high, hard polish by brisk rubbing.

Specification No. 57

New Interior Close Grain Woodwork (Stained and Waxed Finish)

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied.

One coat of Sherwin-Williams Stain, in the shade selected by the architect, shall be applied. When dry, one thin coat of Sherwin-Williams Marvelac, or pure shellac, shall be applied, which when dry shall be lightly sanded with No. 00 sandpaper. Two coats of Sherwin-Williams Prepared Wax shall then be applied, wiping off the surplus wax from the surface and bringing same to a high, hard polish by brisk rubbing.

Specification No. 58

Old Dutch Enamel Finish on Interior Wood Trim

New Interior Wood Trim—

Discussion—Old Dutch Enamel is an enamel of the long oil type, manufactured after formulae similar to those used by the most famous of Dutch enamel makers, with certain improvements which over sixty years' experience in enamel making has enabled us to accomplish. It is impossible to obtain an enamel of better quality than Old Dutch Enamel or which will give more satisfactory results. It is very white, has a splendid gloss and is so full in body that very satisfactory results can be obtained with one coat of Old Dutch Enamel on the usual number of undercoats.

Old Dutch Enamel is made in the popular tints of Ivory and French Gray. Should an architect desire to secure some other tint, this can easily be done by the painting contractor or decorator, by tinting Old Dutch Enamel with Sherwin-Williams First Quality Oil Colors, or in the case of very delicate tints, Sherwin-Williams Quick Drying Colors Ground in Japan can be used. In tinting, the color should be broken up in a small amount of Old Dutch Enamel which, after thorough mixing, should be added to the rest of the enamel, a little at a time, until the desired tint is obtained. Where the enamel is tinted, the undercoater should likewise be tinted to a similar color.

Probably the most important feature to watch in an enamel job is the building up of the undercoating. Each coat of enamel undercoater, except the last, should be carefully sanded to a smooth surface with No. 0 sandpaper. Nothing coarser than No. 0000 sandpaper should be used on the final undercoat, as a very fine scratch is noticeable in subsequent enamel coats in high class enamel work. The enamel may then be flowed on as specified below.

See Color Samples on S-W Page 9.

Specification—Before proceeding with the work, the contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt.

The first coat shall be Sherwin-Williams XXX Enamel

FINISHING OF INTERIOR WOOD TRIM (Continued)

Undercoater thinned (for porous soft wood) with one quart pure raw linseed oil and ½ pint pure turpentine to the gallon. (For hard woods thin with one pint pure turpentine and one pint pure raw linseed oil to the gallon of undercoater.) When dry sand thoroughly with No. 0 sandpaper.

For the second coat (on all woods) apply Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon. When dry sand with No. 0 sandpaper. (*Note:* Where lead and oil primer has been used, the second coat should be thinned with ½ pint pure turpentine and ½ pint pure raw linseed oil to the gallon.)

For the third coat apply Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon. When dry, sand carefully to smooth surface with No. 0000 sandpaper.

The fourth coat should consist of equal parts Sherwin-Williams Old Dutch Enamel and Sherwin-Williams XXX Enamel Undercoater thinned with one pint pure turpentine to the gallon of the mixture. When dry, sand lightly with No. 0000 sandpaper.

The fifth coat should be Sherwin-Williams Old Dutch Enamel applied in the consistency supplied in the package. (Rubbed Finish: Where desired, the final coat of Old Dutch Enamel, when sufficiently hard, shall be rubbed to a dull finish with powdered pumice stone and water.)

Where the architect does not care to go to the expense of rubbing the final coat, Old Dutch Enamel, Dull Finish can be substituted for the fifth coat as specified above.

Note 1: On open-grain woods, such as Oak, Walnut and Chestnut, the first coat of the above specification should be changed so as to call for one coat Sherwin-Williams Paste Wood Filler, Transparent, wiping off surplus filler before same has become set on the surface. Then proceed with specifications as above.

Note 2: Where expense is a consideration the third coat as specified above may be omitted.

Previously Finished Interior Wood Trim—

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly with No. 0 sandpaper to remove any gloss which may be on the old finish.

For the first coat apply Sherwin-Williams XXX Enamel Undercoater mixed with one quart of Sherwin-Williams Old Dutch Enamel and one pint pure turpentine to the gallon of undercoater.

The second coat should be Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Old Dutch Enamel mixed in equal parts and the mixture reduced with one pint pure turpentine to the gallon. When dry sand lightly with No. 0000 sandpaper.

Third coat to be Sherwin-Williams Old Dutch Enamel (gloss or dull) in consistency supplied in the package.

Note: Where finish is badly cracked or chipped remove down to the bare wood with Sherwin-Williams Taxite (Paint and Varnish Remover) and after cleaning the surface thoroughly, proceed as for new wood.

Specification No. 59

Enamelastic—Enamel Finish on Interior Trim

Discussion—Sherwin-Williams Enamelastic is an easy working, good flowing interior enamel of the oil type. Its use is recommended where the more expensive Old Dutch Enamel system cannot be used.

Best results are obtained when enamels are applied over a tight surface. Sherwin-Williams XXX Enamel Undercoater has been especially developed to produce the desired tightness. It has unusual flow and sands remarkably easy although it is exceptionally tough.

New Interior Wood Trim—

Specification—Before proceeding with the work, the contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt. Each coat must be thoroughly dry before a succeeding coat is applied.

For the first coat apply Sherwin-Williams XXX Enamel Undercoater reduced with one quart pure raw linseed oil and ½ pint of pure turpentine to the gallon on soft woods. (On hard woods reduce each gallon with one pint pure turpentine and one pint pure raw linseed oil.)

Second Coat—Apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine. (In the event that a lead and oil primer has been used reduce the undercoater with ½ pint pure turpentine and ½ pint pure raw linseed oil to the gallon.)

Third Coat—Apply Sherwin-Williams Split-Coat or a split coat made up of equal parts Sherwin-Williams Enamelastic and Sherwin-Williams XXX Enamel Undercoater, reducing each gallon of the mixture with one pint pure turpentine.

Fourth Coat—Apply Sherwin-Williams Enamelastic, Gloss or Satin Finish as it comes in the package.

Note 1: Where economy permits only three coats, omit the second coat above.

Note 2: Where special shades are desired, Sherwin-Williams First Quality Oil Colors should be used to tint to the shade approved by the architect.

Previously Finished Interior Wood Trim—

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly to remove any gloss which may be on the old finish.

First Coat—Apply Sherwin-Williams Split-Coat or a split coat made up of equal parts of Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Enamelastic reduced with one pint pure turpentine to the gallon of the mixture.

Second Coat—Apply Sherwin-Williams Enamelastic, Gloss or Satin Finish in the consistency in which it comes in the package.

On surfaces in bad condition, all loose paint should be scraped off and the surface sanded thoroughly. Bare spots should be primed with Sherwin-Williams XXX Enamel Undercoater reduced with one quart pure raw linseed oil and ½ pint pure turpentine for soft, porous woods or one pint pure turpentine and one pint pure raw linseed oil to the gallon for hard woods. Then proceed as above. When surface is badly cracked, the paint should be removed with Sherwin-Williams Taxite, a paint and varnish remover—then follow specifications given for new work.

Specification No. 59X

Enamelo—Enamel Finish on Interior Trim

Discussion—Sherwin-Williams Enamelo is intended for interior use where time will not permit the use of the slower drying Enamelastic which is a full oil enamel. Enamelo dries dust free in one and one-half hours, hard in six to eight hours and very hard in twenty-four hours.

Although it is a varnish enamel it has easy working, flowing, fullness and covering which qualities are quite unusual in this type of enamel.

New Interior Wood Trim—

Specification—Before proceeding with the work, the contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt. Each coat must be thoroughly dry before a succeeding coat is applied.

First Coat—Apply Sherwin-Williams XXX Enamel Undercoater reduced with one quart raw linseed oil and ½ pint pure turpentine to the gallon on soft, porous woods. On hard woods reduce each gallon with one pint pure turpentine and one pint pure raw linseed oil.

Second Coat—Apply Sherwin-Williams XXX Enamel Undercoater reduced with one pint pure turpentine to the gallon. (In the event a lead and oil primer has been used reduce the undercoater with ½ pint pure turpentine and ½ pint pure raw linseed oil to the gallon.)

Third Coat—Apply equal parts Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Enamelo, reducing each gallon of the mixture with one pint pure turpentine.

Fourth Coat—Apply Sherwin-Williams Enamelo as it comes in the package.

Note 1: Where economy is desirable, omit the second coat and a very satisfactory three-coat job is obtained.

Note 2: Where special shades are desired, Sherwin-Williams First Quality Oil Colors should be used to tint to the shade approved by the architect.

Previously Finished Interior Wood Trim—

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly to remove any gloss which may be on the old finish.

First Coat—Apply Sherwin-Williams Split-Coat or a split coat made up of equal parts of Sherwin-Williams XXX Enamel Undercoater and Sherwin-Williams Enamelo reduced with one pint pure turpentine to the gallon of the mixture.

Second Coat—Apply Sherwin-Williams Enamelo in the consistency in which it comes in the package.

FINISHING OF INTERIOR WOOD TRIM (Continued)

On surfaces in bad condition, all loose paint should be scraped off and the surface sanded thoroughly. Bare spots should be primed with Sherwin-Williams XXX Enamel Undercoater reduced with one quart pure raw linseed oil and ½ pint pure turpentine to the gallon on hard woods. Then proceed as above.

When surface is badly cracked, the paint should be removed with Sherwin-Williams Taxite, a paint and varnish remover. Then follow specifications given for new work.

Specification No. 59Y

Semi-Lustre Finish on Interior Trim

Discussion—Sherwin-Williams Semi-Lustre is an economical finish for interior trim and gives excellent results where the more expensive enamel finish isn't practical. It is easy working and flows out to a soft velvety finish.

New Interior Wood Trim

Specification—Before proceeding with the work the contractor shall make sure that the surface to be finished is perfectly dry before a succeeding coat is applied.

First Coat—Apply Sherwin-Williams Semi-Lustre, reducing each gallon with one quart pure turpentine.

Second Coat—Apply Sherwin-Williams Semi-Lustre just as it comes from the package.

Third Coat (if desired)—Apply Sherwin-Williams Semi-Lustre as it comes from the package.

Previously Finished Interior Trim

Specification—The surface to be finished shall be thoroughly cleaned, preferably with Sherwin-Williams Flaxoap (pure linseed oil soap) and warm water. When dry, sand thoroughly to remove any gloss which may be on the old finish.

First Coat—Apply Sherwin-Williams Semi-Lustre as it comes from the package.

Second Coat (if desired)—Apply Sherwin-Williams Semi-Lustre as it comes from the package.

Notes: If any thinning is necessary use pure turpentine only. If any special shades are desired use Sherwin-Williams First Quality Oil Colors for tinting.

Allow sufficient time for drying between coats. Twenty-four hours is usually sufficient.

MISCELLANEOUS SPECIFICATIONS

Specification No. 60

Priming Galvanized Iron Surfaces

Discussion—Palm oil used in metal galvanizing processes many times affects paint applied over galvanized surfaces, with the result that the paint will peel or flake off and present a highly unsatisfactory finish. Architects recognize the painting of galvanized metal as a real problem and will be glad to know of Sherwin-Williams Galvanized Iron Primer for the priming of surfaces of this type to insure good results.

Specification—All galvanized metal surfaces, whether interior or exterior, shall be primed with one coat of Sherwin-Williams Galvanized Iron Primer. Care shall be exercised by the contractor before painting, to insure the fact that the surfaces which are to be painted are in good condition—all dirt, rust, grease, acid or rosin being removed before priming. The best way to clean the surface is by washing thoroughly with a solution of copper acetate consisting of a solution of about six ounces to one gallon of water.

(Subsequent coats will depend entirely upon the architect's own selection of finish. The surface can either be painted with a regular lead, oil and zinc paint, flat wall finish or enamel finish.)

Specification No. 61

Painting Radiators

See Opex Lacquer Specification No. 62-A

Discussion—Tests made by the American Society of Heating and Ventilating Engineers and also by the Paint Manufacturers Association of the United States indicate that paints made from bronze powders retard the radiation of heat approximately 25%, while paints and enamels made from zinc oxide or lithopone do not appreciably affect radiation one way or the other.

Recent tests prove that the use of the lighter tints of Sherwin-Williams Flat-Tone Wall Finish will produce a highly satisfactory finish on radiators and will not affect the efficiency of the radiation. This paint tends to bake to a hard film on radiator surfaces and tests made by the Paint Manufacturers Association of the United States upon radiators in their laboratories indicate that such a finish has a life of as high as nine to ten years without showing defects.

Regardless of what types of paint are used in painting radiators, there is bound to be a slight change in color. White Damar Enamels will yellow slightly, while flat finishes, like Flat-Tone and colored enamels, will likewise change color slightly.

This is a condition for which a remedy has not been found up to the present, but the results all in all are highly satisfactory.

Specification—Before applying paint clean off dust, dirt and rust from radiators by wire brushing. Also remove any grease which may be present. Radiators must not be painted while they are hot. Allow paint to dry thoroughly before turning on heat.

Where a white finish is desired on radiators specify one coat S-W Metal Primer Gray No. 76 and two coats of S-W Enameloid.

For a colored enameled finish on radiators specify one coat of S-W Metal Primer Gray No. 76 and two coats of S-W Enameloid in the color selected.

If a flat finish is desired on radiators specify one coat of S-W Metal Primer Gray No. 76 and two coats of S-W Flat-Tone in the color selected.

If Enameloid is being used, it is recommended that the first coat be thinned slightly with Turpentine.

Oil Colors—The selection of the highest grade of oil colors for tinting purposes is really an important matter. Inferior colors, not fast to light, have ruined many painting jobs which otherwise were perfect. Specify Sherwin-Williams First Quality Colors Ground in Oil. These colors are fast to light and are ground in strictly pure refined linseed oil.

Specification No. 62

Metal Trim (Enameled Finish) to Be Finished on Job

See Opex Lacquer Specification No. 62-A

All metal trim to be finished on the job shall receive a coat of Sherwin-Williams Metal Trim Primer before leaving the shop. After the trim has been installed it shall be thoroughly cleaned from all dust, dirt, grease, etc., and sanded lightly with No. 00 sandpaper, after which two coats of Sherwin-Williams Enameloid in the color selected by the architect shall be applied. When the first coat of enamel is thoroughly dry it shall be lightly sanded with No. 00 sandpaper before the second coat is applied.

Note: Where an especially high grade enamel finish is desired in light tints or white, use the standard Sherwin-Williams **Old Dutch Enamel** specification No. 58 for the finishing of wood trim.

OPEX ARCHITECTURAL SPECIFICATIONS

Foreword

Positive proof that architects are convinced of the desirable properties of Opex Architectural finishes is found in the following list of imposing buildings which are being finished or have been finished in 1930 with Opex:

Michigan Square Building, Chicago, Ill.
Buckingham Building, Chicago, Ill.
Board of Trade Building, Chicago, Ill.
No. 1 LaSalle Building, Chicago, Ill.
Midland Bank Building, Cleveland, Ohio
Alamo Bank Building, San Antonio, Tex.
Autora Apartment Hotel, San Antonio, Tex.
450 Sutter Building, San Francisco, Calif.
Paducah Bank Building, Paducah, Tex.
LaSalle-Wacker Building, Chicago, Ill.

The following products make up this Opex line:

Opex Brushing Interior Clear Gloss
Opex Brushing Floor Clear Gloss
Opex Spraying Interior Clear Velvet
Opex Brushing Interior Clear Velvet
Opex Spraying Floor Clear Gloss
Opex Sealer Binder Clear

Brush Application

Flow Opex Interior Brushing Lacquers on with a full brush. If it is necessary to go back into a portion that has started to set up, be sure that a partially full brush is used, thus giving better reflow and eliminating any tendencies towards "piling up." If any thinning is necessary, use Opex Brushing Lacquer Thinner only.

Spray Application

Use eight pounds on the pressure tank, and forty pounds on the line. If lower pressure or a cup gun is used, some thinning may be necessary. On new work, this reduction should not exceed twenty-five per cent, using Opex Thinner No. 10.

Specification No. 21-A

New Floors—Open Grain—Natural Finish

The floors shall be perfectly smooth before any lacquer is applied, and shall be thoroughly cleaned of all dust, dirt, stains, etc. The floor shall then be filled with Sherwin-Williams Paste Wood Filler Transparent which before becoming hard shall be wiped off across the grain of the wood with burlap or excelsior. After allowing twenty-four hours for drying, the surface shall be sanded to a smooth finish with No. 1/2 Sandpaper. Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of denatured alcohol. Let dry two hours; sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed, before putting into service.

Specification No. 22-A

New Hardwood Floors—Open Grain—Stained Finish

The floor shall be scraped and sandpapered smooth and perfectly dry before any finish shall be applied. Thoroughly sweep out all shavings, dust and dirt. Remove any stains or discolorations by bleaching or scraping.

Apply one coat of Sherwin-Williams Acid Stain in the color selected by the architect. Allow to penetrate and wipe off surplus stain before drying. Let dry overnight before applying further finishing coats.

Note: This method is required where dark effects are desired and also for close-grain woods which cannot be filled.

Open-grain woods can be frequently modified sufficiently in tone through the use of Sherwin-Williams Paste Wood Fillers in the dark colors. Paste Wood Fillers come in paste form and are to be thinned with benzine to the consistency of thick cream for brushing. Brush over the surface of the wood and let stand until partly set, indicated by partial flatting out of the wet gloss. Then wipe across the grain of the wood with burlap or excelsior, removing all excess filler. Wipe clean with a soft cloth. Allow twenty-four hours for drying before applying further finishing coats. Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of denatured alcohol. Let dry two hours; sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed, before putting into service.

Specification No. 23-A

New Hardwood Floors—Close Grain—Stained Finish

The floors shall be perfectly smooth before any finish is applied and shall be thoroughly cleaned of all dust, dirt, stains, etc. One coat of Sherwin-Williams Acid Stain in the color selected by the architect shall then be applied. Allow to penetrate and wipe off surplus stain before drying. Let dry over night before applying further finishing coats.

Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of alcohol. Let dry two hours, sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed before putting into service.

Specification No. 27-A

New Softwood Floors—Stained Finish

The floors shall be perfectly smooth before any finish is applied and shall be thoroughly cleaned of all dust, dirt, stains, etc. A coat of Sherwin-Williams Acid Stain in the color selected by the architect shall then be applied. Let dry overnight before applying further finishing coats.

Apply a wash coat of Opex Sealer Binder Clear, reducing each gallon with two quarts of alcohol. Let dry two hours, sand lightly with 0000 sandpaper. Apply one coat Opex Floor Clear Gloss without reduction. Let dry two hours where sprayed, three hours where brushed before putting into service.

Specification No. 28-A

New Softwood Floors—Enamel Finish

The floors shall be thoroughly dry and free from all dust, dirt, grease, etc., before any finish is applied.

Apply one coat of Sherwin-Williams White Oil Primer No. 12 followed by two coats of Sherwin-Williams Opex Lacquer Enamel of the color chosen by the architect.

Allow one hour for drying between coats except for the primer which should dry twelve hours.

Specification No. 53-A

New Interior Woodwork—Stained and Natural Finish

All woodwork shall be dry, clean and smooth before any finishing materials are applied. All nailholes, cuts, cracks and other defects shall be treated so as to render them unnoticeable by filling with a putty made of whiting, white lead, glue and water. If any defects are found in the woodwork which cannot be corrected so as to insure a perfect finish, the contractor shall notify the architect before any finishing materials are applied. On open-grain woods such as walnut and mahogany, stain and fill; let dry forty-eight hours. On close-grain woods such as birch or gum, or for open pore effect on open-grain woods, use any S-W Stain. (On soft woods, Oil Stain is advisable.) Let dry twenty-four hours. Apply a thin coat of Opex Sealer Binder Clear without reduction. Let dry at least two hours, sand lightly with 0000 sandpaper, and apply one coat of Opex Interior Clear Gloss or Velvet. For a fuller finish, a second coat may be applied after two hours. For a gloss—rubbed job, let dry two hours. Then apply a second coat of the gloss. As soon as the film is dried hard, it may be rubbed. Under normal drying conditions, this may be done in eight hours after the last coat of lacquer has been applied. However, twenty-four hours is recommended.

Note: Sherwin-Williams Acid Stain should be applied as follows: Sponge the wood with clear, cold water and allow to dry. Sandpaper smooth and apply one full coat of Sherwin-Williams Acid Stain, first testing the strength of the stain for depth of color and shade on sample of same kind of woodwork. Let dry and sandpaper carefully to a smooth surface with No. 00 sandpaper. If necessary, restain with Acid Stain reduced 100% with water. Let dry and sandpaper very lightly, if necessary, for a smooth finish with No. 0000 sandpaper. Apply Sherwin-Williams Paste Wood Filler in the shade required for the stain effect. Let stand for a few minutes until partly set, indicated by partial flatting out of the wet gloss of the material. Wipe off surplus filler by wiping across the grain of the wood. Wipe clean with a soft cloth. Clean out all corners and crevices carefully with a pointed wood stick and cloth. Allow twenty-four hours for drying.

Specification No. 59-A

New Interior Wood Trim—Enamel Finish

The contractor shall make sure that the surface to be finished is perfectly dry and free from dust and dirt.

The surface shall then be sanded down to a smooth surface, after which apply one coat of Sherwin-Williams Opex Sanding Sealer No. 98. After at least two hours dry, sand lightly and follow with two coats of Sherwin-Williams Opex Enamel, thinned 75% with Opex Thinner No. 10 in the shade selected by the architect, allowing one hour for drying between coats.

Note: On open grained woods such as oak, chestnut and walnut, the specifications should call for a coat of Sherwin-Williams Opex Wood Filler White No. 611 between coats of No. 98 Sealer and the finishing enamel.

ARCHITECTS' GUIDE

FOR PAINTING, VARNISHING, STAINING AND ENAMELING

IMPORTANT: EACH OF THE PRODUCTS SPECIFIED BELOW BEARS OUR NAME AND TRADE-MARK

SURFACE	TO PAINT *Use product named below*	TO ENAMEL *Use product named below*	TO STAIN *Use product named below*	TO VARNISH *Use product named below*
BRICK WALLS (Exterior)	*S-W Concrete Wall Finish*	*S-W Old Dutch Enamel,* Gloss		
CONCRETE WALLS (Exterior)	*S-W Concrete Wall Finish*	*S-W Old Dutch Enamel,* Gloss		
CEMENT FLOORS	*S-W Floor Enamel*	*S-W Floor Enamel*	To Harden— *S-W Concrete and Cement Hardener*	
EXTERIOR WOOD SURFACES	*S W P* (Sherwin-Williams Prepared Paint)	*S-W Old Dutch Enamel,* Gloss	*S-W Preservative Shingle Stain* *S-W Acid* or *Oil Stain*	*S-W Rexpar Varnish*
EXTERIOR METAL SURFACES	*Kromik Metal Primer* *Metalastic* (for finishing coats)	*S-W Old Dutch Enamel,* Gloss		
FACTORY WALLS (Interior)	*S-W Save-Lite Eg-Shel White* *S-W Save-Lite Fume Resisting White*	*S-W Enamelastic* or *Save-Lite Gloss White*		
FLOORS (Interior Wood)	*S-W Floor Enamel*	*S-W Floor Enamel*	*S-W Oil Stain* or *Flo-Lac Varnish Stain*	*S-W Mar-Not Floor Varnish*
GALVANIZED IRON SURFACES	*S-W Galvanized Iron Primer* (finish with any paint)	*S-W Galvanized Iron Primer* and *Old Dutch Enamel*	*S-W Oil Stain*	*S-W Rexpar Varnish*
INTERIOR WALLS AND CEILINGS	*Flat-Tone Wall Finish* *S-W Semi-Lustre Wall Finish* or *Wall Paint No. 96* (heavy body)	*S-W Enamelastic*		
INTERIOR WOOD TRIM	*S W P* (Sherwin-Williams Prepared Paint)	*S-W Old Dutch Enamel* or *Enamelastic*	*S-W Acid Stain* *S-W Handcraft Stain* *S-W Oil Stain*	*S-W Scar-Not Varnish* *Velvet Finish Varnish* (for imitation rubbed effect)
PORCH FLOORS AND DECKS	*S-W Porch and Deck Paint*	*S-W Porch and Deck Paint*		
RADIATORS AND PIPES	*S-W Flat-Tone Wall Finish* or *S-W Gold Paint* *S-W Aluminum Paint*	*S-W Old Dutch Enamelastic* or *Enameloid*		
ROOFS (Metal)	*S W P* or *Metalastic* (if galvanized, prime with S-W Galvanized Iron Primer)			
ROOFS (Wood Shingle)	*S W P*		*S-W Preservative Shingle Stain*	
STACKS AND HOT SURFACES	*S-W Salamander Smoke-Stack Black*			
STRUCTURAL STEEL	*S-W Kromik Metal Primer Metalastic* (for finishing coats)			
TO DAMPPROOF FOUNDATIONS	*S-W Antydamp*			
TO DAMPPROOF INTERIOR WALLS ABOVE GRADE	*S-W Plaster Bond*			
WOOD PRESERVATIVE			*S-W Carbolic-ol*	

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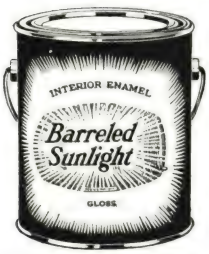
Products

BARRELED SUNLIGHT FINISHING COATS (Gloss, Semi-gloss, Eggshell, Flat).
BARRELED SUNLIGHT PRIMING COATS (Undercoat, Granolith, Plaster Sealer).
BARRELED SUNLIGHT CHEMIC ENAMEL.
OUTSIDE BARRELED SUNLIGHT.
RICE'S ACOUSTOLIGHT.
RICE'S FLOW-ON.



TRADE-MARK

Barreled Sunlight Interior Enamel Finish



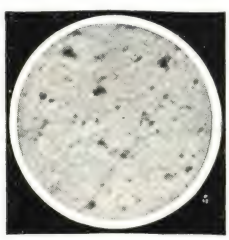
In hotels, apartment houses, schools, institutions, public and office buildings of all kinds, where the chief objects of painting are durable beauty, cleanliness and adequate lighting, Barreled Sunlight offers definite advantages as described below:

Description — Barreled Sunlight is made by the exclusive Rice Process of manufacture, a process that not only removes those portions of oil which have a tendency to turn white paint yellow, but one that adds greatly to the durability, ease of tinting and other qualities which this interior finish possesses. Barreled Sunlight has a rich lustre with a pleasing depth of finish peculiar to itself. This is due largely to the extreme care and thoroughness exercised in the special methods by which the pigments are ground and mixed with an all-oil base.

Guarantee—Barreled Sunlight, the Rice Process White, is guaranteed to remain white longer than any oil gloss paint or enamel, domestic or foreign, applied under the same conditions. If it does not do so, we will give, free, enough Barreled Sunlight to repaint the job.

Resists Dirt and Washes Like Tile—The actual photographs below show why Barreled Sunlight resists dirt and is so easy to keep clean. Its surface is absolutely smooth, even and non-porous, offering dust and dirt no foothold. It washes like tile, and is so durable that repeated washing will not injure the surface or mar its beauty.

Tints Readily—Being an all-oil product, with its pigments ground to the finest degree, Barreled Sunlight is admirably adapted to tinting. The simple addition of ordinary colors-in-oil produces clear, sharp, lasting tints. In quantities of five gallons or over, we tint all Barreled Sunlight products to order at the factory, without extra charge. Priming coats should always be tinted to approximately the same shade as finishing coats.



Ordinary Flat Finish White Paint



Barreled Sunlight Gloss Finish

Photomicrographs Taken Through a Powerful Microscope, Each Paint Surface Being Magnified to the Same Degree

Four Finishes—Barreled Sunlight is made in four finishes—Gloss, Semi-gloss, Eggshell and Flat—to suit the taste of the individual architect and owner.

The gloss should not be confused with the hard, glaring gloss of ordinary paint or enamel. Rather, it has a soft, satinlike lustre peculiar to itself, an appearance which has brought about a widespread use of this finish in places where formerly the architect specified flat or eggshell.

Barreled Sunlight Priming Coats

On wood, metal or any previously painted surface, Barreled Sunlight Undercoat is the proper primer. Over unpainted brick, concrete and cement plaster we recommend Barreled Sunlight Granolith for first coat. For hard finish lime and gypsum plaster use Barreled Sunlight Plaster Sealer as the proper priming coat. See specifications below.

Barreled Sunlight for Industrial Interiors

The gloss white idea for plant interior painting was introduced by Barreled Sunlight many years ago. Its ability to provide an intensely white finish, high in light reflection value, easy to keep clean and one that retains its whiteness for an unusually long time (see guarantee in opposite column) has led to its use in thousands of industrial plants of every description, such as textile mills, machine shops, food plants, laundries, etc.

Barreled Sunlight Specifications (for Interior Use)

General Precautions—No painting should be done until the building is enclosed and heated, except in dry summer weather. For best results with any paint, time should be allowed for plaster, concrete, cement, and unseasoned lumber to become as dry as possible before painting. At all times have room well ventilated where paint is being applied in order to prevent condensation. Apply the paint, especially the finishing coat, when the air is free from moisture. Always allow each coat of paint to dry *hard* before the application of each succeeding coat. When applying on cold surfaces it has been found that warming the paint assists in ease of spreading. Stir thoroughly before using.

Never use linseed oil, varnish or drier, as a thinner for finishing coats. If the Gloss or Semi-gloss has thickened a little on standing, reduce with a trifle of turpentine (or mineral spirits). The Flat and Eggshell finishing coats are extremely heavy in body. They should be thinned very liberally with turpentine (or mineral spirits) until they flow out evenly, free from brush marks.

Wood and Similar Surfaces—Clean from all surfaces mildew, mortar, grease, or anything detrimental to paint.

First Coat: Barreled Sunlight Undercoat. This may be reduced to a proper brushing or spraying consistency with turpentine (or mineral spirits).

Second Coat: If knots or sappy spots show through priming coat, shellac these well with pure white shellac and apply second coat of Barreled Sunlight Undercoat. Reduce, if necessary, for first coat.

Third Coat: Barreled Sunlight (Gloss, Semi-gloss, Eggshell, or Flat). Keep brush well filled with paint when applying. See "General Precautions" preceding page for reducing.

Concrete, Brick and Cement-plaster—Clean from all surfaces excess mortar, grease, oil, etc. To assist in neutralizing alkaline conditions, we recommend the application of a zinc sulphate solution (2 lb. of zinc sulphate crystals per gallon of water). Allow to dry thoroughly and proceed as follows:

First Coat: Barreled Sunlight Granolith. This coat should be reduced with Rice's No. 65 Reducing Oil or boiled linseed oil, using liberal quantities according to the porosity of the surface. Rice's No. 65 Reducing Oil acts as a "sealer" to insure uniform appearance of succeeding coats.

Second Coat: Barreled Sunlight Granolith. This may be reduced to a proper brushing or spraying consistency with turpentine (or mineral spirits).

Third Coat: Barreled Sunlight (Gloss, Semi-gloss, Eggshell, or Flat). Keep brush well filled with paint when applying. See "General Precautions" for reducing.

Hard Finish Lime and Gypsum Plaster—Clean and prepare surfaces as under heading "Concrete, Brick and Cement-Plaster."

First Coat: Barreled Sunlight Plaster Sealer. Use without thinning. If open fire-cracks, flat or suction spots show through this coat, touch up with Barreled Sunlight Plaster Sealer.

Second Coat: Barreled Sunlight Undercoat. This may be reduced to proper brushing or spraying consistency with turpentine (or mineral spirits). Reduce sufficiently so that no brush marks appear.

Third Coat: Barreled Sunlight (Gloss, Semi-gloss, Eggshell or Flat). Keep brush well filled when applying. See "General Precautions" for reducing.

Iron, Steel and Metal Work—Remove all scale, rust, or grease by scraping. Apply a coat of Rice's Red Oxide Anti-Corrosive Primer or Pure Red Lead Paint.

First Coat: Barreled Sunlight Undercoat. This may be properly reduced with turpentine (or mineral spirits).

Second Coat: Barreled Sunlight Undercoat. Reduce if necessary as above.

Third Coat: Barreled Sunlight (Gloss, Semi-gloss, Eggshell or Flat). Keep brush well filled with paint when applying. See "General Precautions" for reducing.

Two-coat Work—By reason of the intense opacity of Barreled Sunlight, and where economy is desired, it will be found possible to obtain a solid white finish with two-coat work. Proceed as instructed for three-coat work simply omitting the intermediate coat.

Repainting Over Oil Paint—On surfaces previously painted with a white oil paint in fairly good condition, generally a single coat of Barreled Sunlight (Gloss, Semi-gloss, Eggshell or Flat) is sufficient. See "General Precautions" for reducing. Where two-coat work is necessary as over another color or where the white now on is in poor condition specify Barreled Sunlight Undercoat as a primer thinned down as recommended.

Repainting Over Cold Water Paint or Whitewash—Scrape all loose scale and dirt from surface, using wire brush. Brush off with brooms. Apply Barreled Sunlight Undercoat liberally thinned with boiled linseed oil.

If there are from one to three applications of cold water paint now on, the proportion of thinner should be about 1 qt. of boiled linseed oil to the gallon of Barreled Sunlight Undercoat. Where there are more than three coats on the surface to be painted, the oil should be increased to a proportion of equal parts boiled linseed oil and Undercoat. Allow three or four days for drying, then apply finishing coat of Barreled Sunlight (Gloss, Semi-gloss, Eggshell or Flat). See "General Precautions" for reducing.

Spreading Capacity of Barreled Sunlight

On any primed or previously painted surface, Barreled Sunlight finishing coats and Undercoat will cover about 400 sq. ft. per gallon. On new wood or metal, Barreled Sunlight Undercoat somewhat less.

For first coat work over new brick, concrete or plaster, Barreled Sunlight Granolith from 200 to 300 sq. ft. per gallon, depending on the porosity of the surface.

Barreled Sunlight Chemic Enamel (for Interior Use)

For use where unusual conditions prevail, such as in hotel and restaurant kitchens, engine rooms, laboratories, etc., where fumes and excessive heat exist. It provides a smooth, white, washable finish as does Barreled Sunlight, but has the added properties of resistance to fumes and heat.

Specifications—Follow regular first coat Interior Barreled Sunlight specifications. (See opposite column.)

Second Coat: Barreled Sunlight Flat. This must be reduced to a proper brushing or spraying consistency with turpentine (or mineral spirits).

Third Coat: Barreled Sunlight Chemic Enamel (Gloss, Eggshell or Flat). Where two-coat work is desired omit the intermediate coat.

Rice's Acoustolight

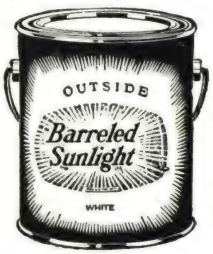


Architects in their employment of acoustical materials have long desired a finish that would permit the application of the color scheme without sacrificing the acoustical properties. As the use of acoustical materials has increased, the need for such a finish has become even more pronounced. Foreseeing this need we have developed a material to meet it.

Rice's Acoustolight makes it possible for the architect employing acoustical materials (acoustical plasters, felts, boards, etc.); to apply by either brush or spray, a washable finish in white or any color desired—without greatly impairing surface porosity. These peculiar properties of Rice's Acoustolight are due to its special binder and the fineness of its pigments.

On request, our representative will demonstrate the application of Rice's Acoustolight.

Outside Barreled Sunlight



This unique paint represents the very last word in the technology of paint for exterior use. The formula developed combines the proper pigments necessary for outdoor exposure and an adaptation of the Rice Process of treating the oil—the process which has so greatly contributed to the high quality and reputation of Interior Barreled Sunlight. Whiter than the average outside white, Outside Barreled Sunlight is also free-flowing, has great hiding power, and dries with a good gloss. Durable and even wearing, it is in good condition when repainting becomes desirable.

Sold primarily in the white, Outside Barreled Sunlight is easy to tint with ordinary oil colors. On quantity orders, we will tint at the factory without extra charge, matching any color sample submitted. Ask for "40 Color Suggestions" sample card.

Rice's Flow-On (for Interior Use)



A practical and lasting oil paint that is rapidly replacing "flat wall paint" for ceilings and walls of office buildings, schools, hotels, institutions and public buildings of all kinds. Its advantages are:

Simplicity—Flow-On is made from the highest grade lithopone ground in a processed linseed oil and turned out in semi-paste form—to be reduced to suit the requirements of each individual job and type of plain or stippled finish desired. Used for every coat from primer to finish.

Hiding Power—It is the exceptional covering and spreading qualities of Rice's Flow-On that have led to its widespread use in fine buildings where low cost is a necessary requirement. Standard specification is three-coat work, but two-coat work can be successfully done, *even in the white.*

Real Washability—Not just spots, but a whole room can be washed and come out uniform.

Stipple Finish—Has the appearance of a flat finish and the washability of a gloss finish. Unsurpassed for length of *useful* life. Flow-On makes a lasting stipple job in two coats.

Rice's Flow-On Specifications

General Precautions—No painting should be done until the building is enclosed and heated, except in dry summer weather. At all times have room well ventilated where paint is being applied in order to prevent condensation. Always allow each coat of paint to dry *hard* before the application of each succeeding coat.

For best results with any paint, time should be allowed for plaster, concrete, cement and unseasoned lumber to become as dry as possible before painting.

Hard Finish Plaster, Cement-plaster, and Gypsum Work—Scrape excess mortar from all surfaces. To assist in neutralizing free lime or alkaline conditions, we recommend the application of a zinc sulphate solution (2 lb. zinc sulphate crystals per gallon of water). Allow to dry thoroughly and proceed as follows:

First Coat: Rice's Flow-On. Reduce liberally with Rice's Flow-On Reducing Oil (a processed Section Sealer) at least 2 gal. (or even more for extremely porous surfaces when not interfering with opacity) to 1 gal. Flow-On.

Second Coat: Rice's Flow-On. Reduce with turpentine (or mineral spirits).

Third Coat: Rice's Flow-On. For flat finish, reduce with turpentine or mineral spirits. Rice's Flow-On can also be manipulated to produce any desired type of stipple finish.

Two-coat Work—By reason of the intense opacity of Rice's Flow-On, and where economy is desired, it will be found possible to obtain a satisfactory finish with two coats of Flow-On tinted. Proceed as instructed for three-coat work, simply omitting the intermediate coat.

Note: To any architect who desires, we will supply booklet giving the complete and detailed directions for the application and thinning of Rice's Flow-On, which appear on every package.

Spraying

Barreled Sunlight products can be applied with the spray gun just as well as with the brush. Their free flowing qualities do not allow them to gum the gun nozzle.

Packages

Interior and Outside Barreled Sunlight are put up in churn-equipped steel drums of 55 and 30 gal. each, 5-gal. steel buckets, and in cans from 1 gal. down to ½-pt. size. Rice's Flow-On and Acoustolight are put up in steel drums of 30 gal. each, 5-gal. steel buckets, and single gallon cans.

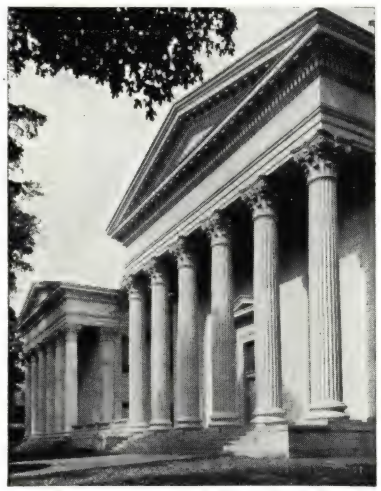
All material is to be delivered on the job in the original packages bearing the name and brand of the manufacturer.

References

We shall be glad to furnish both national and local references. A few representative users are featured below.



St. Joseph's Normal Institute, Barrytown, N. Y.
James W. O'Connor, Architect
James F. Delany and Paul Schulz, Associate Architects
Interiors finished with Barreled Sunlight, Rice's Flow-On and Rice's Acoustolight



Erie County Courthouse, Erie, Pa.
W. T. Monahan, Architect
Barreled Sunlight specified, of which 550 gal. were used



The Edison Institute—Founded by Henry Ford
Robert O. Derrick, Inc., Architects
The exterior trim of these beautiful buildings is painted with *Outside Barreled Sunlight*

THE TRUSCON LABORATORIES

Paints, Varnishes, Enamels and Maintenance Products

DETROIT, MICH.

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Products

BAR-OX (Inhibitive Steel Paint).

FUME-SAF (Chemical Resistant White Enamel).

ASEPTICOTE (Washable Wall Coating).

ALKABAR (Wall Sealer under Asepticote).

TRUSCON WOOD FLOOR PRESERVATIVE.

WALL-LITE (Mill White, Enamel, Eggshell, or Flat).

LUMETEX (Aluminum Liquids for paint).

TRUSCON WATERPROOF VARNISH.

STONETEX (Dampproof Concrete Coating).

Also Super-Por-Seal (Transparent Dampproof Masonry Coating), Truscon Floor Sealer, Agatex (Chemical Floor Hardener), Granitex, Truscon Oil Stain.

For our pages on Integral Waterproofings and Floor Hardeners, see Manufacturers' Index.



Architectural Service

THE TRUSCON LABORATORIES manufacture a complete line of waterproofings and paint coatings formulated to meet each individual requirement. The representatives of THE TRUSCON LABORATORIES are technically trained men whose duty it is to assist architects, engineers and owners in the selection of the proper material to meet their protective and decorative problems, by making a complete study of the requirement and furnishing detailed recommendations as desired and without obligation.

Truscon Bar-Ox, Inhibitive Steel Paint

A metal protective coating, embodying a scientific combination of inhibitive pigments and waterproof oils, in accordance with the most advanced principles of iron and steel protection. The oils used in Bar-Ox are especially heat-treated so as to remove all moisture and impurities which might cause pin-holes to form in the paint film. Thus, Bar-Ox produces a waterproof, elastic film which effectively insulates iron or steel surfaces from contact with moisture. Actual service records under severe exposures in damp, tropical countries, as well as in the cold of the extreme northland, have definitely proved the superiority of Bar-Ox as a weather-protective coating for metal.

Bar-Ox is furnished in black and 14 standard colors. It is suggested that the shop-coat be specified as Bar-Ox Red, No. 142, and the field-coat as either Bar-Ox Black, No. 143 or Dark Green No. 144. These colors are recommended because of their economy and also because of their contrast, which makes the job of inspection for complete field-coat coverage easier and more certain.

Specifications for Painting Structural Steel

Remove all scale, dirt and foreign matter from structural steel before any painting is done in the shop.

Covered surfaces, surfaces in contact and all parts of riveted members shall receive 1 coat of Bar-Ox (color and number) before assembling. All finished members shall receive 1 coat of Bar-Ox (color and number) before being exposed to the weather. All bolts used in erection and remaining in the structure shall be dipped in Bar-Ox. All surfaces accessible after erection shall have all abraded spots touched up with Bar-Ox followed by a thorough coating over the entire surface of Truscon Bar-Ox (color and number).

Other Truscon Bar-Ox Steel Paints

Bar-Ox Smokestack Coating, Boiler Front Coating, Acid Coating, Alkali Coating, Embedded Coating, Conduit Coating, Gas Holder Coating, Aluminum Coating.

Truscon Asepticote, Washable Wall Coating

Asepticote is non-porous, sanitary, washable wall coating combining decoration with durability to an unusual degree.

Asepticote has proved in actual service and in tests conducted by institutions and building managers throughout the country, that its waterproofed, decorative film will withstand the abuse of repeated washings or scrubbings with alkaline washing compounds. Our representative will gladly demonstrate these unusual qualities of Asepticote to any architect or engineer.

Only 2 coats are necessary to secure a uniform, decorative and washable wall surface, by the use of Truscon Asepticote over Truscon Alkabar as the priming and sealing medium.

Truscon Alkabar, Wall Sealer

Alkabar is a specially developed alkali resisting wall primer or sealing medium that effectively overcomes the action of free lime and moisture in green plaster. Its use eliminates wall painting troubles such as suction, lime burn, etc., that are so often caused by failure of the "foundation" coat.

Specifications for Washable Wall Coating

Repair all cracks and damaged places. Before painting be sure the surface is free from dirt, grease, or other foreign deposits.

First Coat—1 qt. of Truscon Asepticote of the same color as finish coat shall be added to each gallon of Alkabar. The resulting mixture shall be thoroughly agitated before being applied and care shall be taken to see that it is brushed thoroughly into the surface to present a uniform even coating, and allowed 24 hours for thorough drying. Should any flat spots develop, due to unusual porosity, they shall be touched up with a spot coat of Truscon Alkabar before applying Asepticote.

Second Coat—After the above sealing coat has been allowed at least 24 hours' drying time, apply the finish coat of Truscon Asepticote flowed on to the surface and brushed out lightly to a uniform even finish. If on continued exposure to the air in an open package, Asepticote becomes thick and heavy, it shall be thinned with the minimum amount of Asepticote Liquid to give a body of the original consistency.

Note: In exceptional cases it may be desired to specify a three-coat application, the third application shall be Truscon Asepticote applied as it is received in the package.

Truscon Wall-Lite, Mill White Paint

A long oil pure white paint for walls and ceilings of industrial interiors, etc., where light reflection is desired.

Wall-Lite Finishing is furnished in enamel, eggshell and flat. It presents a dense, pure white film that is extremely durable and, when soiled, may be washed and renewed to its original whiteness.

Specifications for Mill White Paint

Surfaces to be painted shall be free from all dust and loosely attached matter, and oil or grease spots shall be touched up with a spot coat of Truscon Bitubar, or a thin coat of shellac.

New Construction—First coat shall be Wall-Lite Primer, applied as it is received in the package. Care shall be taken to see that the material is thoroughly brushed into the surface to insure proper penetration.

Second Coat: After the first application has been given 36 to 48 hours for drying, apply 1 coat of Truscon Wall-Lite Undercoater, and allow 36 to 48 hours' drying time before applying the final coat of Wall-Lite Finishing (Enamel or Eggshell). If to be applied by spray, thin to proper consistency with Truscon Wall-Lite Reducer. If by brush, no thinning is necessary.

Truscon Wood Floor Preservative

For preserving wood floors against dry rot and decay. Different from ordinary floor oils in that Truscon Wood Preservative is absorbed into the wood and dries, binding the fibers into a tough, wear-resisting mass. Truscon Wood Floor Preservative darkens the floor slightly (usually a desirable feature), but leaves no slippery film.

Truscon Floor Enamel

Truscon Floor Enamel is a material developed for the express purpose of enameling cement floors above grade. Truscon Floor Enamel is easy to apply, and thereby assures complete application being made. It dries to a tough elastic film with a subdued gloss that does not easily mar nor show scratches. Truscon Floor Enamel is furnished in 6 standard colors.

Specifications for Floor Enamel

The floor to be coated shall be absolutely dry and free from dust, grease, etc., before beginning work. Surface shall receive 1 application of Truscon Floor Sealer to uniform the surface.

Truscon Floor Enamel shall be applied directly to the dried surface with a good stiff 4-in. brush. Special care shall be taken to exert sufficient pressure during application so as to force the enamel thoroughly into the surface pores. 48 hours shall be allowed as drying time before subjecting enameled surface to light traffic.

Note: Where it is not desired to enamel concrete floors, it is recommended that they be treated with Truscon Agatex Chemical Floor Hardener, or Truscon Granitex, so as to eliminate dusting and disintegration of the surface.

Truscon LumeTex (Aluminum Coating)

Owing to the fact that freshly mixed aluminum paint has greater lustre, light reflecting value and "leafing" than ready mixed aluminum paint—Truscon LumeTex is put up in a special 5-gal. double compartment container in which the aluminum powder is kept separate from the liquid. The paint is thereby freshly mixed for the job.

LumeTex is obtainable in three types, namely: *LumeTex "A,"* for interior surfaces, walls, ceilings, including radiators; *LumeTex "B"* for exteriors, such as tanks, gas holders; *LumeTex "C"*—heat resisting, intended for metal smokestacks, ovens and other such surfaces where the temperature ranges fairly high.

Quantity Required—Metal—600 sq. ft. per gal. 1 coat; 350 sq. ft. per gal. 2 coats.

Concrete or brick—400 sq. ft. per gal. 1 coat; 250 sq. ft. per gal. 2 coats.

Truscon Fume-Saf

White enamel. (Also obtainable in eggshell finish.)

Intended for chemical exposures, such as hydrogen sulphide, aniline and similar fumes which darken ordinary white enamel quickly.

Truscon Fume-Saf is recommended for use whereever a white enamel or eggshell finish is required in chemical laboratories, bleacheries, rubber storage plants, bakeries, etc.

Quantity Required—Fume-Saf Undercoating: concrete and masonry—200 sq. ft. per gal. 1 coat; wood 250 sq. ft. per gal. 1 coat.

Fume-Saf Eggshell or Enamel: about 300 sq. ft. per gal. 1 coat.

Varnishing Interior Floors (Specifications)

Preparation—The floors shall be sanded to a perfectly smooth surface and cleansed of all dust, dirt, grease and oil stains, before any application is made.

First Coat on Open Grain Woods—Truscon Paste Wood Filler (color desired) shall be applied to the entire surface. When the filler has started to set, it should be wiped across grain, with burlap or excelsior.

First Coat, Varnish—Shall be Truscon Waterproof Varnish, Finest, thinned with pure turpentine in the proportion of 1½ pt. to 1 gal. of varnish. When dry, this coat shall be sanded lightly with 00 sandpaper.

Second and Third Coats, Varnish—Shall be applied without thinning allowing 24 to 48 hours as drying time between coats. Second coat shall be sanded with 00 sandpaper and all dust removed before applying final coat.

Varnishing and Staining Interior Trim

Truscon Waterproof Varnish, Finest, is especially adaptable for interior trim. It is not affected by steam, cold, or water and presents a finish of the utmost depth and lustre with the fewest number of coats. It will not mar white nor chip when scratched. Truscon Waterproof Varnish, Finest, may be safely specified for exterior as well as interior use. It is extremely durable even under severe exposure.

Specifications for Interior Trim

Preparation—All wood shall be clean, dry and smooth before any filler or varnish is applied.

First Coat—Truscon Oil Stain (color desired).

Second Coat—For open grain woods only—Truscon Paste Wood Filler of same color as stain shall be applied and wiped off to remove excess filler, with burlap or excelsior.

Third Coat—A thin application of shellac shall be applied after the filler has been allowed 12 to 24 hours for thorough drying.

Fourth and Fifth Coats—Truscon Waterproof Varnish, Finest, applied as received in the package.

Note: Second coat shall be eliminated on close grain woods.

Truscon StoneTex for Exterior Masonry

Truscon StoneTex is a specialized masonry coating combining decoration with durability. StoneTex effectively protects masonry from disintegration, by eliminating the absorption of moisture into brick, concrete and stucco. Moisture absorbed into such surfaces, contracts and expands with temperature changes, causing checking, cracking, and finally complete disintegration. From the viewpoint of decoration and protection, it is equally applicable to old and new masonry structures. It is supplied in 10 attractive shades that dry with a finish that closely resembles masonry.

Specifications for Coating Exterior Masonry

All surfaces must be absolutely dry and free from loosely attached matter—dirt, dust, grease, etc.

Application—***Unpainted Surfaces***—*First Coat*—Truscon StoneTex thinned in proportion of 1 gal. of StoneTex liquid to 5 gal. of StoneTex brushed out to a uniform even coating. Care shall be taken to stipple StoneTex into all uneven surfaces so as to insure complete application. 48 to 72 hours shall be allowed as drying time before applying final coat.

Second Coat—Truscon StoneTex applied as it is received in the package without thinning. If due to exposure in an open package, it becomes necessary to thin StoneTex, it may be reduced with a minimum amount of turpentine.

Painted Surfaces—The surface to be painted must be firm, clean and dry. All loose, blistered or scaly paint shall be removed down to a firm base, by wire brushing or scraping, before any StoneTex is applied. All bare spots shall receive a spot coat of StoneTex, reduced with 1 qt. of StoneTex Liquid to 1 gal., and allowed 48 hours as drying time.

To the thoroughly dry surface, apply a uniform application of StoneTex as it is received from the package. Care shall be taken to see that StoneTex is brushed well into the surface to insure bonding to the old paint.

THE REARDON COMPANY

Manufacturers of Cement Paint, Plastic Paint, Cold Water Paint and Kalsomine, Patching Plaster, Water Putty and Wall Size

GENERAL OFFICES
2200 North Second Street
ST. LOUIS, MO.

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DALLAS, TEX., 919 North Bishop Street
LOS ANGELES, CAL., 526 So. Alameda Street
PORTLAND, ORE., 480 Hoyt Street
SAN FRANCISCO, CAL., 383 Brannon Street
SEATTLE, WASH., 124 R. R. Avenue, So.

FACTORIES: ST. LOUIS, MO., CHICAGO, ILL., LOS ANGELES, CAL.

For Plastex and Bondex, see Manufacturers' Index

Modex—A New Type of Paint for Both Residential and Industrial Use

MODEX
"The Modern Paint"
NOT OIL PAINT NOR KALSOMINE BUT A NEW TYPE OF PAINT IN-DRY FORM TO BE MIXED WITH-WATER AND LINSEED OIL - - - - -

Modex is the latest development in the science of paint manufacture. Its idea was suggested by the paste distemper paints so widely used in Europe, but in developing Modex it was found possible to not only improve the qualities of the European distemper paints, but to compound Modex in more convenient form.

Modex is marketed in dry powder form instead of the old-fashioned liquid paste and is simply broken up with water, then boiled linseed oil is mixed in and the mixture is thinned for use with additional water. In liquid form Modex closely resembles Oil Paint in odor, texture and body.

Modex is suggested for use on interior (painted or unpainted) sand or lime putty finish plaster, wood, metal, brick, concrete, stone and tile surfaces and also to mix with texture paint to color it.

Modex gives "two-coat hide in one-coat application" and saves one coat on most painting jobs. Modex also dries quickly, permitting two-coat work in one day. This cuts labor costs nearly one-half.

Modex is made with lithopone and the same high-grade pigments that other good paints contain. All of its qualities are in proper balance; Modex flows freely, does not spatter, levels out and dries quickly.

Modex adheres to damp or dry surfaces and dries with a tough elastic film which will not crack, peel or discolor. When it is dry you have a velvety flat finish which may be washed with soap and water.

With its important advantages of true economy and durability, there is no better paint than Modex for industrial use. Modex resists the action of gases and acid fumes better than any other type of paint and is generally unaffected by the most unusual atmospheric conditions prevalent in industrial plants.

Modex also has been very sucessfully employed in acoustical operations. When applied over acoustical board or plaster, it does not materially affect their sound absorbing properties, as a thin mixture gives complete coverage without filling the pores in such surfaces.

Covering Capacity

Five pounds of Modex powder will make approximately one gallon of liquid paint, which will cover from 140 square feet on Celotex and similar surfaces to 280 square feet of smooth plaster solidly in one coat.

Specifications

Each container contains full and complete specifications for preparation of surface, mixing, application, etc.

Packages

Modex is packed in 5-pound cans, 100-pound net steel drums and 300-pound net wood barrels.

Samples, Literature, Etc.

Samples, specifications, sample panels, etc., will be cheerfully sent to anyone interested—without obligation, of course. Communicate with nearest Plant.

CRAFTEX COMPANY

Manufacturers of Craftex, a Water Mixed Plastic Paint for Reproducing Texture Surfaces

EXECUTIVE OFFICES

BOSTON, MASS.

Other Products of the Craftex Company

CRAFTEXSIZE, a water mixed size of unusually high grade—for general use as a film size; CRAFTCOAT, a glaze for use over Craftex and Craftexsize, and for general glazing purposes.

Also Shadowall, a low priced plastic paint for textured walls.

For Sunflex, a flat paint in paste form for industrial and general interior painting, see Manufacturers' Index.

Craftex Reputation

Craftex, the *first* plastic paint, has been used by architects since 1911. It should always be remembered that Craftex is a registered trade name and applies *only* to the plastic paint made by CRAFTEX COMPANY.

Architectural Service

CRAFTEX COMPANY maintains exhibits at its offices in Boston and New York, where a complete range of textures and finishes may be inspected. An Architectural Service Department is ready at all times to co-operate with architects in developing new texture effects and submitting samples to meet specific requirements.

Preparation of Surfaces for Craftex

Craftex can be applied over any surface that can be painted. It bonds permanently with the surface and lasts indefinitely, practically ending redecorating expense. Detailed specifications for the application of Craftex over wall board, plaster, water color, concrete, brick, cinder blocks or any other surface will be supplied by the CRAFTEX COMPANY upon request.

CRAFTEX

REG. U.S. PAT. OFF.

One-coat and Glaze Coat Craftex

One-coat—An application of Craftex alone, without sizing or glazing. Craftex is applied already tinted and then textured as desired.

Glaze Coat—A Craftex texture base, sized with Craftexsize and glazed with Craftcoat, which is mixed with one or more colors.

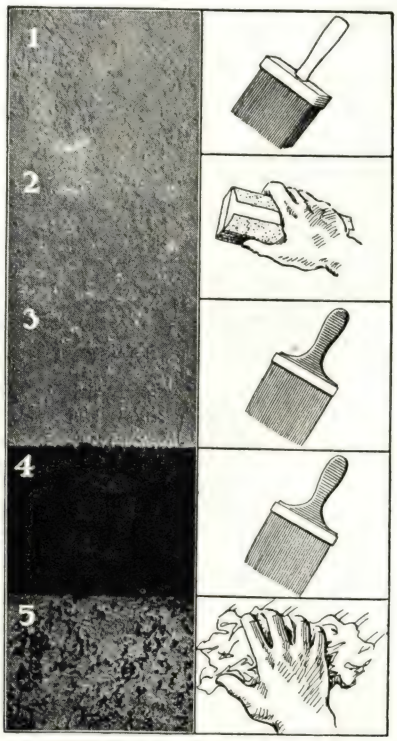
Modernistic Wall Finishes

Architects find Craftex invaluable not only in reproducing hand-palmed, water-floated, troweled and stone effects, but in creating entirely new and distinctive effects in color and texture.

Craftex waterfloat and other smooth type finishes are suitable for almost every type of building.

Stencils, sgraffito or modeled low relief work make Craftex specially suited for use in modernistic decoration.

Assistance in developing designs and textures for modernistic finishes will gladly be given on request to the company.



The Five Easy Steps of Craftex Application

(1) Applied and textured
(2) Sanded
(3) Sized
(4) Glazed
(5) Wiped

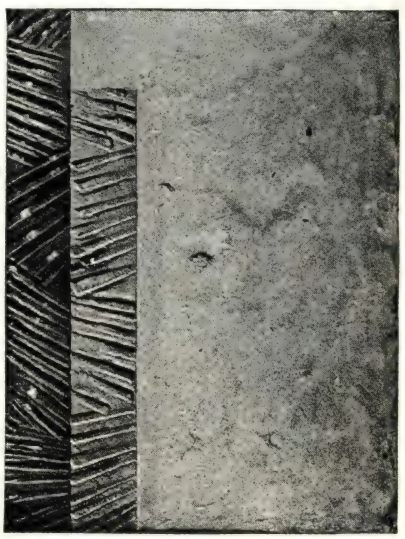


Craftex Bag

Craftex is put up in heavy bags with the label and amount by weight printed on every bag. *Only Genuine Craftex carries the Craftex name and trademark (shown above)*

Short Form Specification

The following described surfaces shall receive Craftex, as manufactured by CRAFTEX COMPANY, Boston, Massachusetts, to be applied in accordance with their printed directions which hereby become a part of this specification, in the textures and colors described below:



An Example of a Modern Craftex Finish

DURALITH CORPORATION

521 Fifth Avenue, NEW YORK, N. Y.

DURALITH (CANADA) LIMITED, 1502 St. Catherine Street, MONTREAL, QUEBEC

DISTRIBUTORS IN PRINCIPAL CITIES

PACIFIC COAST DISTRIBUTORS: H. A. Potter Company, Los Angeles and San Francisco

EXPORT AGENTS TO LATIN AMERICA: Galban & Co., 82 Beaver Street, NEW YORK, N. Y.

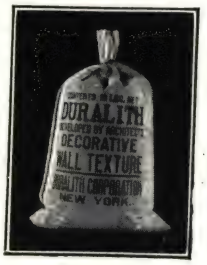
FACTORIES AT BROOKLYN, N. Y. and THREE RIVERS, QUEBEC, CANADA

Products

DURALITH—a decorative wall finish consisting of a blend of minerals with casein as the binding agent. Powder form for mixing with cold water.

DURATINT.

DURAGLAZE—an oil and wax glaze (neutral and six colors) for textured walls.



Duralith, the Modern Wall Finish

Duralith is unexcelled because of its ease and simplicity of application. Under the direction of the architect the beautiful textured effects to which this unique wall treatment lends itself are innumerable. Recommended for homes, offices, theatres and public buildings. The finish is permanent, reducing maintenance costs to a minimum.

Outstanding Features—(1) Mixes readily with cold water. (2) Works easily with brush or trowel. (3) Requires no slaking. (4) Will not sag. (5) Does not stain woodwork. (6) Very opaque; splendid covering and "hiding" capacity. (7) Unaffected by heat or cold. (8) Dries in 24 to 48 hours. (9) Easily and quickly cleaned. (10) Color combinations can be changed at any time.

Covering Capacity—*On White Plaster and Smooth Surfaced Wallboard*—9 to 20 sq. ft. per lb. *On Brown Mortar (floated) or Rough Textured Wallboard*—8 to 12 sq. ft. per lb. *(Note:* No size is required for wallboard unless particularly specified by the manufacturer thereof.) *On Metal Surfaces, Kalamein Doors, etc.*—About the same as on white plaster.

How Furnished—Packed in 25, 50 and 100-lb. paper-lined burlap bags and in 1-lb. sample boxes.

Duratint

A new Duralith product. It is pure color finely ground in paste form, soluble in water (32 to 1) and made in a wide range of colors. Duratint is low in price and is undoubtedly one of the most economical mediums for glazing textured walls yet produced. Applied with a spray gun—electric or hand—singly or in combination of colors while the texturing material is still wet and in plastic condition. Many pastel shades are obtainable by blending Duratint colors. Duratint in combination with Duralith eliminates five operations and results in a textured wall at a cost comparable with paint and wallpaper.

Furnished in twelve colors in concentrated form, 3½-oz. and 16-oz. bottles—3½ oz. will make a tinting solution which is sufficient for the average room.

Specification (Short Form)

"The Painting Contractor [Plastering Contractor] shall apply Duralith pure and unadulterated as manufactured by and according to directions of DURALITH CORPORATION, New York, N. Y. Samples showing texture and color scheme shall be submitted to the architect. Approved samples shall be marked and hereby become a part of these specifications."

Samples and Co-operation

Samples of Duralith and Duratint furnished on request. Our Service Department will be glad to co-operate in the creation or development of special effects to suit individual requirements.



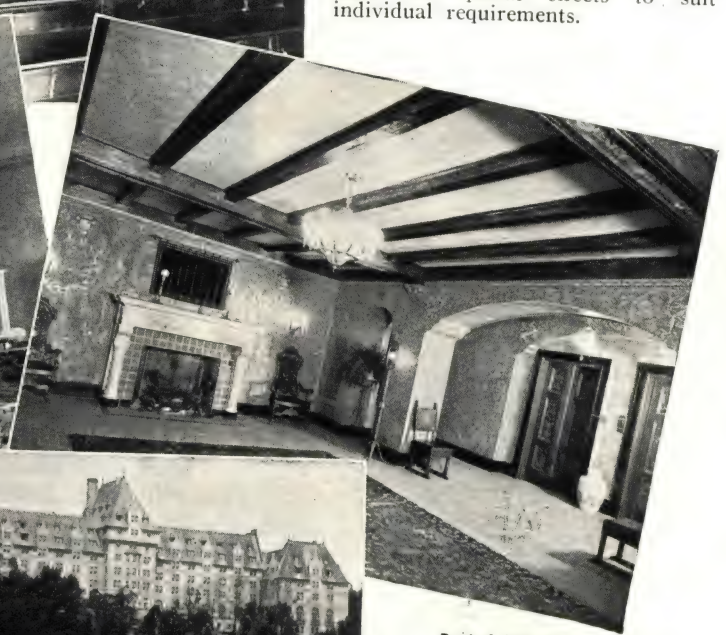


Duralith Is Suitable for Residences, Public Buildings and Theatres



Hotel Manoir Richelieu, Murray Bay, Canada

The walls of this famous hotel are attractively finished with Duralith



Period Effects Are Readily Obtainable with Duralith

M. J. MERKIN PAINT CO., INC.

Paints, Enamels, Waterproofing and Asphalt Specialties

EXECUTIVE OFFICES
1441 Broadway, NEW YORK, N. Y.
FACTORY AND LABORATORIES, LYNDHURST, N. J.

Products

METAL PROTECTIVE COATINGS, INTERIOR FINISHES, EXTERIOR FINISHES, TEXTURED FINISHES, ENAMELS, VARNISHES, MILL WHITES, BRICK and CEMENT COATINGS, CAULKING and GLAZING COMPOUNDS, FLOOR COATINGS, DAMP-PROOF COATINGS, ROOF COATINGS and CEMENTS, EMULSIFIED ASPHALT, INTEGRAL WATERPROOFING, FLOOR HARDNERS, MARINE PAINTS.

PAINT MERCO PRODUCTS

TRADE-MARK

Facilities

The M. J. MERKIN PAINT CO.'s plant and laboratories at Lyndhurst, N. J., are fully equipped to manufacture products of the very highest quality under the direction of a competent chemical staff, from the finest materials obtainable. Years of experience have been expended in perfecting the formulae and improving the methods of manufacture with the result that all products are uniform in grade and quality.

Metal Protective Coatings

Merkin Metal Protective Coatings for both shop and field use have been prepared with the constant purpose in mind of providing the maximum of protection to structural steel and all other metal surfaces.

Plasticote Gloss Finish

A pure white gloss paint for general use on interior and exterior work. May readily be tinted to any desired color. It works easily under the brush and does not rope or show brush marks. On plaster it neutralizes hot lime spots, hardens soft spots, holds back moisture and forms a perfect foundation for the coats to follow.

Mercotone Flat Finish

A pure oil paint for general interior finish. Produces a soft, velvetlike finish that does not peel or check. It is made in two consistencies—Mercotone Triple Body for stippling and Mercotone Brush Coat for brushing and all other finishes. Made in twelve colors.

Mertex Textured Finish

A plastic paint for securing a wide variety of textured surfaces. It comes in a white powder form which when mixed with cold water produces a texturing plastic paint of heavy consistency and splendid workability. Mertex is permanent and washable and can be finished in any desired color combination.

Mercolite Enamel

A distinctly high quality, long oil enamel compounded of pure French process zinc oxide and treated refined linseed oil to give the maximum service. Made in white only, but can be tinted with colors ground in oil to any desired shade. It retains its brilliancy and whiteness for an unusually long time. Flows well under the brush, does not show brush marks and has unusually high covering capacity. Mercolite Enamel is made in two types—full gloss and eggshell. The latter gives a rubbed effect without the necessity of rubbing.

Britelite Mill White

An exceptionally fine light-diffusing paint that retains its whiteness for a long time. Made in two types—gloss and flat. The gloss finish is a soft, pleasing effect entirely dissimilar from the high gloss of enamel or ordinary gloss paints. The complete absence of glare from light reflection is noticeable where Britelite Mill White is used. It offers resistance to dirt accumulation and is easily washed.

Trimal, Metal Door and Trim Finish

Provides a beautiful, durable, elastic finish that protects the metal from corrosion. It is especially prepared for finishing metal doors and trim and other interior metal work, such as stairs and railings. It does not crack or craze, does not scratch readily and is easily cleaned.

Wearite Floor Enamel

A durable, quick drying floor enamel that stands up exceptionally well under heavy foot wear. Dries hard overnight. Is easily washed with water and is not affected by oils. For finishing floors, porches, decks, stairs, etc., of wood and cement. Made in eight attractive colors.

Merkin Brick and Cement Coating

A waterproof flat finish for use on exterior and interior masonry surfaces. It penetrates well into the pores of the surface and prevents staining of the surface by the action of free lime in the masonry. It provides an evenly colored, durable finish that does not crack or peel. Made in ten colors.

Merkin Lead and Zinc Paint

Made of lead, zinc and a minimum of inert pigment mixed in pure linseed oil with a small amount of dryer and turpentine. This paint stands up unusually well under the most adverse atmospheric conditions.

A feature of this paint is its great covering capacity which is half again that of the average good paint. Although it is not marketed on a price competitive basis this paint is distinctly economical to use. This is due mainly to its great covering capacity and its durability which, in the final analysis, are the proper gauges by which to judge the cost of a paint. Made in twenty-eight colors.

Merkin Aero Varnishes

These varnishes represent a combination of the finest obtainable raw materials and the utmost care and highest skill in manufacture. They have high resistance to water and do not turn white even in presence of excessive moisture. They provide a smooth, even film that is highly elastic and does not scratch readily.

Aquaseal Dampproofing

Merkin Aquaseal Asphalt Coatings are full bodied, elastic compounds that are designed to prevent the passage of moisture through masonry walls and provide a bonding surface for the application of gypsum (not portland cement) plaster. These coatings are regularly furnished in three consistencies—liquid, semimastic and mastic. Aquaseal Dampproof coatings are applied cold without further mixing or heating.

Emulsified Asphalt

Merkin R. P. Emulsified Asphalt is made in liquid and mastic form for application to masonry surfaces for dampproofing. The liquid emulsion No. 31 can be applied with a brush or gun. The No. 64 mastic contains long fibre Canadian asbestos. Both these materials are ready for application.

Caulking, Glazing and Pointing Compound

Aquaseal Caulking and Glazing Compound is a highly elastic, non-staining material that is impervious to the action of heat, cold, moisture and acid fumes. It retains its elasticity indefinitely and never dries out or cracks or becomes brittle. It adheres firmly to wood, stone, concrete, steel or glass, or other materials whether rough or smooth. It can be forced into the smallest crevice with the caulker's gun or knife. It is made in white, gray, red and black.

Merkin No. 91 — Transparent Waterproofing

Merkin Transparent Waterproofing is a light amber colored compound of stearates and penetrating oils, combined by a process that produces a material which, when applied to brick walls, penetrates to a definite depth below the surface and seals the pores against the entrance of moisture. It does not in any way affect the color of the walls to which it is applied. It prevents and checks efflorescence on the face of the brickwork. Its effect is immediate and lasting.

THE MURALO COMPANY, INC.

Decorative Wall Coatings, Texture Paints, Cold Water Paints, Cement Paints, Wall Sizes and Patching Plasters

570 Richmond Terrace, STATEN ISLAND, N. Y.

BOSTON, MASS., 38 Lewis Wharf
CHICAGO, ILL., 317 North Wells Street
ATLANTA, GA., 134 Walker Street
SAN FRANCISCO, CALIF., Potrero and 18th Streets

Muralo Decorative Wall Coatings—High Grade Calcimine

The ideal water colors for decorating interior walls and ceilings in all manner of residences and public buildings where harmonious color treatments are essential factors. Available in white and a wide range of attractive tints and rich deep colors. Manufactured in dry powder form and require only the addition of water to prepare them for immediate application on plaster, wall board, wood, canvas, burlap and other suitable surfaces.

Decorative Value—Muralo Wall Coatings are perfectly adaptable to any type of decoration, no matter what the style, the general treatment or proposed color scheme may be. Walls and ceilings in any type of building can be artistically decorated at moderate cost, with beautiful soft tinted effects. The dainty, delicate tints and the deep subdued colors with their rich velvety finish, devoid of gloss or glare, afford unlimited possibilities to achieve color effects and harmonies that express cheerfulness and good taste in interior decoration.

Economy is often one of the deciding factors, when choosing the form of decoration for walls and ceilings, yet the finish must possess real decorative merit. That is why Muralo Wall Coatings are recommended and used everywhere by leading craftsmen who recognize the possibilities of wall coatings that are really decorative in every sense of the word and at the same time economical to use.

Hi-Tex Textural Finish—Plastic Paint

A plastic paint of modern invention by which a most interesting and unusual array of decorative effects in both texture and color may be obtained. Manufactured in dry powder form and requires only the addition of water to prepare it for immediate application on interior wall and ceiling surfaces.

Decorative Value—Hi-Tex Textural Finish provides a decorative medium which enables modern craftsmen to reproduce faithfully the interesting and attractive Old World textured walls easily and economically. The textured walls of centuries ago, so in vogue in modern architecture and decoration, were, until quite recently, confined to the more elaborate homes and buildings because of the high cost of reproduction. The artisan of old achieved these effects through laborious methods and with crude materials.

A really fascinating product is Hi-Tex for those who possess an artistic turn of mind because it offers limitless opportunity for unique and interesting effects. Many painter-decorators have developed into experts in its use, and can produce wtih the greatest ease not only reproductions of the classic period textures, but countless individual textured treatments.

King's Perfected Interior Cold Water Paint

A durable snow-white paint that possesses sanitary, fire-retarding and light-reflecting properties. Manufactured in dry powder form and requires only the addition of water to prepare it for immediate application on wood, brick, stone, concrete, cement, plaster and other interior surfaces.

Adaptability—King's Cold Water Paint fills a specific need for a high grade painting material that compares favorably with expensive oil paints for the interior painting of certain types of buildings, and yet is low enough in cost to spell real economy. It is especially designed for the interior painting of factories, mills, warehouses, garages and similar types of buildings where large areas of wall and ceiling surfaces have to be maintained in spic and span condition at a minimum cost.

Indeliblo Exterior Cold Water Paint

A perfectly blended, smooth, easy spreading casein paint that possesses weather-resisting and fire-retarding properties. Available in white, black, and a range of 18 attractive colors. Manufactured in dry powder form and requires only the addition of water to prepare it for immediate application on wood, brick, stone, concrete, cement, and other exterior surfaces.

Adaptability—Especially designed for painting the exteriors of factories, warehouses and all types of industrial buildings. In the larger cities it is used extensively for the painting of airshafts and courtyards of apartment buildings and tenements, due to its sanitary and light-reflecting properties. In the country and farming sections it provides a means of painting farm buildings at a relatively low cost as compared with oil paints.

Indeliblo is particularly adaptable for exterior use and resists the weather remarkably well, but it can also be used for interior work if desired. Where economy is a factor, or where the use of expensive oil paints is not essential for one reason or another, Indeliblo can be relied on to give highly satisfactory service.

Muralo Cement Paint

A special paint based on the cement principle, employing in its manufacture white portland cement as the basic raw material.

Adaptability—Muralo Cement Paint is especially designed for painting concrete, stucco, brick, building tile, hollow tile, cinder block, stone and porous masonry wall surfaces in general, both outside and inside. Aside from its excellent wearing and lasting properties, it is decorative in every sense of the word, making it quite adaptable for any type of building where the preservation and decoration of masonry surfaces are important factors.

THE REARDON COMPANY

Manufacturers of Cement Paint, Plastic Paint, Cold Water Paint and Kalsomine, Patching Plaster, Water Putty and Wall Size

GENERAL OFFICES
2200 North Second Street
ST. LOUIS, MO.

SALES OFFICES
CHICAGO, ILL., 1447 W. 37th Street
SAN FRANCISCO, CAL., 383 Brannon Street
LOS ANGELES, CAL., 526 So. Alameda Street
DALLAS, TEX., 919 North Bishop Street
PORTLAND, ORE., 480 Hoyt Street
SEATTLE, WASH., 124 R. R. Avenue, So.

FACTORIES: ST. LOUIS, MO., CHICAGO, ILL., LOS ANGELES, CAL.

For Bondex and Modex, see Manufacturers' Index

Plastex—The Perfect Texture Paint

Plastex is a white plastic paint of the dry powder type made ready for use by simply mixing with cold water to a stiff, paste-like consistency. With Plastex any of the textures so popular in the past ages and in such vogue now may be perfectly reproduced at little cost.

Plastex lends itself to an unlimited variety of texture effects ranging from the finest stipple to the roughest antique.

Plastex is made on a base of Lithopone and Mica, and Casein (the water varnish) is the binding agent, assuring a hard, elastic and permanent finish.

Covering

One pound of Plastex, mixed at the ratio of a pint (U. S. Standard) of water to each pound of material, will cover from one to two square yards of surface, dependent upon the type and thickness of texture desired.

Containers

Plastex is packaged in convenient sizes: 25-pound net cartons, 100-pound net steel drums, and 300-pound net wood barrels.

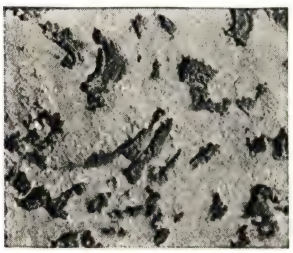
Specifications

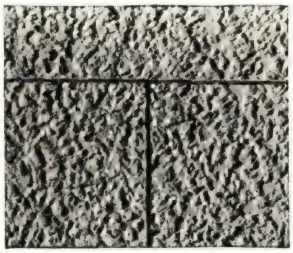
Full and complete specifications for preparation of surface, mixing, application, etc., may be found in each Plastex container.

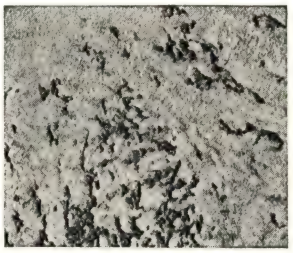
Samples, Literature, Etc.

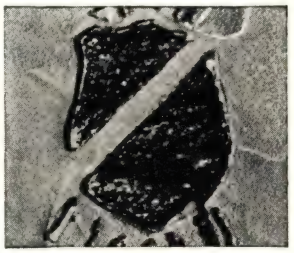
Samples, specifications, sample panels, etc., will be cheerfully sent to anyone interested—without obligation, of course.

Communicate with nearest Plant.


Modern American


Caen Stone

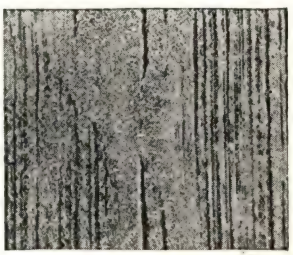

Sand Swirl


Old English Plaster


Monastic


Medici Stone


Spanish


Antique Bark

Various Textures Obtained with Plastex

UNITED STATES GYPSUM COMPANY

Dry Paint Products

GENERAL OFFICES
300 West Adams Street, CHICAGO, ILL.

For Sales Offices, see Sweet's Manufacturers' Index for U.S.G. Catalogue on Gypsum Lathing and Plaster Products

PRODUCTS IN OTHER CATALOGUES

See Sweet's Manufacturers' Index for:

(1) Econo Expanded Metal.

(2) Sound Control Service—Architectural Acoustics, Noise Abatement.

(3) Gypsum Roof and Floor Constructions, Pyrobar Partition and Furring Tile, Pyrobar Beam and Column Fireproofing.

(4) Gypsum and Metal Plaster Bases, Standard X Plastering Systems, Gypsum Plasters, Finishing Lime, Oriental Exterior Stucco, Wall Boards.

(5) Red Top Insulating Board, Pyrofill—the Dry Insulation.

(6) Chromite—Non-corrosive Metal Tile-like Decoration.

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TEXTONE—THE PLASTIC PAINT

Description

Textone is a plastic decorative material for use over Sheetrock, plastered walls and ceilings, and other surfaces such as paint, canvas, glass, metal, wood, brick and concrete. It affords unlimited decorative treatment, in any desired tint or color.

Textone comes in white powder form, ready to be mixed with water. Textures are obtained with tools employed in everyday use—whiskbroom, stippling brush, sponge, wadded paper—or the palm of the hand.

Textone makes possible walls and ceilings in harmony with the architectural design of any period. Textures with unusual water-color effects, blended tones, grained, stippled and mottled surfaces, and antique effects are easily obtained. With Textone it is possible to achieve attractive caenstone and travertine masonry effects.

The heavy body of Textone produces a splendid opaque finish. One coat of white over a properly prepared surface covers perfectly, thus it is an extremely economical material.

Any color may be obtained by mixing dry pigment colors with the prepared Textone; by blowing in colored sands after the Textone is on the wall; by water glazing with tinted Textone Sealer, or by applying a coat of Textone Glaze which has been tinted with colors ground in oil. Wiping the glaze coat brings out the high-lights and produces striking two-toned effects.

Textone is remarkably adhesive and dries hard.

Outstanding Advantages

It is easy to apply, which is important, because the labor cost is almost double the cost of the material. Has been found to be in perfect condition after 2 years when kept in dry storage.

The following are outstanding attributes: perfect adhesion; holds texture—will not "slump"; free from ammonia; no offensive odor; not destructive to brushes or injurious to hands; can be mixed with cold water; will not turn sour in pail; does not lump; markedly resistant to water when dry.

Package

Shipped in 10-lb., 25-lb. moistureproof fiber boxes, 100-lb. wood drums and in 325-lb. (300 lb. net) barrels.

Covering Capacity

One pound of Textone should cover approximately from 1 to 1¼ sq. yds. of surface for a medium texture (slightly more with finer textures).

TEXTONE ACCESSORIES

Textone Sealer

Description—Textone Sealer is a specially prepared sealing agent for Textone. The use of Textone Sealer improves the appearance and durability of the completed work, whether used as a protective coat on the finished Textone surface or under the glaze coat.

Textone Sealer is manufactured in dry powdered form and is easily and quickly prepared for use by mixing with water. After mixing, Textone Sealer is a colorless liquid, thus causing no discoloration when used over a dry plastic paint surface. When dry, Textone Sealer may be washed without injury to the Textone finish.

In glazing Textone or other plastic relief decorations, a coat of Textone Sealer effectually stops color in the glaze from striking in and "blotching" or "bleeding," thus it aids in preserving the true color tone of the glaze.

One of the most important uses of Textone Sealer is as a water-glazing medium to produce wiped two-tone and old-plaster effects by the addition of color.

Textone Sealer dries quickly, thus permitting rapid progress of the work.

Package—Shipped in 1-lb. packages.

Textone Glaze

Description—Textone Glaze is a specially prepared, practically colorless glazing liquid for use over textured surfaces. It dries flat to a soft sheen, and gives a durable waterproof finish.

It is used for blended or glazed effects to produce the patina, or age coat, found on the antique rough textured wall surfaces in old buildings in Europe. Where such surfaces have become light in color on the high spots, due to frequent cleaning and to long wear, the original color remains in the low spots, accentuating the uneven modeling of the textured surface. There are also accumulations of moss and dust in

the hollows which are sometimes desirable to reproduce for their soft, mellow appearance of age.

Besides the reproduction of antique treatments, numerous rich, two or more toned color and texture effects, such as tiffany blends and polychrome finish, may be obtained.

Textone Glaze is tinted with pigment colors ground in oil or japan.

Container—Shipped in quart and gallon containers.

Texsand

Description—A specially prepared silica sand, ground to uniform fineness for obtaining swirl effects in Textone. It is used to produce variegated effects in true color in Textone.

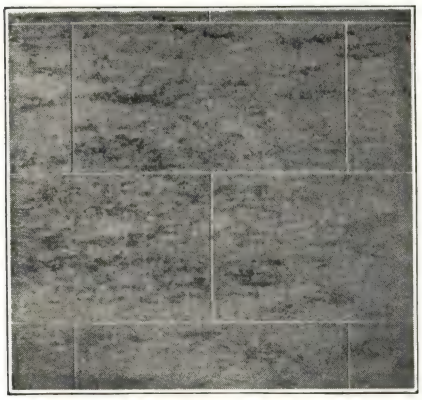
Texsand is sold in white only and is to be tinted with dry color to obtain any desired shade.

Package—Shipped in 10-lb. bags.

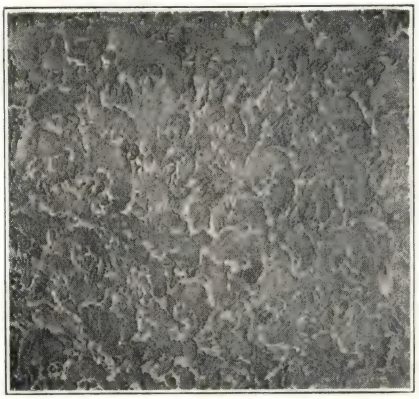
Greenspar

Description—This material is a finely ground, water floated, natural sand of a greenish color. It is employed with Textone to produce the color found in the natural pits and markings in travertine stone.

Package—Shipped in 10-lb. bags.



Travertine Stone Effect



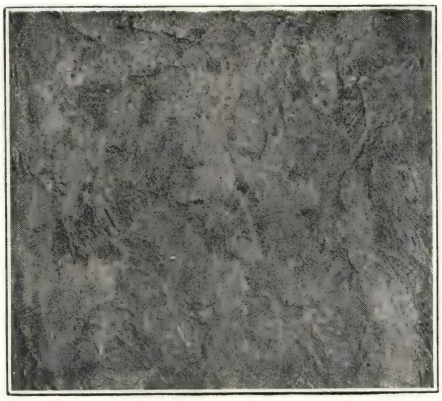
Brush Swirl



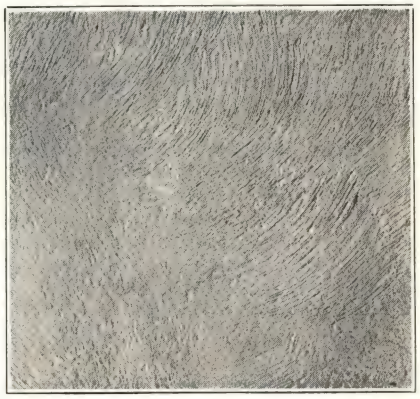
English Trowel Finish



Stencil Application



Spanish Palm Finish



Float Finish

TEXTONE—MASTER SPECIFICATIONS

Note: *Notes are explanatory or advisory only and should not be included in the specifications.*

Note: *Since these specifications are comprehensive, select those clauses which apply to the particular work.*

(1) Work Included

The following shall be finished in Textone:

Note: *Here list and locate. If more than one type of finish is required, list and locate each separately.*

(2) Samples

Provide samples one yard square of finishes as hereinafter specified, made under the direction of the architect and for his approval. Finished work shall in all respects equal the approved samples.

(3) Preparation of Surfaces

Note: *Textone may be successfully used over any surface if the following are strictly observed.*

(3a) General—All surfaces shall be dry and clean—free from dirt, grease or efflorescence. Carefully repair cracks and joints with the proper medium. Fill small crevices with a thick mixture of Textone. Reinforce bad cracks with short lengths of Metal "A."

Note: *Zinc sulphate solution must not be used under Textone.*

(3b) Sheetrock—All joints and nailheads in Sheetrock surfaces shall be finished with the Metal "A" System, the Sheetrock Reinforced Joint System or Sheetrock Finisher in accordance with the standard specification.

Note: *Surfaces of lightly sized paper on other gypsum wallboards may be finished by the methods suggested for the treatment of Sheetrock.*

(3c) Pulp and Fiber Wallboards—Size and prepare the surface in accordance with the manufacturer's directions.

(3d) Lime Plaster—

Note: *Putty Coat Finish—The best treatment for lime putty white coat finishes where time does not permit it to dry thoroughly and where decoration must be completed at once is to apply Textone direct without preliminary sizing. With white coats that are dry (two or more months old) good results are obtained by sizing with a pigmented size.*

(3d1) Apply a pigmented size, made by adding 2 lbs. of Textone to a gallon of shellac wash consisting of shellac or shellac substitute reduced with alcohol so as to produce a 2-lb. cut. Brush on thoroughly and allow to dry.

Note: *Sand float finish must be dry before sizing. On sand float finishes it is unnecessary to add a filler such as Textone to the size as there is plenty of tooth without it.*

If the surface is very rough, apply Textone in two coats; the first coat acts as a filler.

(3d2) Apply a coat of shellac or shellac substitute reduced with alcohol so as to produce a 2-lb. cut shellac wash. Allow to dry thoroughly.

(3e) Keene's Cement—

Note: *A hard, smooth surface like Keene's Cement is often difficult to cover. The plaster must be thoroughly dry before sizing.*

(3e1) Apply a pigmented size as described in "Note" under "Lime Plaster" in opposite column. Brush on thoroughly and allow to dry.

(3f) Gypsum Plaster—

Note: *Textone may be applied over a gypsum plaster surface left floated true and even, sized with any of the following or combined as required.*

(3f1) First apply a coat of white shellac or shellac substitute reduced with alcohol so as to produce a 2-lb. cut shellac wash. Allow to dry thoroughly.

(3f2) Apply a pigmented size made by adding 2 lbs. of Textone to a gallon of shellac wash. Brush on thoroughly and allow to dry.

(3f3) Apply a preliminary coat of Textone, well brushed out and allowed to dry.

(3g) Painted and Enameled Surfaces—Gloss Oil and Varnish Surfaces—Remove all loose and scaling material. Thoroughly clean all grease and dirt from the surface. (Glossy surfaces shall have shine or gloss thoroughly dulled.) Use an alkaline paint cleaner, such as Savogran or XX Cleaner, or their equivalent, following the manufacturer's directions. Scrape with a scraper to remove paint loosened by this treatment. Cleaner, soap, etc., must be thoroughly rinsed off with clear water and the wall allowed to dry before the application of Textone. Brush on a thin coat of Textone, allow it to dry, and then apply texture coat. This prevents Textone from brushing through to the under surface and showing color of base.

(3h) Calcimined Surfaces—Thoroughly wash off the calcimine so that no color remains on the surface, and especially around trim and in angles.

Note: *If under surface has been sized with varnish, paint or gloss oil, specify as in (3g).*

(3i) Wallpaper—All wallpaper shall be completely removed from the surface, after which wash the surface with a solution of sal-soda and hot water and allow to dry.

Note: *Specify treatment of the under surface as required.*

(3j) Prepared Wall Fabrics—

Note: *Best results are secured by removing fabric hangings.*

(3j1) Where wall fabrics are proved by test to be thoroughly bonded to the surface, and the fabric has been previously painted, wash with a solution of sal-soda and hot water to remove all gloss, dirt and grease as specified for "Painted and Enameled Surfaces" above.

Note: *Some decorators who insist on putting Textone over new wall fabrics, size with a special size made up in the following proportions: 1 pt. China wood oil varnish; 1 pt. turpentine; 1 lb. Textone. Apply and allow to dry.*

(3j2) Lincrusta-Walton, Sanitas, and all similar products with glossy finish shall be washed with a strong solution of sal-soda and hot water and allowed to dry.

(3k) Glass, Metal and Wood—

Note: *These surfaces must be thoroughly clean and free from dirt, grease and wax. Dull varnished or glossy surfaces should be treated as in "Painted and Enameled Surfaces." A hard, smooth surface is sometimes difficult to cover. In this case treat as specified under (3f3) "Gypsum Plaster." For unfinished wood, first apply a priming coat of thin shellac, lacquer, or flat paint size. Specify as required.*

(3l) Brick Surfaces—Clean off all dust, mortar and foreign particles. Point all joints with a heavy mixture of Textone to make wall as smooth as possible. Size with Textone Sealer to reduce suction and allow to dry.

(3m) Concrete Surfaces—Bushhammer form marks, fins, ridges, etc., to make a smooth surface. Clean free of dirt, grease and efflorescence. Point rough surfaces with a heavy mixture of Textone. Size surface with Textone Sealer and allow to dry at least 6 hours.

Note: *Concrete surfaces must be sufficiently aged and cured to be free from laitance and moisture before applying Textone.*

(4) Materials and Mixing

(4a) General—All materials shall be as made by the UNITED STATES GYPSUM COMPANY.

(4b) Plastic Paint—Textone. ***Note:*** *See page 1.*

Mix in clean pails of ample size.

Mix the dry powdered Textone into water in the proportions of about 1 pt. of water to 1 lb. of Textone to secure the consistency that will produce the texture desired. Stir slowly while adding to the water to prevent lumping.

Note: *Do not attempt to mix thin like calcimine.*

Let mixture stand about 30 minutes before it is ready to apply (if the water is very cold, a longer time is required). Mix only sufficient for one day's use, but if any is left over cover with a film of clean water and before using the next day stir in sufficient fresh Textone to take up this additional water. Do not attempt to use Textone that has stood 48 hours in the mixed condition unless approximately 30% fresh dry material is added to the batch.

(4c) Tinted Textone (One-coat Effect)—Use dry colors.

Note: *See U.S.G. Limeproof Colors. Cement colors may be used. Avoid aniline colors or chrome yellow, Prussian blue or carmine.*

Place the dry colors in a separate container and mix with water to a paste so as to thoroughly break up the color.

Strain and add the wet color to the wet Textone until the desired tint is secured. Thoroughly mix the color into the Textone.

To insure uniform color on the same surface prepare sufficient Tinted Textone for an entire ceiling, wall or other large surface. (Do not break Tinted Textone finish on a surface and continue with another mix, as it may cause laps).

(4d) Sealer—Textone Sealer. ***Note:*** *See page 1.*

(4d1) For a Colorless Sealer—Mix 1 lb. of Textone Sealer with 5 qts. of water as follows: Mix the powdered sealer with cold water in the proportion of 2 qts. of water to 1 lb. of sealer, stirring for a few minutes until the lumps are broken up and a perfectly smooth paste is obtained. Immediately add 3 qts. of boiling water and stir until all granules are dissolved. Allow to cool and strain through cheesecloth before using.

(4d2) For a Tinted Water Glaze—Tint the liquid Textone Sealer with dry pigment colors to the desired color tone.

Note: *Before the application of tinted Textone Sealer the surface should be given a coat of clear Textone Sealer. After the clear coat has dried, the tinted Textone Sealer may be applied.*

(4d3) For Antique Plaster Water Glaze—Tint the liquid Textone Sealer with dry rottenstone.

(4e) Glaze—Textone Glaze. ***Note:*** *See page 1.*

Note: *The surface of Textone should be sealed through the use of Textone Sealer before the application of glaze. Especially effective results are secured by using as a suction stop a coat of white lead and oil, slightly tinted to harmonize with the color used in the glaze.*

When blended or more than one color effect is used, provide separate clean containers for each color. Use a large pot for the main color and smaller ones for the "spotting" colors.

Use pigment colors ground in oil, thinned slightly with some of the glaze or flat wall paint before adding to the mass glaze.

Stir the contents of the can of glaze thoroughly before using.

Add the color to the glaze and stir thoroughly.

(4f) Tinted or Natural Sand—*(Texsand) (Greenspar).*

Note: *Specify use as required. See page 2.*

(5) Application of Textone

(5a) General—Hardened Textone is insoluble in water, therefore wash all spatters from woodwork, trim, etc., before the material hardens. Where trim is in place, protect with Textone Adhesive Tape to prevent soiling. Keep pails, tools and brushes clean. (Do not let Textone harden on utensils.)

Note: *Textone Adhesive Tape is furnished in 30-yd. rolls, 1 in. wide.*

Provide a moderate temperature during application. While applying, all doors and windows shall be closed to avoid drafts. When application is completed open doors and windows to permit free circulation of air. Prevent freezing temperatures.

Note: *Heat and ventilation must be provided during slow drying periods of the year.*

(5b) Application—Apply Textone with a clean brush (a Dutch calcimine brush, preferred) laying the material on to a uniform thickness of from 1/8 to 1/8 in. thick.

Texture shall be as follows:

Note: *Here specify the texture or textures selected.*

(Two men work to best advantage, one applying Textone and the other texturing.)

(5c) Sanding—When the Textone is dry, sandpaper the surface to remove rough or pointed edges. Dust clean.

(6) Application of Textone Sealer

Note: *Select as used separately or in conjunction with Textone Glaze as required.*

(6a) As a Sealer Under Glaze—When Textone surface is dry, apply with a clean wall brush a thorough covering of Textone Sealer to the entire surface. Allow to dry for at least 6 hours before the application of further decoration.

(6b) As a Water Glaze—After a clear coat of Textone Sealer is applied, a second coat of the material tinted with dry color may be applied to produce a stained plaster effect. Wipe with a clean cloth to remove the glaze from the high spots and avoid lapping.

(6c) As a Protective Coat—Over tinted Textone, tinted Texsand and Greenspar Sand, apply with a clean brush a thorough covering of Textone Sealer (colorless) and stipple the surface.

(7) Application of Textone Glaze

(7a) General—Apply Textone Glaze after the surface of Textone has been sealed with a coat of Textone Sealer or other suction stop.

(7b) One Color Effects—Apply the Tinted Textone Glaze to the surface with a clean wall brush. Wipe with clean cloths to remove the glaze from the high spots.

Work only a few yards of surface at one time, so that the colored glaze may be blended and wiped before it sets. (One man can easily handle a space from ceiling to floor as wide as he can conveniently reach.)

(7c) Blended and Two or More Toned Effects—

(7c1) First apply the patches of subordinate colors to the surface with a brush and then wipe around the edge of each patch with a cloth so as to blend it out. The main color shall then be applied and wiped with a clean cloth.

(7c2) Blend the glazes on the wall in the usual manner by applying them and then mottling and wiping with a cloth.

(7d) Other Effects—

(7d1) Apply a coat of white lead and oil paint directly to the Textone surface without sealing with Textone Sealer. Glaze as follows *(specify)*.

Note: *This gives a surface with a luster that can not be obtained by any other method.*

(7d2) Over a coat of Textone Sealer, apply a coat of bright bronze mixed with a good grade of varnish thinned with benzine. Glaze as follows *(specify)*.

Note: *This gives a rich metallic effect.*

(8) Texsand Variegated Effect

Note: *See page 2.*

Note: *Attractive colored effects may be produced through the use of tinted Texsand. Directions and illustrations for use are packed in each bag of Texsand.*

After the Textone is applied and textured, the tinted Texsand shall be blown into the wet surface in the proportions of approximately 5 lbs. of Texsand to 25 lbs. of Textone.

Note: *Best results may be had by tinting the Textone into which the Texsand is blown; usually to a light cream color.*

(9) Travertine Stone Effect

Note: *See "Greenspar," page 2.*

Note: *Directions and illustrations for use are packed in each bag of Greenspar.*

The Textone shall be tinted with dry yellow ochre to a light cream color and then stippled. The Greenspar sand shall be blown into the wet surface in the proportions of approximately 5 lbs. of Greenspar sand to each 25 lbs. of Textone.

The Textone shall then be dragged with a celluloid smoothing tool.

TEXTONE CEDAR

Description

Textone Cedar is a special Textone (Plastic Paint) composed of inert materials to which is added not less than 8% of cedar wood oil and other chemicals. It is intended for use as a texture paint lining applied 1/8 in. thick over the walls and ceilings of clothes closets.

When dry, it closely resembles cedar wood in both color and odor. Obviously, no finish of paint or sealer should be applied over the natural, textured Textone Cedar. As in cedar lined closets, the doors, etc., should be close fitted to seal in the active cedar odor.

Package

Shipped in 5 lb. tin cans and 25-lb. round metal containers.

Covering Capacity

Approximately one and one-half (1½) pounds of Textone Cedar covers one (1) sq. yd., 1/8 in. thick.

SPECIFICATIONS

(1) Preparation of Surfaces

Note: *In general surfaces should be prepared as in par. (3), pages 2 and 3, Textone Specifications.*

(1a) Sheetrock—***Note:*** *Same as par. (3b), page 2.*

(1b) Plaster Surfaces—Plaster surfaces shall be clean and dry. Fill cracks and crevices.

(1c) Painted and Enameled Surfaces—***Note:*** *Same as par. (3g), page 3.*

(1d) Calcimined Surfaces—***Note:*** *Same as par. (3h), page 3.*

(1e) Wall Paper—***Note:*** *Same as par. (3i), page 3.*

(1f) Sizing—

Note: *Sizing is required on all but painted and enameled surfaces.*

(1f1) Size all surfaces with two (2) coats of 2-lb. cut shellac.

(1f2) Add a little Textone Cedar to the second coat to provide a tooth to the surface.

Note: *The above not required over sand float plaster finish.*

(2) Mixing of Textone Cedar

Note: *Mixing of Textone Cedar shall be as specified in par. (4b), page 3, for Texture.*

(3) Application of Textone Cedar

Note: *Application of Textone Cedar shall be as specified in par. (5), page 4, for Textone, except that thickness should be full 1/8 in. Do not paint or seal over Textone Cedar.*

CEMENTICO—A CEMENT STUCCO PAINT

Description

Cementico is a cold-water, weatherproof, insoluble cement paint for use over such surfaces as unpainted stucco, porous concrete, brick, tile and stone. It is not intended for use on wood or non-porous surfaces such as smooth plaster, terra cotta and enameled brick; or on oily or greasy surfaces.

It is in the form of a white powder to be mixed with water and coloring matter on the job.

An outstanding and almost exclusive advantage is the readiness with which Cementico mixes with water. Because of the absence of "sludge" in the mixture, the usual tedious straining operation is materially lessened. Due to its smoothness and uniform consistency, Cementico paint is admirably adapted to application by spray gun as well as by brush.

Again and quite important, the tendency to "bloom" inherent in most cement-and-lime mixtures, in Cementico has been practically eliminated.

When Cementico is to be tinted, the most lasting results are obtained by the use of U.S.G. Limeproof Colors.

Packages

Cementico is shipped in 25-lb. and 100-lb. round fiber drums and in 300-lb. net weight barrels.

Covering Capacity

One (1) pound of Cementico, applied in one (1) coat will cover 16 to 25 sq. ft., depending upon the texture of the surface to be covered and the heaviness of the application required.

TEXOLITE—AN INTERIOR WALL FINISH

Description

Texolite is a paint for use on interior surfaces, such as plastered walls and ceilings, wallboard, concrete, brick and wood. It enters the field between calcimine and oil flat wall paints and combines many of the good features of both.

It dries with a soft sheen, like calcimine, which gives maximum light reflection, brushes more easily than flat wall paint, is water resistant and will wash as well as some flat wall paints.

Texolite comes in a pure white powder and is prepared for application by mixing with water. It may be easily tinted to any desired shade with limeproof colors and may be applied with a wide brush or spray.

One coat will hide as well as two coats of oil paint. It works well as an undercoat under enamels and flat wall paints and will save a coat. It is an ideal size coat under lacquer and has marked ability to reduce lime burning in finish coat.

Package

Texolite is shipped in 25-lb. and 100-lb. round drums and in 275-lb. net weight barrels.

Covering Capacity

One (1) pound of Texolite (dry powder) applied in one (1) coat will cover from 25 to 45 sq. ft., depending upon the texture of the surface to be covered and the heaviness of the application.

U.S.G. LIMEPROOF COLORS

Description

Dependable limeproof colors are now available in convenient airtight packages. The colors are black, raw and burnt sienna, raw and burnt umber, yellow, green, blue and red.

These limeproof colors are to be used for tinting Textone, Em-Bel-Lo and other plastic paints; calcimine, cement paints and other water-mixed products; for tinting Textone sealer; for coloring stuccoes and mortars. All the colors are lightproof, and most of them are mineral pigments. Many are imported. They are finely ground and have not been "let down" by the admixture of filler.

Package

Packed in two sizes: No. 1 package contains from 12 oz. to 28 oz. of color, and No. 4 package from 48 oz. to 112 oz. The difference in contents of these containers is due to varying density of the colors.

Mixing

To mix, add the dry color to a little water, mix thoroughly to a thin paste, strain through a fine mesh screen to remove lumps, then add to the wet mixed paint or other material.

Caution: The tinted materials will be several shades lighter when dry than when in the wet mix.

RED TOP MORTAR COLORS

Description

Red Top Mortar Colors for coloring masonry mortar, etc. are produced for the UNITED STATES GYPSUM COMPANY by two of the leading manufacturers. The Eastern source is the Clinton Metallic Paint Co., Clinton, N. Y. The Western source is The Ricketson Mineral Color Works, Milwaukee, Wis.

These two products have been made since 1885. They are Pure Mineral Colors of high quality, noted for their fineness and uniformity in strength and shade.

The colors are standard in the industry. Red Top Mortar Colors will be furnished in Red, Light Buff, Dark Buff, Brown, Double Strength Chocolate, Standard Black, and Double Strength Black. Special colors will be furnished on order.

For further data, see Clinton Metallic Paint Co.'s and Ricketson Mineral Color Works' catalogues in SWEET'S ARCHITECTURAL CATALOGUES.

Package

Shipped in 100-lb. waterproof, paper-lined non-returnable jute bags.

C 2921

GLASS AND GLAZING

HENDERSON BROS.

Designers and Craftsmen in Leaded and Stained Glass in the Antique and Modern Styles

TELEPHONE
VAnderbilt 3-6575

771 First Avenue
NEW YORK, N. Y.

HENDERSON'S ANTIQUE LEADING

Adaptable to Early English and Tudor leaded glass. Henderson's Antique Leading is made to resemble the old hand wrought lead which was used during the best periods of old leaded glass. It gives a touch of distinction and individuality to leaded glass that is both charming and characteristic of the best in old glass.

The cames are of widths varying from ⅛ to 1 in., with or without center reinforcing.

Special designs of Period or modern glass executed for the architect.



Antique Leaded Medallion

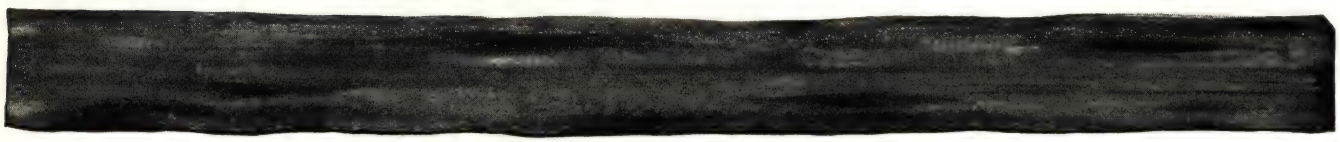


Tudor Cathedral Glass Used in Cathedral of St. John the Divine, New York, N. Y.





Antique Stain Glass Medallions



Slight Antique



Full Antique



PLAIN

Henderson's Antique Leading

Slight Antique and Full Antique Leads are furnished in widths of ⅛, 3/16, ¼, ⅜, ½, ⅝, ¾ and 1 in.

Henderson's Antique Leading has a modulated antique effect without a heavy cast appearance. The pronounced irregularity is obtained by our patented process

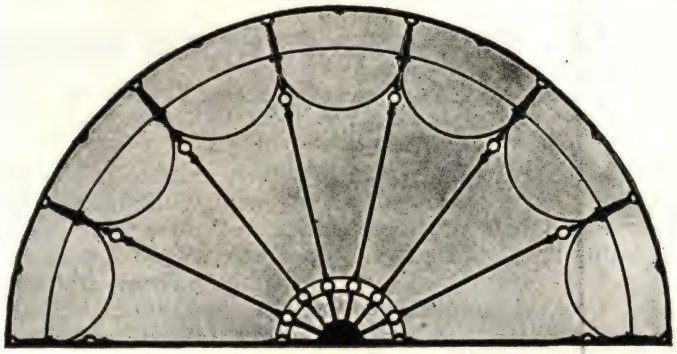


REINFORCED

HENDERSON'S GEORGIAN PERIOD LEADING

The attention of the architects and builders is called to our "Easy Fix" Metallic Leading which makes possible the type of leading used during the Georgian Period, long since abandoned, but still to be seen in old doorways, ceilings, lights, etc.

By using modern materials, methods and our continuous clip (see drawings) which runs parallel and continuous with the glass and holds both glass and putty securely in place, a leaded sash having the exact appearance of the old work can be economically furnished.





The clip can be readily turned up to allow of inexpensive repairing by an ordinary mechanic and left in its original condition, making a substantial and weathertight job.

"Easy Fix" Metallic Leading can be constructed of brass, copper, zinc or sheet metal and lead coated.

Lead ornaments of which we have a large assortment can be readily applied to Henderson's "Easy Fix" Metallic Leading.



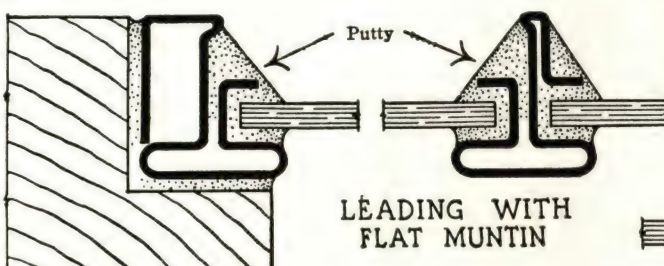
Expanded Leading

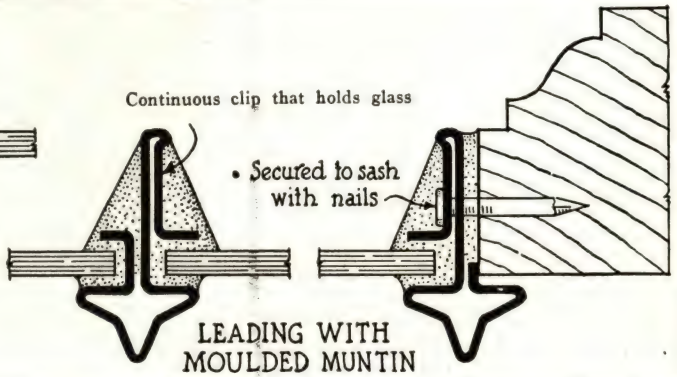


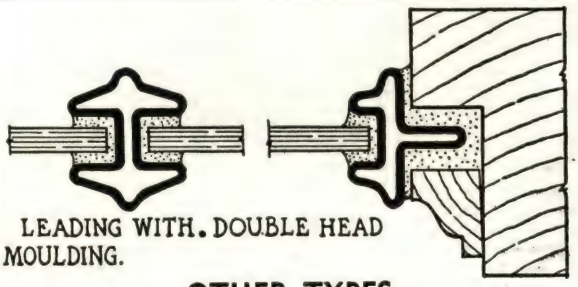
Special Leaded Mitre Joint

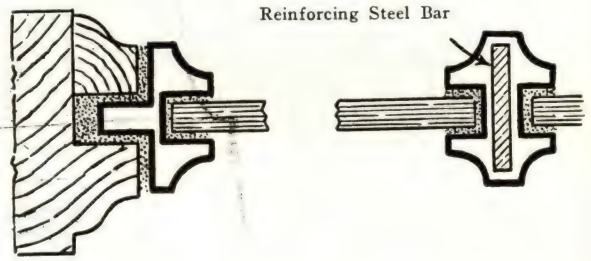


Examples of Ornaments









METALLIC LEADING AND METHOD OF INSTALLATION

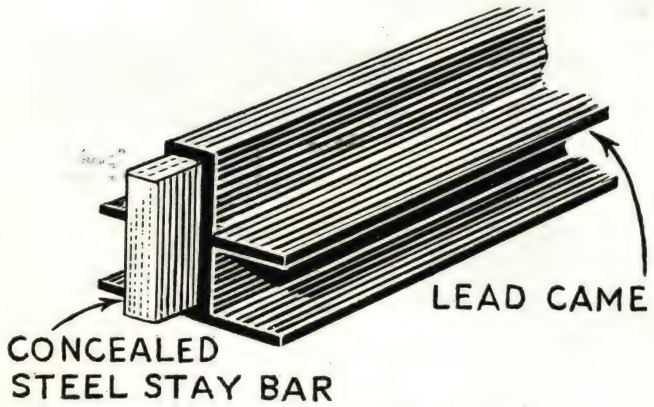
HENDERSON'S REINFORCED STEEL STAY BAR CAME

Added Strength without Extra Cost

The Henderson Reinforced Steel Stay Bar Came represents a forward step in the reinforcement of leaded glass windows. Unusual strength is provided without extra cost and without losing the characteristic leaded glass effect.

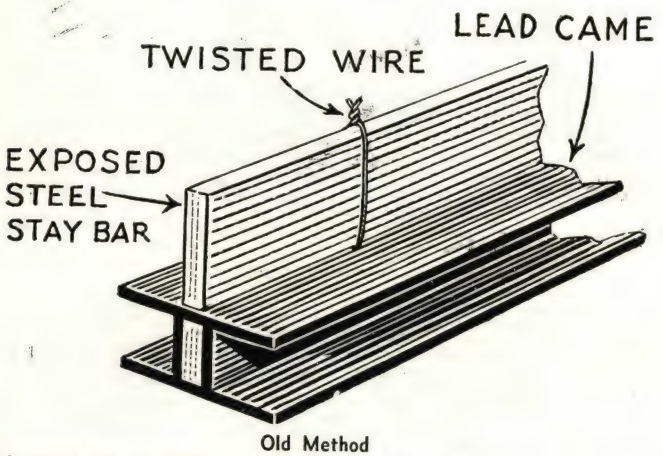
In the Henderson method, the steel reinforcing bar is thoroughly embedded in the lead pocket where it is protected against rust and becomes an *integral* part of the leaded glass panel. This sturdy method of construction is clearly shown below. The prevailing practice has been to suspend the glass from the stay bar by means of wire and solder. In this type of construction, the glass eventually develops a tendency to sag and bulge with resultant leakage. This tendency is entirely eliminated in the new Henderson Reinforced Steel Stay Bar Came which is particularly suited for ceiling lights, operating windows and double glazing for outer protection work in churches, etc., and wherever panes are over 144 sq. ins. It is also particularly valuable where the leaded grass is subjected to considerable jarring.

Henderson lead cames are from ⅜ to 1 in. wide, and are made with a pocket to receive a steel reinforcing rod ⅛ in. thick and from ⅜ to 1 in. in height.



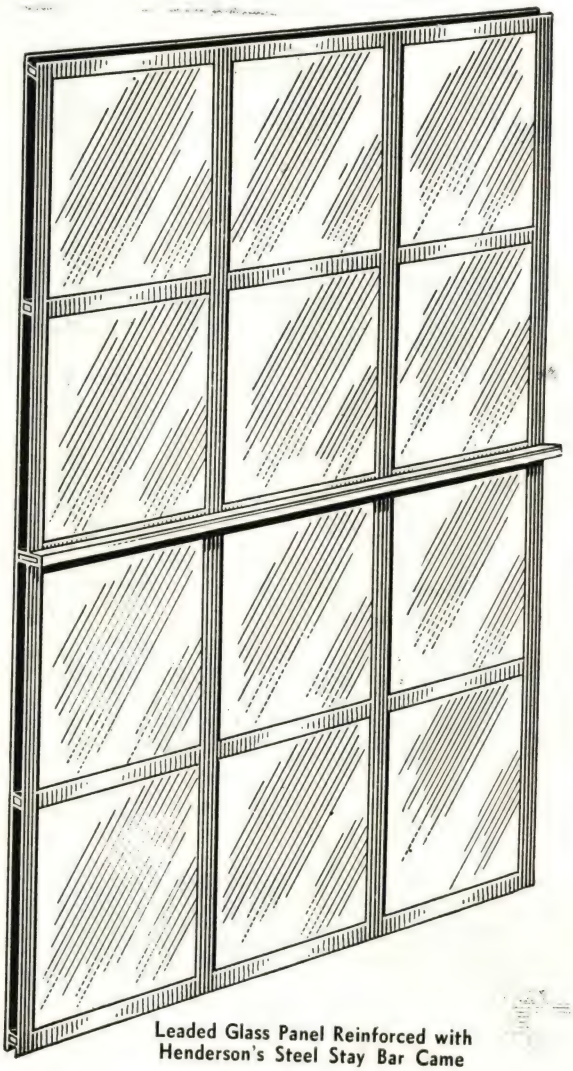
Henderson's Reinforced Steel Stay Bar Came

The steel stay bar is embedded in the heart of the lead where it is protected against rust and becomes an *integral* part of the leaded glass panel



Old Method

The stay bar is wired or soldered to the face of the lead and is *not integral* as the stay bar in the Henderson came shown above



Leaded Glass Panel Reinforced with Henderson's Steel Stay Bar Came

HENDERSON'S LEADED GLASS

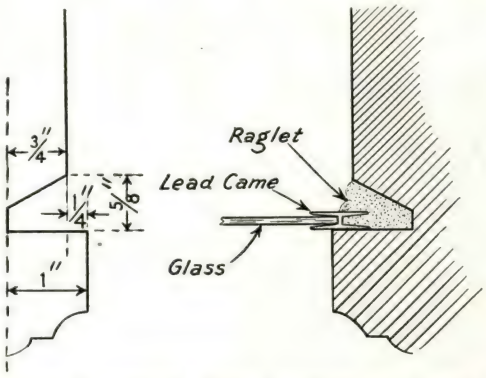
Manufacturing Facilities

Henderson's Leaded Glass is carefully made and fabricated by modern methods.

We have efficient hydraulic presses for drawing the leads and can economically produce the special glazing sizes and forms used in the Tudor, Spanish, Colonial and Georgian period designs.

Adequate manufacturing facilities, combined with quantity purchases of raw materials, enable us to produce quality work at minimum prices. Skilled workmanship with careful supervision from first to last, insure a finished product of uniformly highest quality and enable us to guarantee Henderson's Leaded Glass against leakage and warpage.

Leaded glass, carefully and systematically made of substantial materials, as is Henderson's Leaded Glass, will last indefinitely.



Method of Forming Raglet for Leaded Glass Where Glass Is Set Directly Into Stone

Construction Features

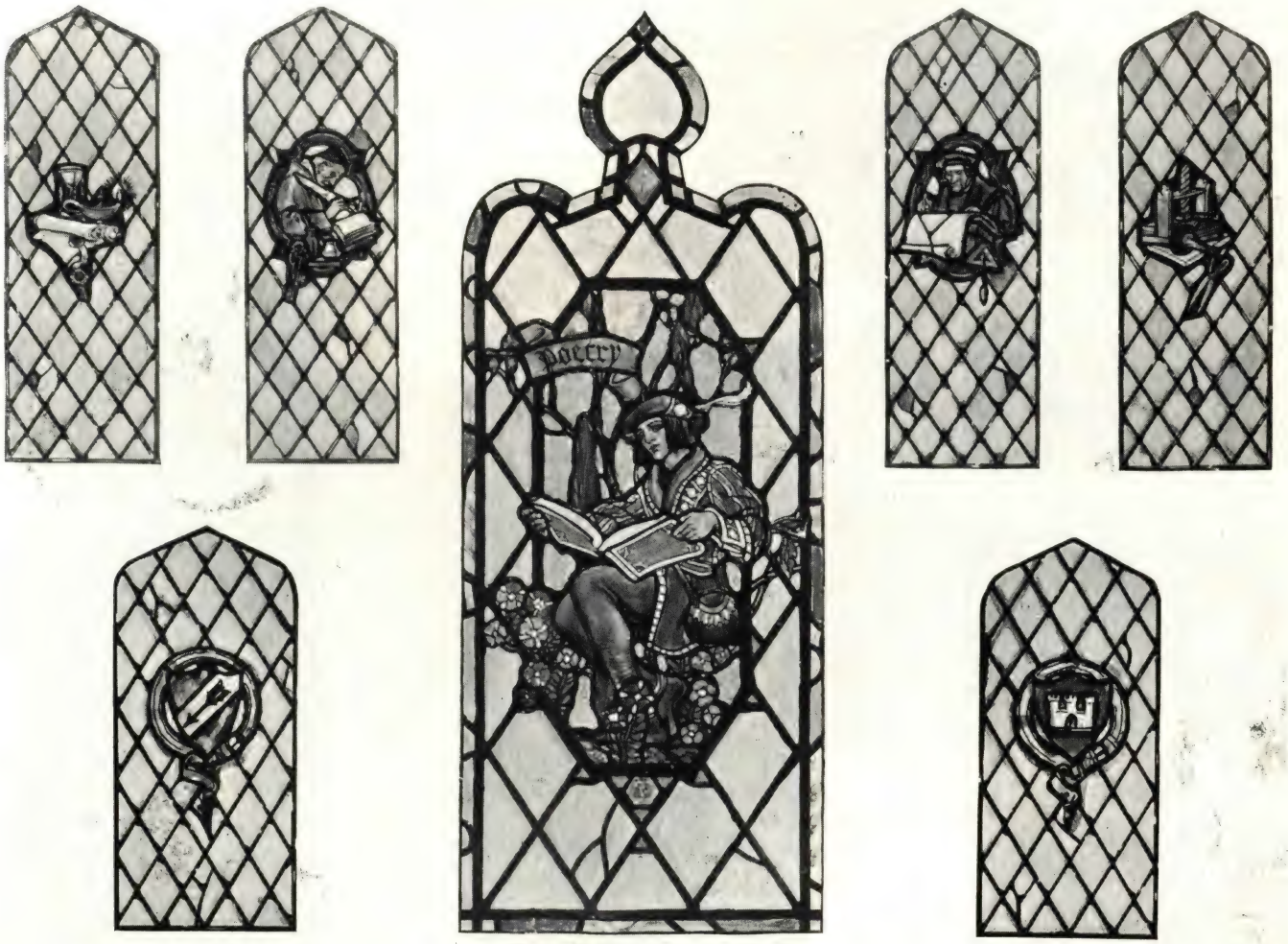
Lead Cames—Heavy in thickness. Leaf of the lead is $\frac{3}{64}$ in. thick; heart, $\frac{3}{32}$ in. thick. Only pure virgin lead is used in our cames. We do not recommend cames less than $\frac{3}{8}$ in. in width.

Reinforcing—All leads running the narrow dimension are reinforced with steel bars embedded in the heart of the lead. For panels, in which the narrowest dimension is more than 18 ins., we advise the use of Henderson's Reinforced Steel Stay Bar Came (described on the preceding page) at intervals not to exceed 24 ins.

Glass—Double Strength, Grade "A" glass.

Soldered Joints—Soldered joints are heavy and solder is uniformly applied over the entire joint extending beyond the corners.

Cementing Compound—The compound is applied between the lead and the glass on both sides of the glass. A special mastic compound is used and applied in a careful and uniform manner. After completion, the leaded glass is kept in our shop for two weeks in order that the cement shall be thoroughly dry before shipping.



ESTABLISHED 1889

RICHARD N. SPIERS & SONS

Leaded and Stained Glass

TELEPHONE
TOmpkins Square 6-5040, 5041

Spiers Studio Building, 50 West 15th Street
NEW YORK, N. Y.

Products

CHURCH and MAUSOLEUM WINDOWS.
PAINTED and FIRED MEDALLIONS.
ANTIQUE and MODERN LEADED CASEMENT WINDOWS.
INTERIOR STEEL CASEMENTS.
HARD METAL SETTINGS.
CAST LEAD ORNAMENTS.
HAND WROUGHT LEADWORK.

Experience and Service

Forty-two years of building leaded and stained glass for every type of building.

We invite the use of our staff of designers for special sketches and suggestions.

Setting details and samples sent upon request.

Hand Wrought Lead Work

Examples of our "Distinctive Hand Wrought Lead Work" for use in modern or antique background, are illustrated below.

These hand wrought lead panels can be finished in bronze, white metal or natural lead color. They are adaptable for application to other metals, walls of wood or plaster, mirrors and lighting fixtures.



Hand Wrought Lead Panel



Hand Wrought Lead Panel

Suggested Specifications

General—All leaded glass shall be executed to conform with patterns shown on drawings or special design submitted and approved by architect.

(The width of lead, plain, irregular or antique and the type of glass, imported or domestic antique, cathedral or opalescent should be specified.)

Leading shall be soldered thoroughly on both sides and all flanges filled with a cement containing 50% pure white lead putty, 30% whiting, 10% litharge and 10% red lead mixed with pure linseed oil so as to make glass perfectly watertight.

Reinforcing and Setting—For setting in wood sash, use pure white lead putty for bedding and beading after sash has been primed.

Reinforcing to be formed of galvanized steel bars inside the leads, or, soldered to face of lead as determined by the width and design of the lights. The maximum width for inside reinforcement to be 24 in.

For setting in steel sash, use an approved steel sash putty. Reinforcing as noted above to apply here also.

(Sash should be furnished with mouldings for most substantial construction.)

Where glass is set in stone reglet, it shall be bedded thoroughly in cement with a margin of lead showing evenly around edge of opening. It shall be reinforced by means of galvanized iron bars sunk deeply into the stone groove and tied to glass with a sufficient number of copper wires.

State if general scaffolding may be used, if cost of cleaning glass and repairs should be added to estimate.



Interior Casement Window in Private Apartment



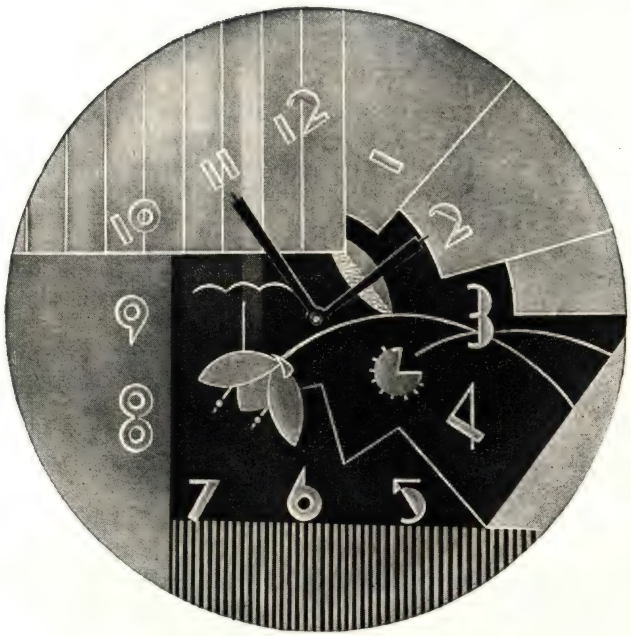
Medallion Window, 15th Century

HARRITON CARVED GLASS

Individuality in Carved Glass and Sandblasted Wood

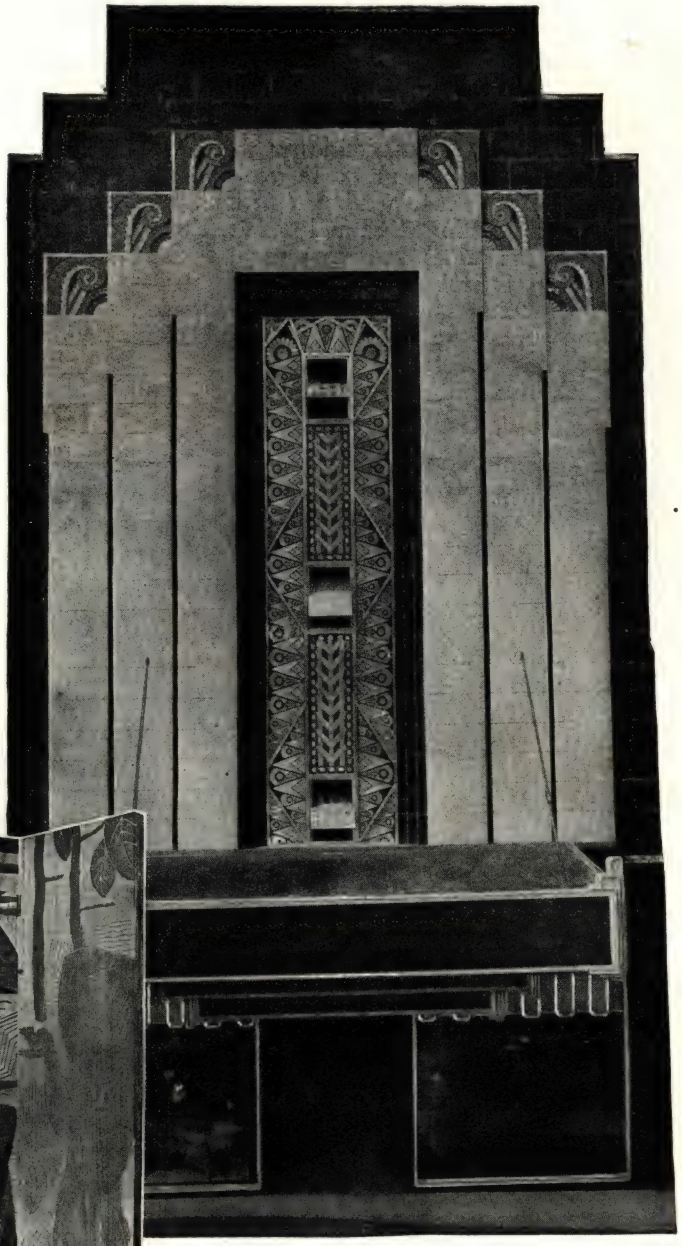
404 East 34th Street
NEW YORK, N. Y.

In Trend with The Modern Trend



Harriton Neon-illuminated Clocks

Possess poise and dignity, typical of all Harriton workmanship. To the architect with ideas Harriton will be a boon because Harriton knows the mind of a man with ideas and delights in working *with him* to the most successful accomplishment of his purpose.



Harriton Carved Glass Store Fronts

Many of New York's largest and finest establishments owe their effectiveness to carved glass. The architect who has discovered this new medium unfailingly gets striking results.

Sandblasted Wood Screens

In sandblasted wood, Harriton has pioneered a craft that rivals the woodcrafters of old—yet modern Harriton facilities and creativeness enable this most unique work to be turned out ten times faster and at ten times less cost. To view Harriton sandblasted wood is to see the highest development of this material.



Screen Designed by Harriton



CORNING GLASS WORKS

STEUBEN DIVISION

Hand Wrought, Sculptured Glassware and Construction Blocks for Architectural Uses

15 Walnut Street

CORNING, N. Y.

SHOWROOM AND SALES OFFICES: 501 Fifth Avenue, NEW YORK, N. Y.

HAND WROUGHT SCULPTURED GLASSWARE

Steuben Sculptured glassware affords architects a wide range of decorative possibilities in the use of fine glass either as pure ornament or in ventilating or lighting units. Custom-built to architects' designs, Steuben glassware can be had in grilles and panels, clear, matted, or in transparent colors such as crystal, French blue, pomona green, bristol yellow, and amethyst.

Many leading architects have already made use of this new ornamental medium. In the Daily News building in New York is a series of striking panels, clear crystal with sculptured pattern, designed by Raymond Hood. Shreve, Lamb, & Harmon have used in the Empire State building a sculptured crystal panel of their own design. It is repeated alternately upright and inverted around the foyer as the visible part of the lighting system. In the new Waldorf-Astoria Hotel, John Mathews Hatton, architect, has used STEUBEN Sculptured panels of his own design. Department stores, theatres, restaurants, and steamships are included among the projects in which Steuben Architectural Glass has been used.

In our New York showroom is a representative display of many of the forms in which Steuben Glass has already been used. You are invited to examine them at any time or to write for a catalogue in which they are illustrated. Quotations on glass to your own design will be furnished promptly.



SCULPTURED GRILLE

Designed by FREDERICK CARDER, Art Director, CORNING GLASS WORKS
Dimensions 8⅜ x 8½ ins., thickness ½ in., weight 2 lbs. 11¾ oz.

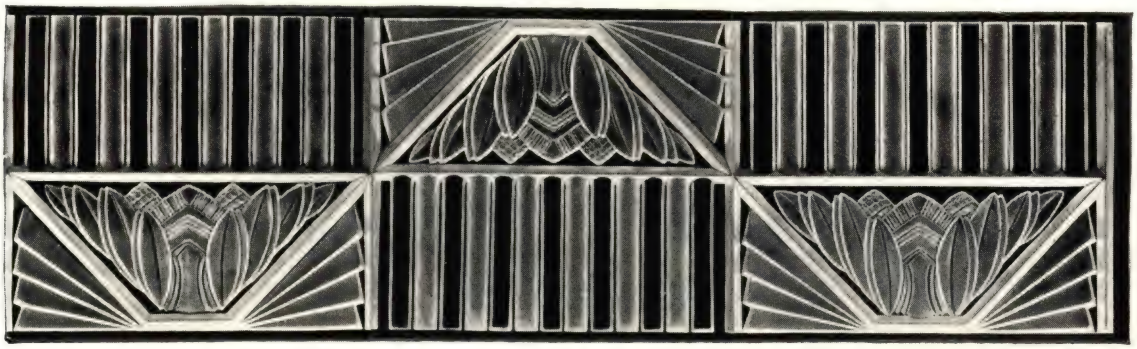


SCULPTURED GRILLE

Designed by J. PHILIP KRESICKER, BARNET PHILLIPS Co., Architects
For The S.S. Morro Castle and S.S. Oriente, Cuba Mail Steamship Co.

NEW PYREX RESISTANT GLASS CONSTRUCTION BLOCKS

A new construction material of great ornamental possibilities. Hollow glass bricks 8⅜ x 4¼ x 3¾ ins. with decorative pattern on each face. High light transmission for artistic lighting effects. These bricks are made of PYREX heat-resistant glass.



Above

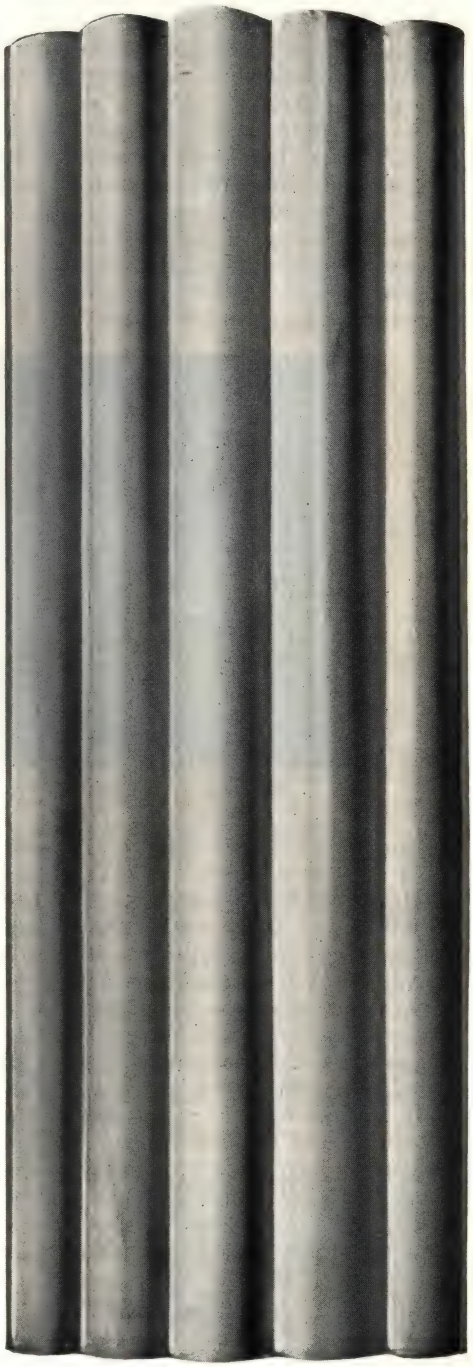
Sculptured Panel for the Empire State Building, New York, N. Y.

Designed by SHREVE, LAMB & HARMON, Architects
Each unit is a panel 12 ins. square with clear background and matted, sculptured design

Right

Sculptured Panel Frequently Used for Lighting Fixtures and Illuminated Columns

It is available in widths up to 6 ins. and in lengths to 24 ins.



Below

Sculptured Panel

Designed by FREDERICK CARDER of CORNING GLASS WORKS
It is 9 ins. square, 7-16 in. thick, and weighs 3 lbs. 13½ oz.



SEMON BACHE & COMPANY

"Dependable Glass Products Since 1847"

Greenwich and Morton Streets, NEW YORK, N. Y.

GUARANTEED

EVALAST

Registered Trade-Mark

MIRRORS

SILVER WILL NOT SPOIL

EVALAST PROCESS PERMANENTLY BRILLIANT MIRRORS

Not affected by moisture or even direct contact with water or steam. No discoloring, no clouding, no streaking.

Every architect knows that mirrors made by ordinary processes are quickly spoiled by damp walls, atmospheric and climatic moisture, condensation from hot water supply, etc. Such spoiled mirrors become dull, discolored, streaked, worthless for reflection purposes and generally unsightly. Expensive reconditioning or replacement becomes necessary.

EVALAST permanently brilliant mirrors withstand all of these influences and even direct contact with water or steam. They completely eliminate the heretofore inescapable recurrent necessity for resilvering which with attendant labor invariably costs more than the original installation.

The illustrations below graphically show the difference between the performance of EVALAST mirrors as against the quick spoilage of old process mirrors. These prints are made from actual photographs (without retouching) of specimens of mirror plates which were submerged constantly in water for over eight months, except for occasional inspection. They demonstrate pictorially the action of silver under atmospheric moisture when applied by the usual process and resistance to such deterioration of the EVALAST process mirrors.

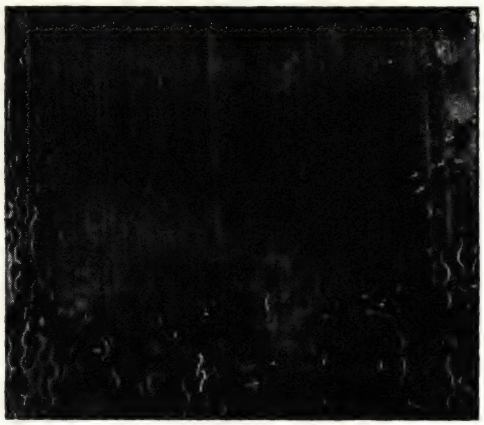


Plate No. 1—Old Process Mirror

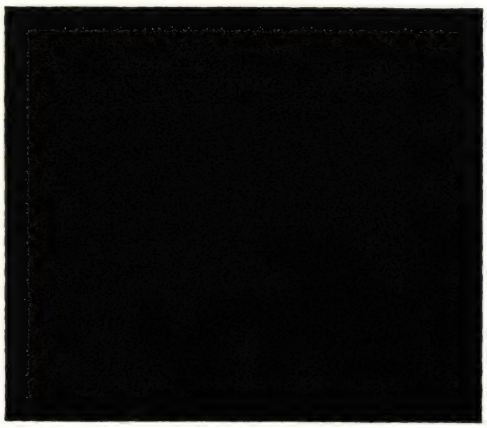


Plate No. 2—Evalast Mirror

Plate No. 1 shows the streaks, spots, peeling, cloudiness, discoloration and dullness which is common to mirrors silvered by the usual standard processes. Mirrors so affected may be found everywhere, in homes, on ships, institutions and building installations.

Plate No. 2 shows better than word description can the perfection and freedom from the usual deterioration and the permanent brilliant reflection which are guaranteed by installing EVALAST mirrors.

EVALAST mirrors are moderate in cost, comparable with the ordinary type mirror and offer further the economy of permanence which makes them far the cheapest in the end.

EVALAST mirrors are particularly adapted for seashore hotels and residences, bathrooms, lavatories, washrooms, beauty parlors, barber shops, store fixtures and wherever intermittent condensation ordinarily ruins standard mirrors. Invaluable in damp tropical climates and for marine work. Tested and approved by U. S. Navy.

Made in all sizes from smallest bathroom mirror to largest sizes required for store fixtures.

Samples and detailed information on request.

EVALAST mirrors are made in Regular Plate, Aquaplate (colorless plate) and colored plate glass. Also gold mirrors. "AQUAPLATE" EVALAST mirrors are made of colorless optical plate glass giving clear reflection without loss of color values. EVALAST mirrors are also made in colors.

Specification—Mirrors shall be EVALAST process plate mirrors made by SEMON BACHE & COMPANY, New York City. All shall be ..... quality per U. S. Bureau of Standards specification No. CS27-30.

All mirrors are to be manufactured with not less than two coats of silver applied to properly processed glass and to be hermetically sealed by an impervious protective coat of metal applied by electro-chemical process to the silver and to be finished with special composition hard paint.

PITTSBURGH PLATE GLASS COMPANY

Electro Copper Plated Mirrors

PITTSBURGH, PA.

For Warehouses and Branch Offices, see our pages on Vista Plate Glass
For our Other Products, see Manufacturers' Index

Electro Copper Plated Mirrors Are Lifetime Mirrors

Mirrors are now obtainable, manufactured by the PITTSBURGH PLATE GLASS COMPANY, guaranteed against deterioration from climatic or atmospheric conditions and defective workmanship. These are electro copper plated mirrors, and in case of deterioration they will be resilvered free of charge.

Pittsburgh Genuine Electro Copper Plated Mirrors will remain permanently as beautiful, as clear, and as efficient in reflecting properties as the day they were made. This has been made possible by protecting the silvering of regular mirrors with a coating of solid copper, thus making them absolutely moistureproof and airtight, something that is not possible with ordinary patent back or painted mirrors.

Uses

Pittsburgh Electro Copper Plated Mirrors are recommended as permanent, decorative and practical installations for lobbies, interior doors and walls for hotels, theatres, stores, barber shops, beauty parlors, etc., as well as for doors, furniture and wall mirrors in private residences. They are especially recommended for bathroom mirrors both in private residences and hotels. The steam and sudden changes of temperature occurring in bathrooms, which ruin ordinary mirrors, leave genuine electro copper plated mirrors untouched.

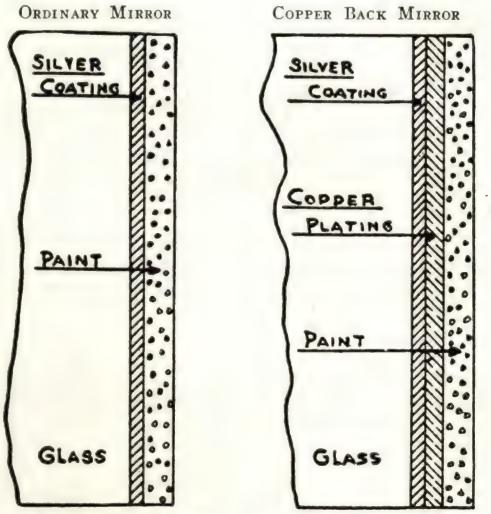
Electro copper plated mirrors are also particularly adapted for use in resort piers, and river, lake and ocean going vessels, where dampness and salt air are unusually destructive to ordinary silvered mirrors. Wherever an installation of lasting beauty is desired, Pittsburgh Electro Copper Plated Mirrors are advised.

Method of Manufacture

A Pittsburgh Electro Copper Plated Mirror consists of a silvered sheet of polished plate glass as does any fine mirror. However, in addition, a layer of solid copper is deposited on the silver coating by an electrolytic process. This provides an impervious insulation, protecting the sensitive silvering against dampness and chemical reaction, and making the backing of the mirror more resistant against handling abuse. The delicate film of silver is perfectly protected by a sheathing of copper.

As a consequence, discoloring, cloudiness and deterioration are prevented and the original beauty and utility of the mirrors are maintained permanently.

Compare the magnified cross sections below of the electro copper plated mirror with the old type of silvered mirror, and note the insulating metal between the porous coating of paint and the sensitive silver.



Magnified Cross Section
Showing silver protected only by a relatively soft porous coating of paint

Magnified Cross Section
Showing solid copper strip between silver and paint

Specification

To insure obtaining mirrors which will be permanently of the highest quality, the following specification should be used:

Wherever marked on the drawings genuine electro copper plated mirrors, manufactured by the PITTSBURGH PLATE GLASS COMPANY, are to be furnished. Mirrors to be of best quality and to bear the manufacturer's label until approved and accepted by the architect.

General Information

Pittsburgh Electro Copper Plated Mirrors are now available in any size up to 70x144 in.

The cost of these electro copper plated mirrors is only slightly greater than that of the ordinary mirror. The difference is a small premium for insurance against future resilvering and reinstalling of these mirrors for the life of the building. They are real economy and should be insisted upon by both the architect and the builder.

Identification

Look for the label shown at the right on all Genuine Electro Copper Plated Mirrors of our manufacture. It is your assurance that you are installing a mirror that will outlast the other fixtures.





Copper Back Mirrors in Sport Shop, Famous-Barr Co. Department Store, St. Louis, Mo.

PLATE GLASS MANUFACTURERS OF AMERICA

First National Bank Building
PITTSBURGH, PA.

Why Plate Glass for Windows

The primary purpose of glass in windows is to admit light, to afford protection from the elements and to allow a clear vision. The most suitable glass is that which will transmit the greatest amount of light and afford the clearest view.

Plate Glass is not merely a good quality glass. It is a unique product: a glass *ground and polished* to a truly flat surface and lustrous finish.

Plate glass does not distort objects viewed through it at any angle.

In addition to practical advantages, plate glass has another advantage which is receiving more and more consideration from architects, that is, advantage of beauty. This quality of beauty is due to the clean-cut and distinct reflection free from distortion.

Plate glass increases the value of a building or a residence far more than the additional cost of the plate glass. A building glazed with plate glass is more easily rented or sold.



Economies of Plate Glass

Breakage—Because of its higher strength and its resistance to blows, plate glass does not break easily.

Cleaning—Its highly polished surface allows cleaning with less labor.

Quiet—Its extra thickness keeps out more noise and insures quieter rooms.

Heating—Since plate glass is ordinarily thicker, it reduces heat losses.

Beauty—Crystal clear—no distortion of objects viewed through it. Looking through plate glass is like looking through the open air itself—the eye is not conscious of its presence.

Cost—Total cost of glazing is only about one per cent of the total cost of the building. The additional cost for plate glass is a negligible proportion of the total cost.



Reflections of Lights and Shadows on Polished Surfaces of Plate Glass

Construction Details for Plate Glass

When making designs calling for the use of plate glass, several items of construction details must be considered.

(1) Supporting structure must be sufficiently strong and rigid to withstand any wind pressures, vibrations and other strains that might exist.

(2) Provision must be made for expansion and contraction, particularly in large sheets.

(3) Provision must be made for easy replacement in case of breakage.

(4) Do not locate a large sheet where it will be difficult to set.

(5) Provide ventilation on both sides of glass. This ordinarily does not require consideration, but in wainscoting and with mirrors, ventilation on the back is important—do not set glass or mirrors in a surface to surface construction.

(6) Provide accessibility for cleaning.

Care of Plate Glass Before Setting

In writing his specifications, the architect should provide not only that plate glass is to be used but that proper care should be exercised that it shall not be damaged before setting. The following items should be covered:

(1) Plate glass shall not be laid flat but shall be stood on edge with paper between sheets.

(2) Glass shall not be laid flat (for cutting or other purposes) upon a table or other object that has not been previously covered with a clean, soft protection of some sort.

(3) No dust or dirt shall be allowed to accumulate upon glass.

(4) Plates shall be handled one at a time and surfaces shall never be allowed in contact.

(5) Glass shall be unpacked as soon as delivered, cleaned and dried if necessary, and stored on edge in a dry place. This to avoid what is known as "stain."

(6) Alkalis attack the polished surface of plate glass and should not be allowed near it—especially is this true of ammonia fumes.

United States Government Specification for Plate Glass for Glazing Purposes

Classification

Polished Plate Glass: second silvering quality, glazing quality.

Definitions of the General Classes of Polished Plate Glass

Plate Glass. Transparent, flat, relatively thin glass having plane polished surfaces and showing no distortion of vision when viewing objects through it at any angle.

Plate Glass is made at present by casting and rolling large sheets periodically or by rolling a continuous sheet. The sheets are then ground and polished.

Detailed Specifications of Polished Plate Glass

General Principles Involved in Grading Glass—All flat glass contains some imperfections and the principle employed in grading is to exclude all defects that would be objectionable in a given grade. This is difficult to do since there are no sharp lines of demarcation between grades, and experienced inspectors will differ in judgment as the quality of the glass approaches the limits of the grades. Small lights must be quite free from imperfections as compared with larger ones, and the center of any sheet should be clear, whereas the edges may contain more pronounced defects.

Method of Examination—The method of examination is described in these specifications in order to make the results more uniform, and defines the condition under which glass should be examined because the distance from the glass, the angle between the glass and the line of sight, and the intensity of light all affect the visibility of imperfections.

These specifications should be interpreted by examining the glass in the following manner, with reference to the definitions of defects listed in the glossary:

The glass should be examined when placed in a position similar to that of a glazed light with the observer's eye on a level with the center of the sheet, and looking through the glass from a distance of about 36 in. into the light from a clear sky without any sun or any close background.

The visibility of waves, lines or cords depends chiefly upon

the angle of observation, and the intensity of these defects can be classified on this basis. The values given for angles are the angles the line of sight makes with the sheet of glass when in a vertical position. Slight movement of the head horizontally through an angle of two or three degrees will make waves or lines more perceptible.

Acceptance or Rejection—Acceptance or rejection of a shipment or delivery shall be based on an examination of the following quantities:

For orders of 100 lights or less, all shall be examined; for orders of 101 to 500 lights, at least 50% shall be examined, for orders of 501 or more lights, at least 25% shall be examined. Boxes shall be selected from the shipment at random.

If not more than 10% of the lights examined are below quality, the shipment shall be accepted provided the lights below the specified grade are not distinctly below the upper limit of the next lower grade.

If, however, an entire shipment of 500 lights or more is examined, not more than 5% may be below quality.

Specifications for Polished Plate Glass

Sizes and Thickness—The standard of thicknesses of plate glass shall be ⅛, 3/16, ¼, 3/8, ½, 5/8, ¾, 1, 1¼ and 1½ in. Sheets are available ¼ in. thick in sizes having a maximum area of 250 sq. ft. Glass of ¼-in. thickness may be furnished having almost any desired dimension under the following maximums: 120x280 in., 144x260 in., 160x240 in.

The standard stock thickness for glazing purposes is ¼ in., but this may vary between 5/32 and 3/32 in.

Tolerance in Thickness—When a certain thickness is specified for a specific purpose, the tolerance in thickness shall be half the difference allowed on standard thickness, although ¼-in. glass for glazing purposes is accepted within the latitude of 5/32 to 3/32 in. The general variation in thickness should not be more than 1/32 in. for individual lights under 10 sq. ft., in thickness up to ¼ in. The variation in lights over ¼ in. in thickness should not exceed one-half the total tolerance for that thickness.

Polished plate glass ¼, ⅛ and 3/16 in. thick is carried in stock in the larger cities.

Tolerances in Dimensions—Variation from dimensions ordered shall not be more than 1/32 in. per ⅛-in. thickness.

Grades—Plate glass shall be furnished for glazing purposes in one of two grades as specified. These grades will be known as second silvering and glazing qualities.

Second silvering quality is invariably used where the highest standard of glazing is required and imperfections are discoverable only on close inspection. This quality is rarely sold for glazing purposes in sizes over 20 sq. ft. Glazing quality represents the usual selection of plate glass supplied when quality is not otherwise definitely specified.

As allowable tolerances in quality must vary considerably with size of sheet required, different specifications will apply in each of the following four divisions according to size:

Division I. Sheets up to and including 10 sq. ft. in area.

Division II. Sheets having an area greater than 10 sq. ft. but not greater than 25 sq. ft.

Division III. Sheets having an area greater than 25 sq. ft., but not greater than 75 sq. ft.

Division IV. Sheets having an area greater than 75 sq. ft.

Division I. (Sizes Up to and Including 10 Sq. Ft.)—*Second Silvering Quality*—This glass shall not contain any major defects. The central area of this glass may contain only well scattered seeds. Ream, skim, short finish, and scratches which can not be removed by buffing, are not permissible. The edges may contain coarse seeds, but none shall be larger than 1/32 in. in diameter.

Glazing Quality—The central area of this quality may contain numerous scattered seed, including an occasional coarse seed, but no heavy seed. Small bubbles may occur on the edge. Stones, large bubbles, skim, ream, or long or heavy scratches are not permissible. Faint strings in the corners or upper edge of the light are permissible. The polish shall not show areas of short finish.

Division II. (Sizes from 10 Sq. Ft. to 25 Sq. Ft., Inclusive)—*Second Silvering Quality*—The central area of this quality may contain more numerous fine seed than the small sizes and an occasional coarse seed. The edges may contain occasional small bubbles and fine strings. No heavy defects or scratches which can not be removed by buffing are permissible. The polish must be good and free from visible short finish.

Glazing Quality—The central area may contain small bubbles and fine strings or ream which do not give visible distortion when looking straight through the glass, but no long or heavy scratches. The edges may contain bubbles over 1/32 in., visible scratches shorter than 10 in., small areas of ream, strings, and small stones not larger than 1/32 in., but these defects should not be grouped nor interfere with the vision. The polish over the central area should be good, but patches of light short finish may be present about the edges.

General—None of the above grades or sizes may contain any heavy or long lines, streaks of ream, any bubbles larger than ⅛ in., visible poor polish, open bubbles, areas of skim, or stones over 1/32 in. in diameter.

Division III (Sizes from 25 Sq. Ft. to 75 Sq. Ft.)—*Glazing Quality*—Lights of this size may contain numerous visible and larger imperfections not allowed in the smaller lights. But these must not be grouped or so prominent that they noticeably interfere with the vision. The central area of the plate shall be free from these larger defects.

The sheets may contain seed of any size, but not heavy seed except in relatively small patches on the outer border of the sheet, occasional bubbles up to ⅛ in. in the center and up to 3/16 in. on the borders, strings, ream and skim in very limited areas if not causing a deformation of objects viewed through the plate, occasional scratches and small stones under 1/16 in.

Heavy ream, heavy cords, bubbles larger than 3/16 in. in diameter, stones larger than 1/16 in. in diameter, large fire cracks, areas of unpolished glass, easily visible poor polish, large open bubbles, or sand holes, are not permitted. The large defects should be confined to the upper edge and upper corners of the sheet, the lower and central areas to be relatively free from major defects.

Division IV. (Sizes Greater than 75 Sq. Ft.)—Sheets larger than 75 sq. ft. may contain defects of almost any kind except that they must not show large areas of heavy seed or bubbles, nor have any defects which will cause spontaneous breakage, such as skim or large stones (⅛ in. in diameter) or show any areas of unpolished glass.

Glossary of Terms Used in These Specifications

The following terms shall be used in specifications:

Plate Glass—Seeds, short finish, skim, strings, scratches, bubbles, open bubbles, ream, stones, fire cracks, sand holes.

Bubbles—Gas inclusions in any rolled glass. These inclusions are practically always spherical and brilliant in appearance. The term applies to all such inclusions larger than 1/32 in. in diameter. The term small bubbles (commonly known as boil) refers to sizes between 1/32 in. and 3/32 in.

Seeds—Minute bubbles less than 1/32 in. in diameter. Fine seeds are visible only on close inspection, usually appearing as small specks and are an inherent defect in the best quality of plate glass. Seed about 1/64 in. to 1/32 in. in diameter are usually considered as coarse seed.

Open Bubbles—Bubbles which have been broken into by grinding, leaving a hemispherical hole in the glass surface.

Skim—Streaks of dense seed with accompanying small bubbles.

Strings—Wavy, transparent lines appearing as though a thread of glass had been incorporated into the sheet.

Cords—Heavy strings incorporated in the sheet, occurring without any regularity of direction, and appearing to be of considerable thickness rather than on the surface.

Ream—An area of unhomogeneous glass incorporated in the sheet producing a wavy appearance.

Scratches—Any marking or tearing of the surface appearing as though it had been done by either a sharp or rough instrument. Scratches occur on sheet glass in all degrees from various accidental causes.

Short Finish—Insufficient polish or lack of brilliancy; improperly finished surface which has the appearance of being slightly pitted and wavy when the surface is viewed in reflected light. These indentations, which are slight, have a polished rather than a ground surface, but the general effect is a slight dulling of the surface. Poor polish is usually caused by improper grinding.

Stones—Any opaque or partially melted particle of rock, clay or batch ingredient imbedded in the glass.

Fire Cracks—Small cracks penetrating the surface of the sheet. Usually in the shape of short-hooked crescents. Caused by sudden heating or chilling of the surface.

Sand Holes—Rough spots on the polished surface produced during coarse grinding which fine grinding did not later remove; due, to some extent, to coarse grains of grinding sand becoming mixed with finer grades.

Central Area of Sheet—This term is used with slightly different interpretation with reference to plate or window glass. In plate glass the central area is considered to form an oval or circle centered on the sheet whose axes or diameters do not exceed 80% of the over-all dimension. This allows a fairly large area at the corners, which may have imperfections not allowed in the central area.

PITTSBURGH PLATE GLASS COMPANY

Vista Plate Glass

PITTSBURGH, PA.

DISTRIBUTING WAREHOUSES AND BRANCH OFFICES

AKRON, OHIO
ALBANY, N. Y.
ALLENTOWN, PA.
AMARILLO, TEX.
ATLANTA, GA.
BALTIMORE, MD.
BIRMINGHAM, ALA.
BOSTON, MASS.
BRONX, N. Y.
BROOKLYN, N. Y.
BUFFALO, N. Y.
CHARLOTTE, N. C.
CHICAGO, ILL.
CINCINNATI, OHIO
CLEVELAND, OHIO
COLUMBUS, OHIO
DALLAS, TEX.
DAVENPORT, IOWA
DENVER, COLO.
DES MOINES, IOWA
DETROIT, MICH.
EL PASO, TEX.
FORT WORTH, TEX.
GRAND RAPIDS, MICH.
HARRISBURG, PA.
HARTFORD, CONN.
HIGH POINT, N. C.
HOUSTON, TEX.
INDIANAPOLIS, IND.
JACKSONVILLE, FLA.
KANSAS CITY, MO.
KNOXVILLE, TENN.
LITTLE ROCK, ARK.
LOUISVILLE, KY.
MEMPHIS, TENN.
MILWAUKEE, WIS.
MINEOLA, N. Y.
MINNEAPOLIS, MINN.
MOUNT VERNON, N. Y.
NASHVILLE, TENN.
NEWARK, N. J.
NEW HAVEN, CONN.
NEW ORLEANS, LA.
OKLAHOMA CITY, OKLA.
OMAHA, NEB.
PEORIA, ILL.
PHILADELPHIA, PA.
PITTSBURGH, PA.
ROANOKE, VA.
ROCHESTER, N. Y.
SAGINAW, MICH.
SAN ANTONIO, TEX.
SAVANNAH, GA.
SCRANTON, PA.
SHREVEPORT, LA.
SOUTH BEND, IND.
SPRINGFIELD, MASS.
ST. LOUIS, MO.
ST. PAUL, MINN.
SYRACUSE, N. Y.
TAMPA, FLA.
TOLEDO, OHIO
TULSA, OKLA.
UTICA, N. Y.
WASHINGTON, D. C.
WILKES-BARRE, PA.
YOUNGSTOWN, OHIO

Products

VISTA PLATE (Thin Polished Plate Glass).

For Tapestry Glass, Pennvernon Window Glass, Carrara (Structural Glass), Electro Copper Plated Mirrors, standard Mirrors and standard weight Plate Glass, Store Fronts, Paints and Varnish, see Manufacturers' Index.

Distributing System

The extensive warehouse distributing system of the PITTSBURGH PLATE GLASS COMPANY enables this company to offer its customers a prompt and efficient service which is unexcelled.

The sixty-seven warehouses listed above, strategically located in all the principal cities, are all fully equipped to meet your requirements. Immediate deliveries can be made on either large or small orders.

VISTA PLATE, THE THIN POLISHED PLATE GLASS

It has long been realized that the public would be more generally able to enjoy the benefits of plate glass if this product were manufactured commercially in the same thickness as ordinary window glass. For many years, the thinnest plate on the market was $\frac{3}{16}$ in. in thickness, and any buildings glazed with plate glass required sash larger than the standard $1\frac{3}{8}$ in., together with heavier window weights, to provide for the additional thickness and weight of plate glass over window glass. Vista Plate is a true polished plate glass of the same thickness as double strength window glass. Vista Plate immediately eliminates the largest obstacle confronting architects when wishing to specify plate glass, for it allows the use of standard $1\frac{3}{8}$-in. sash and ordinary window weights. Now the perfect vision, the polished surface and perfect reflection of plate glass may be had at only a slightly higher cost than ordinary window glass.



Vista Label
Appears on every light of genuine Vista Plate

Equal in Quality to the Heavier Product—After experimenting for a number of years, and spending millions of dollars in plant equipment, the PITTSBURGH PLATE GLASS COMPANY developed a method for producing a true thin polished plate glass at a cost approximating that of the ¼-in. product. The appropriate name of "Vista Plate" was given to this product. The quality of Vista Plate is equal in every respect to that of heavier plate glass, having two perfectly plane surfaces, very highly polished, and being free from waves and other defects present in common window glass.

With the exception of weight, the same arguments can be advanced for the use of Vista Plate as for regular thickness, including true and perfect vision as contrasted with the distortion caused by sheet glass.

A Boon to Builders—The use of Vista Plate in modern homes, schools, apartments, hotels, hospitals and office buildings, in fact, in all places where the openings are not of extreme dimensions, is not only very desirable, but almost essential if the exterior appearance and comfort of the tenants is taken into consideration. It is hardly consistent to specify with care and precision, various other building materials, and at the same time to permit the use of a glass which does not give the maximum of efficiency and beauty. The difference between the cost of glazing a building with Vista Plate and that of glazing it with common window glass is surprisingly small, the extra charges incidental to the use of plate having, as shown above, now been eliminated. All of the company's warehouses are prepared to submit alternate figures on any operations on which ordinary window glass is specified.

Specifications—In order to specify Vista Plate, use the following paragraph:

All glass, except as otherwise specified, shall be Vista Plate, Glazing Quality, the thin polished plate glass manufactured by the PITTSBURGH PLATE GLASS COMPANY. Each light shall be identified by manufacturer's label which is to remain on glass for architect's inspection. All glass shall be properly set, well sprigged, puttied and back puttied with best oil putty. When metal sash is used, glaze with best steel sash putty.

Facts to Remember About Vista Plate Glass—

Thickness: 6-9/64 in. (glazed in standard $1\frac{3}{8}$-in. sash).
Weight: 1.46 lbs. per sq. ft.
Sizes: up to 38x44 in. (approximate).
Quality: true, lustrous surface, equal in every respect to ¼ or $\frac{3}{16}$-in. product, thickness excepted.
Source: full stocks carried at sixty-seven distributing warehouses. (See above list.)

ADAMSTON FLAT GLASS COMPANY

Manufacturers of Flat Drawn Sheet Glass

CLARKSBURG, W. VA.

EASTERN SALES OFFICE, 1 Madison Avenue, NEW YORK, N. Y.
WESTERN SALES OFFICE, 11 So. La Salle Street, CHICAGO, ILL.
JOBBERS IN PRINCIPAL CITIES EAST OF THE MISSISSIPPI

Product

FLAT DRAWN SHEET GLASS, made in any thickness up to ¼ inch.

"A Brand You Can Depend On"

Uses

For all purposes where perfectly flat glass is required. Not only for the lighting of homes and buildings, but for furniture, display cases, etc.

The Company and Its Facilities

The organization, plant and facilities of the ADAMSTON FLAT GLASS COMPANY inspire the confidence and friendship of every customer. Its sales are largely repeat orders from satisfied customers.

The plant is modern in every respect, equipped with two units, having a capacity of over 1,000,000 boxes per year, which insures prompt and dependable service. It has every facility for the most efficient and economical manufacture of a dependable and uniform product.

Adamston Flat Glass

Adamston Flat Glass is vertically drawn in perfectly flat sheets. There is no curvature whatsoever. It is the same on both sides—no right and wrong side to look for when glazing, and glazing is done at much less expense.

The distinct features of Adamston Glass are:

(1) Perfectly flat.
(2) Uniform in thickness and quality.
(3) Natural fire polish of great lustre.
(4) The same on both sides.
(5) Great tensile strength.
(6) Minimum of breakage.
(7) Paper packed to prevent scratching.
(8) Every light of A quality labeled.
(9) Graded according to highest standards.
(10) Sold by representative jobbers in all principal centers.

Grading

Adamston Flat Glass is graded according to the highest standards adopted by flat glass manufacturers of America, and these standards of grading are strictly adhered to.

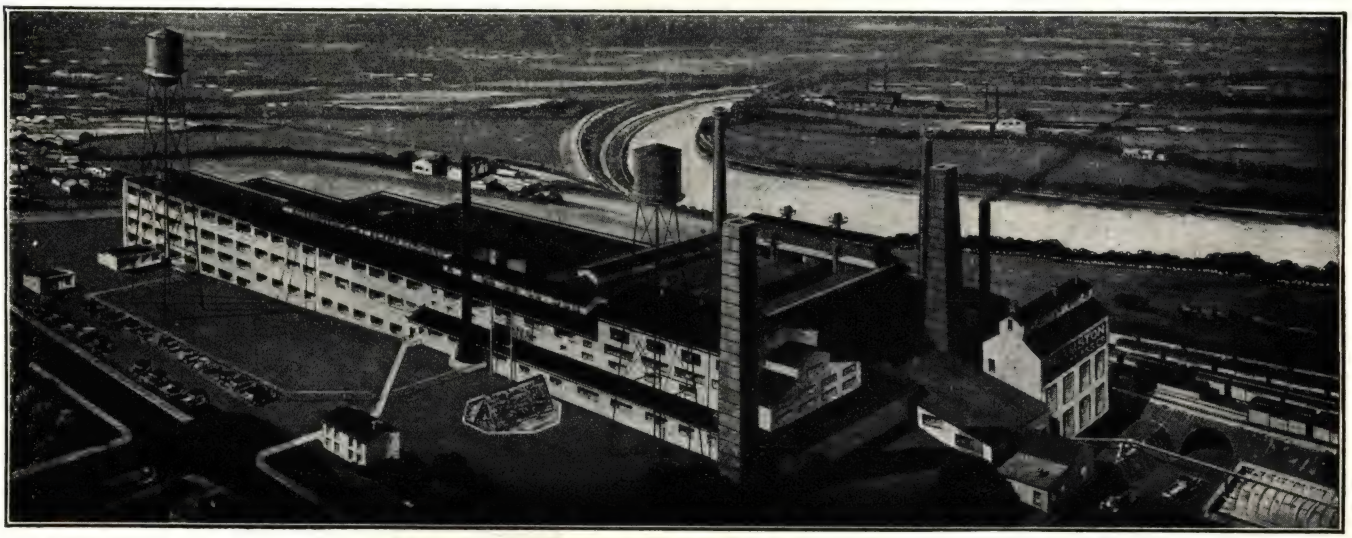
ADAMSTON FLAT GLASS

All grades	Lights per inch		Av. wt. per sq. ft., oz.	Largest size sheet, in.
	Min.	Max.		
Single	10	11	20	40x50
Double	7½	8½	25	62x84
29 oz.	6½	7¼	29	62x96
34 oz.	5½	6¼	34	62x96
39 oz.	4¾	5¼	39	62x96
¼ in.	3¾	4¼	52	62x96

Service and Distribution

Adamston Flat Glass is generally obtainable from the leading jobbers in the principal cities east of the Mississippi. If the jobber is unable to supply you, write direct to ADAMSTON FLAT GLASS COMPANY, Clarksburg, W. Va.

The company is prepared to furnish any information or offer recommendations to cover any requirements that may be submitted.



Plant at Clarksburg, W. Va.

AMERICAN WINDOW GLASS COMPANY

GENERAL OFFICES
Farmers Bank Building, PITTSBURGH, PA.

DISTRICT SALES OFFICES

ATLANTA, GA.
BOSTON, MASS.
CHICAGO, ILL.
LOS ANGELES, CAL.
NEW ORLEANS, LA.
NEW YORK, N. Y.
PORTLAND, ORE.
ST. LOUIS, MO.
SAN FRANCISCO, CAL.
SEATTLE, WASH.

EXPORT OFFICES

SAN JUAN, PORTO RICO
HAVANA, CUBA

FACTORIES

JEANNETTE, PA.
KANE, PA.
BELLE VERNON, PA.
ARNOLD, PA.
MONONGAHELA CITY, PA.
HARTFORD CITY, IND.

Products

LUSTRAGLASS (FLAT DRAWN), the ultra violet ray window glass; CLEAR SHEET WINDOW GLASS; GREENHOUSE GLASS; ARMOR-LITE SAFETY GLASS and BULLET-PROOF GLASS; LUSTRAWHITE PICTURE GLASS; PHOTOGRAPHIC DRY PLATE GLASS; $\frac{3}{16}$-in. and $\frac{7}{32}$-in. CRYSTAL SHEET, GROUND, CHIPPED and ORNAMENTAL ETCHED GLASS; TINTAGLASS and BULB EDGE GLASS in double strength, single strength, $\frac{3}{16}$ in. and $\frac{7}{32}$ in.

LUSTRAGLASS (FLAT DRAWN) ULTRA VIOLET RAY WINDOW GLASS

Process and Production of Lustraglass

The new flat drawn clear sheet window glass now manufactured by this company is trade named Lustraglass. It transmits a substantial amount of the shorter, more valuable ultra-violet rays of sunlight which are shut out by ordinary window glass (see table below), a better, flatter, clearer, more lustrous glass at no greater cost than the average window glass. The greenish cast characteristic of window glass has been almost entirely eliminated. This "whiteness," this absence of color alone, makes Lustraglass a more beautiful and desirable glass for windows. Lustraglass is produced by an improved vertical drawn machine process assuring absolute flatness, uniform thickness and quality.

TRANSMISSION IN THE ULTRA-VIOLET SPECTRUM OF LUSTRAGLASS

Determined Radiometrically by Using a Quartz Mercury Arc Lamp, a Quartz Spectrometer and a Vacuum Thermopile

It is generally recognized that the most effective ultra-violet rays in sunlight are those having a wave length from 313 mu. down to 302 mu. Ordinary window glass transmits practically nothing below 313 mu. Ultra-violet rays are seldom available in sunlight below 302 mu.

Wave length in millimicrons (mu.)

Approximate range of most effective ultra-violet rays in sunlight			
Thickness (Note A)	313 mu.	(Note B) 310 mu.	302 mu.
10 oz. (.050 in.)	36%	27%	10.5%
13 oz. (.062 in.)	31%	23%	7%
16 oz. (.077 in.)	22%	16%	3.2%
Single strength (.090 in.)	18%	12%	2.3%
Double strength (.123 in.)	9%	5.5%	.4%

Note A: Approximately 75% of all window glass used is in single strength thickness. 10-oz. thickness may be used for lights up to 12 ins. square; 13-oz. up to 18 ins. square; 16-oz. up to 24x30 ins. These thicknesses are slightly higher in price than standard single and double strength. Percentages given are average for thickness indicated.

Note B: Ordinary window glass is almost entirely opaque at this point of measurement.

Quality and Appearance of Lustraglass

Lustraglass has set a new standard of quality for window glass, its beauty, whiteness and brilliant lustre enhance the appearance of any building in which it is used.

Flatness of Lustraglass

The flat drawn sheet glass produced by the AMERICAN WINDOW GLASS COMPANY'S vertical drawn process is positively flat without curvature, bow or reverse curve.

Glazing of Lustraglass

Lustraglass can be glazed either side out, with the assurance that the appearance and clear visibility will be of the same high standard whether viewed from the inside or outside of a building.

Chemical and Physical Properties of Lustraglass

The chemical properties of Lustraglass assure maximum resistance to discoloration, fade, stain or rust. Tests of the physical properties of this glass demonstrate great tensile strength and a high modulus of rupture enabling it to withstand maximum wind pressures.

Identification Labels

Every light of *genuine* Lustraglass, the ultra-violet ray window glass, is labeled to identify is genuineness. This is for the protection of the purchaser. In the case of superfine and selected qualities Lustrawhite picture glass, the proper quality identifying label appears upon the paper between the lights.





Packing

A new Lustraglass package utilizing special processed corrugated board instead of straw reduces breakage and freight charges and minimizes the possibility of fade or stain under normal warehouse conditions regardless of how long it is stored.

All genuine "AA" and "A" quality Lustraglass as well as Superfine and Selected Quality Lustrawhite picture glass is packed with paper between the lights to prevent marring and scratching of the surface.

Grades and Qualities

"AA" Quality—Because of the very high standard of grading adopted by this company, it is impossible to supply "AA" quality in sufficient quantities to enable us to fill orders for it quickly. Buyers who insist upon having this quality must expect some delay in the shipment of their orders.

"A" Quality—The improved vertical drawn process developed by this company produces a glass entirely free from many of the defects permitted in Government Specifications. Lustraglass is free from strings and lines, and is a perfectly flat, white, high lustre product of uniform thickness and appearance and will greatly enhance the appearance of any building in which it is used.

"B" Quality—This quality is free from all glaring defects but contains imperfections which would prevent its being graded as "AA" quality or "A" quality.

Tolerances in Thickness

The new flat drawn process developed and employed by this company enables us to produce a glass that shows little or no variation in thickness—a uniformity which it has been difficult to attain with any other method of manufacture.

Defects Prohibited in All Grades

Defects that mar the general appearance of the glass (considering the quality specified) or cause excessive breakage are prohibited in all grades of window glass manufactured by this company.

Table 1—Average weight of clear sheet window glass (given in ounces per square foot).

Single strength	19 oz.
Double strength	26 oz.
Crystal sheet	39 oz.
Crystal sheet	45 oz.

Note: The above weights are, of course, subject to the usual average variations.

Suggested Specifications

All window glass used in this building shall be Lustraglass, a product of AMERICAN WINDOW GLASS COMPANY, and shall be (here specify the thickness and quality of glass desired). The Lustraglass label must appear on each light of genuine Lustraglass.

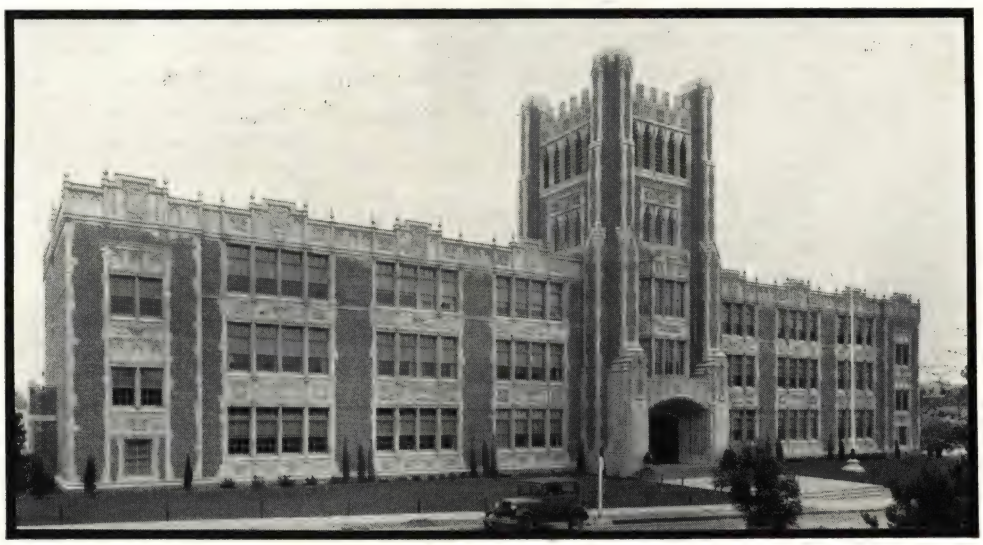
Note: If the AMERICAN WINDOW GLASS COMPANY's glass is specified, this company, upon request, will inspect the installation and without expense report whether the glass furnished is the kind, quality, and thickness specified.

Manufacturing

The usual ingredients in the manufacture of window glass, i.e., sand, ground limestone, soda ash, salt cake, and a certain amount of cullet or broken glass, are scientifically and mechanically mixed and fed into the furnace in such proportions as will guarantee in the finished product the utmost strength, durability and freedom from defects, particularly that of stain or fade.

These raw materials, after being melted at a temperature of 2600 degrees, in furnaces containing about 2400 tons of molten glass, pass into the refining zone in the form of molten metal and thence into the drawing canals.

The machines are so located on these canals that the operation of any one machine cannot impair the quality or affect the production of glass on any other machine. This arrangement of the machines, by which



John Marshall High School, Los Angeles, California
GEORGE M. LINDSEY & ERWOOD P. EIDEN, Architects
Glazed throughout with Lustraglass. Glass by Thompson Glass & Paint Company

the glass for each machine is maintained at a constant temperature, is one of the outstanding developments of the AMERICAN WINDOW GLASS COMPANY'S process, and one which assures uniformity of quality.

Drawing the Sheet—To begin this operation, the machine is reversed and a metallic bait is lowered and immersed in the molten glass for a few seconds until the glass has adhered thereto. The machine is then placed in upward motion and the bait, with glass adhering to it, is drawn upward through successive pairs of gear driven rolls, the speed of draw determining the thickness of glass desired.

These cylindrical rolls, which provide traction power when once the bait is removed, are made of the finest quality of specially treated asbestos, so that at no time do they mar the surface or spoil the high lustre of the glass acquired during the first few feet of draw.

This process perfected by the AMERICAN WINDOW GLASS COMPANY, produces a glass that is perfectly annealed and is uniformly satisfactory as to finish and cutting properties.

At the top of the drawing machines, the glass is cut off the upward moving sheet in the desired lengths and laid on a felt-covered table when the bulbed edges are stripped off. In this operation the glass is handled only once from the time it leaves the tank as molten glass until it is laid on the cutting table, also felt-covered, thus eliminating any chance of marring or scratching the surface.

Inspection—The glass, after being cut and inspected by experienced cutters, is re-inspected by men especially trained for that work. The quality is again checked by the chief inspector. Ask for AMERICAN WINDOW GLASS COMPANY'S "Lustraglass Booklet A-430."

Sizes Obtainable

The maximum dimensions recommended are:

	Width, in.	Length, in.
For Single Strength	40	50
For Double Strength	60	80
For Heavy Sheet	78	120

Note: Single strength glass is made up to 60 in. in length, but we do not take orders for sizes in this thickness larger than 84 united inches.

Dimensions

"Glass must be cut to dimensions ordered with an allowable tolerance of $\frac{1}{32}$ in. per $\frac{1}{8}$-in. thickness."

CRYSTAL SHEET WINDOW GLASS

All 39-oz. or $\frac{3}{16}$-in. as well as 45-oz. or $\frac{7}{32}$-in. glass produced by this company is known to the trade and sold as Crystal Sheet.

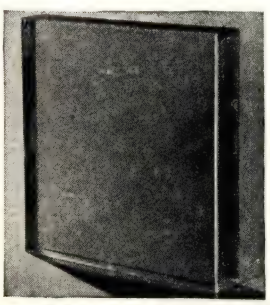
Advantages—Crystal Sheet Glass possesses a brilliant surface, uniform thickness and is one of the flattest and whitest window glasses produced by any process. It is an acceptable substitute for plate glass for many uses and is lower in price than polished plate.

ARMOR-LITE SAFETY GLASS

Armor-Lite Bullet-proof Glass for Bank Protection

Armor-Lite Bullet-proof Glass provides positive protection against gun fire. It is a beautifully clear, flat glass of brilliant lustre and excellent visibility, designed especially for banks and other places where money is handled. Armor-Lite Bullet-proof Glass is made in 1⅛ and 1¼-in. thicknesses. It can also be made in ⅞ or 1-in. thicknesses to suit the buyer's specifications.

When ordering D.P.T. Bullet-proof glass be sure to specify Armor-Lite, weighing 15½ lbs. to the sq. ft.





The Photos Above Illustrate a Test Which Was Made on Armor-Lite by the Pittsburgh Police Dept.

Five shots from a .38 Police Special were fired into the glass. None penetrated beyond the surface sheet, nor did the glass "splinter." At the left, we see the glass before the test. The right view was made after Supt. Peter P. Walsh had fired on it

The word Armor-Lite is etched in the corner of all genuine Armor-Lite Bullet-proof Glass.

Armor-Lite Safety Glass

For automobiles, airplanes, locomotive cabs, busses, boats, street cars, railway coaches, institutes, industrial buildings, asylums, skylights, display cases, shelving, table tops and dressers.

Armor-Lite Safety Glass is available in a wide range of sizes, weights, and thicknesses. This is a product of exceptionally high quality.

SPECIFICATIONS OF ARMOR-LITE

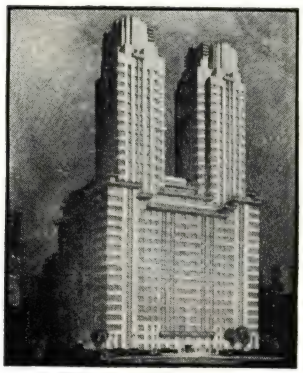
Armor-Lite	Thickness, in.	Weight
Featherweight (3-ply), lantern slide	.120 to .130	24*
5-ply lantern slide	.170 to .180	33*
Sheet drawn single (3-ply)	.200 to .210	40*
Sheet drawn double (3-ply)	.265 to .275	56*
Sheet drawn single and double (3-ply)	.230 to .240	46*
Polished plate sheet drawn single (3-ply)	.220 to .230	44*
Polished plate	.245 to .255	50*
Polished plate and photo	.192 to .202	38*
D.P.T. bullet-proof	1.193 to 1.255	15½**
1⅛-in. bullet-proof	1.098 to 1.160	14**
1-in. bullet-proof	.979 to 1.041	13**

**Pounds per square foot.
*Ounces per square foot.
Note: The foregoing specifications apply only to the finished product.

Armor-Lite Plate and Photo Combination

This is a product of unusual merit. It affords the same protection and resistance to tests, yet weighs 12 oz. less per sq. ft. than laminated plate and is considerably lower in price. It also permits of a lighter frame—a still further saving.

TINTAGLASS



A laminated glass product furnished in a variety of beautiful colors for decorative purposes—wall tile, table and dresser tops, shelving, display cases, etc.

Left:

Century Apartments, New York, N. Y.
Glazed throughout with Lustraglass and known as "30 Stories of Sunshine"
IRWIN S. CHANIN, Architect
CHANIN CONSTRUCTION CO., Engineers and Builders
ABBOTT GLASS CO., Glazier

Right:

Rhodes Medical Arts Building, St. Helens Avenue, Tacoma, Wash.
JOHN GRAHAM, Architect
A. W. QUIST & COMPANY, General Contractor
W. P. FULLER CO., Glazier
DSA Lustraglass used throughout on all exterior elevations



PRODUCTS OF THE AMERICAN WINDOW GLASS COMPANY

Lustraglass—the ultra-violet ray window glass.

Greenhouse glass.

Armor-Lite Bullet-proof Glass for bank protection.

Armor-Lite Scatter-proof Glass for automobiles, airplanes, and boats.

Photo Glass for camera use, lantern slides, and diagnostic X-ray plates.

Tintaglass. Send for special circular.

Crystal Sheet. $\frac{3}{16}$ in. and $\frac{7}{32}$ in. An economical substitute for plate glass.

Bulb Edge Glass. For shelving, window ventilators, counter partitions and wherever glass is used without a frame.

Ornamental Etched Glass.

Lustrawhite Picture Glass, in superfine and selected qualities.

Ground Glass, double strength. Produced by sandblasting or grinding one surface of the sheet.

Process Chipped Glass No. 1 and No. 2. Chipped glass is produced by processing the surface so that a chipped appearance is produced. No. 1 process chipped glass indicates that one process of chipping is applied to one surface. No. 2 process chipped glass indicates that one surface is chipped twice.

The reverse side of both ground and chipped glass is smooth. Glaze with the smooth side out.



Albert G. Lane Technical High School, Chicago, Ill.
PAUL GERHARDT, Architect
Glazed with Lustraglass by Torstenson Glass Co.

FISH-SCHURMAN CORPORATION

Optical, Scientific and Technical Glass
45 West 45th Street
NEW YORK, N. Y.

UVIOL-JENA ULTRAVIOLET RAY HEALTH GLASS

Science recognizes the health value of sunlight. The benefits derived are due mainly to those rays extending beyond the visible spectrum having a wave-length between 2900 and 3150 A.U., which are the so called biological ultraviolet rays. Ordinary window glass shuts out these valuable rays.

UVIOL-JENA
REG U S. PAT. OFF.

Uviol-Jena Made by Schott & Gen., Jena

About 25 years ago the Optical Glass Works of Schott & Gen. of Jena, manufactured ultraviolet ray transmitting glass for astronomical telescopes and other scientific instruments. This was a glass of purely optical quality and much too expensive for commercial use. Schott-Jena has since succeeded in perfecting Uviol-Jena, the Window Glass, which transmits all of the sun's rays.

Reputation of Schott & Gen., Jena

Within narrow limits of variation Uviol-Jena is uniform in transmission qualities, a task which is very difficult to accomplish. The testing of the degree of transmission of ultraviolet ray glass is not a simple matter. This leaves the ordinary purchaser dependent upon the question of faith in the ability and integrity of the manufacturer.

The reputation of Messrs. Schott & Gen. is the best possible guarantee of extreme uniformity of all Uviol-Jena Glass which is released by them for sale.

Ultraviolet Transmission

Extensive tests made by the Schott-Jena factory and by various government testing bureaus have shown the average transmission of Uviol-Jena, in single strength, to be approximately 50% of the rays of a wave-length of 3020 A.U. after solarization. Upon request, we are prepared to guarantee a transmission of not less than 50% after solarization, which merely necessitates careful selection at a somewhat higher price.

Physical Properties

The ultraviolet transmission of glass varies inversely with its thickness. Therefore it is preferable to use the glass in single strength. Wind pressure tests have shown Uviol-Jena to be considerably stronger than other glass.

Grades

Uviol-Jena is available in four grades—suitable for every purpose:

1. **Uviol-Jena Clear Glass—**
   1.9—2.5mm thick, single strength, maximum size—45 x 60 in.
   2.6—3.5mm thick, double strength, maximum size—40 x 60 in.
   3.6—4.5mm thick, 5/32 in. thick, maximum size—40 x 48 in.
2. **Uviol-Jena Cathedral Glass—**
   The same thicknesses and ultraviolet ray transmission as Clear Glass. Maximum size—40 x 90 in.
3. **Uviol-Jena Wire Glass (Rough)—**
   4 to 6mm, 3/16—¼ in. Maximum size—40 x 90 in.
4. **Uviol-Jena Unselected Glass**—for Greenhouses, Poultry-Farms, etc. Same as Clear—but at lower prices—for purposes where mechanical imperfections are not objectionable.

Price

Uviol-Jena is sold on a square foot basis. Price depends on size of lights and quantities involved, small sizes being less expensive.

Specification

Specify "Uviol-Jena" as furnished by FISH-SCHURMAN CORPORATION, New York, N. Y.

KOOL-GLASS—ABSORBS HEAT, ELIMINATES GLARE

Modern construction, calling for an abundance of light, requires the use of large areas of glass. This factor gives rise to problems of overcoming heat and glare. Not until the advent of Kool-Glass did the absorption of heat become sufficient to be a practical success.



Uses

Kool-Glass produces "North-Light" on all exposures thereby making its use advantageous in studios, drafting rooms, laboratories and operating rooms.

Industrial uses include the glazing of office spaces, work-rooms, fabric sorting rooms, and wherever overhead lighting causes discomfort or the fading of merchandise. Also used for warehouses where heat and too much light are detrimental to chemicals or other products stored therein.

Physical Properties

Glare can be partially subdued by using ordinary colored glass. Kool-Glass, however, affords complete eye comfort, partly due to its characteristic blue-green tint, but more so because its ingredients provide special absorption qualities found only in the best aviator goggles and which do not materially change color values.

Kool-Glass absorbs more than 95% of the total heat rays (infra-red rays) thereby neutralizing the sun's heat. At the same time, Kool-Glass eliminates most of those ultraviolet rays which cause the fading of merchandise. It reduces the intensity to approximately "North-Light".

Tests

Detailed reports by Government Testing Bureaus will be furnished upon request.

Grades

Kool-Glass is recognized by its blue-green tint and is available as follows:

1. **Kool-Glass Clear—**
   Single strength, Double strength, and 5/32 in. thick. Maximum sizes about 40 x 50 in.
2. **Kool-Glass Cathedral—**
   About 3/16 in. thick—Maximum size about 40 x 65 in.
3. **Kool-Glass Wire (rough)—**
   About ¼ in. thick—Maximum size about 40 x 65 in.

Price

Kool-Glass is quoted by the square foot; price depends on size of lights and quantities involved, small sizes being less expensive.

Specification

Specify "Kool-Glass" as furnished by FISH-SCHURMAN CORPORATION, New York, N. Y.

F.S.C. #29 X-Ray Protective Lead Glass

Has highest protection coefficient equivalent to about 29% of metallic lead, for screens and windows in X-ray rooms and is available as follows:
About 3/16 in. thick, polished on both sides, for x-rays not over 100 K.V.
About 3/8 in. thick, polished on both sides, for x-rays not over 150 K.V.
About 5/8 in. thick, polished on both sides, for x-rays not over 200 K.V.
It is most essential to specify the proper thickness to secure adequate protection.

Artistik Glass

Artistik Glass, representing a radical departure in the process of glass making, is flashed in varied colored designs on crystal glass to produce remarkable artistic light effects.

Artistik Glass should be used to replace ordinary or leaded glass windows in staircase halls, for public and religious buildings, or wherever out of the ordinary colored effects are desired.

Artistik Glass is of special importance for electric lighting fixtures.

FLAT GLASS

FLAT DRAWN WINDOW GLASS

POLISHED PLATE GLASS

SAFETY GLASS

FIGURED AND WIRE GLASS

LIBBEY·OWENS·FORD GLASS COMPANY

TOLEDO, OHIO

and

BLUE RIDGE GLASS CORPORATION

KINGSPORT, TENN.

The Company

The LIBBEY·OWENS·FORD GLASS COMPANY is the successor to the Edward Ford Plate Glass Company, the Libbey-Owens Glass Company, the National Plate Glass Co., and several smaller flat glass manufacturing concerns. The first named company was founded in 1899 by Edward Ford who was the son of Capt. J. B. Ford, the first successful manufacturer of Plate Glass in America. The Libbey-Owens Glass Company was organized in 1916 by Edward Drummond Libbey and Michael J. Owens. During his entire business career Mr. Libbey was a dominant figure in the glass manufacturing industry. To Mr. Owens' inventive genius is due many of the improvements in processes of manufacture used throughout the industry today.

The Libbey-Owens exclusive process, a development and improvement of the Colburn process of making Window Glass first introduced *flat drawn* Window Glass.

Facilities and Service

The Company owns and operates eight main factories strategically located in Toledo, Ohio, Rossford, Ohio, Lancaster, Ohio, Charleston, W. Va., Ottawa, Ill., and Shreveport, La. Leading glass jobbers, conveniently located to serve all building requirements, distribute the output of these plants. Direct factory sales offices are maintained in fourteen cities to efficiently serve the Architectural Profession.

A Complete Line

The LIBBEY·OWENS·FORD GLASS COMPANY manufactures and distributes a complete line of flat glass. This includes the highest quality Plate Glass for glazing, mirror manufacturing, furniture tops and automobiles—*flat drawn* Window Glass, heavy Sheet Glass, Greenhouse Glass, Safety Glass and the Figured and Wire Glass manufactured by the Blue Ridge Glass Corporation of Kingsport, Tenn.

LIBBEY·OWENS·FORD GLASS COMPANY

GENERAL OFFICES

TOLEDO, OHIO

SALES OFFICES

NEW YORK	MINNEAPOLIS	PHILADELPHIA	SHREVEPORT	SEATTLE
BOSTON	CHICAGO	KANSAS CITY	BUFFALO	LOS ANGELES
ATLANTA	ST. LOUIS	DETROIT	SAN FRANCISCO	CINCINNATI

SELECTING THE RIGHT GLASS

THE selection of the right glass for various glazing or decorative purposes has become a matter of growing interest and importance to all architects. Windows are indeed the eyes of a building and the glass used may either enhance or detract from beauty of line and detail. Even the general public has become interested through widespread advertising on the subject and *quality* in all types of glass is now an important factor in building construction.

The general recommendations which follow are based on current building practice and will vary according to the design and location of the building, the individual desires of architect and owner and the appropriation available.

Residences

In the vast majority of private dwellings "A" Quality Labeled Double Strength Window Glass is used. However, at present low prices, many architects are specifying either ¼ or ⅛-inch Polished Plate Glass. Not infrequently Plate Glass is used in living-room and dining-room windows with "A" Quality Labeled Window Glass in other glazing.

Picture Windows are finding a great vogue in more expensive residences, especially where the building site affords an attractive view. These large Plate Glass areas are often used in decorative bronze casements with smaller panels at the sides for easy ventilation.

Windows, such as in bathrooms or dressing rooms where the view from the outside is to be obscured, may be glazed with a figured glass as described on pages 9 to 14.

Apartment Buildings

"A" Quality Labeled Double Strength Window Glass and Polished Plate Glass are both used. In buildings where high rental rates are to prevail, Polished Plate Glass is more desirable.

Building codes, differing somewhat in various cities, usually require the use of Wire Glass in openings exposed to the hazard of fire. This type of glass is also recommended for skylights and light wells. Wire Glass is available in both clear and figured glass. See page 9 for details.

In bathroom and areaway windows where obscurity is desired a figured glass is recommended.



The Empire State Building, New York
SHREVE, LAMB & HARMON, Architects
STARRETT BROTHERS & EKEN, Builders
Glazed with L. O. F. Polished Plate Glass

Hotels, Office and Bank Buildings

For the past several years Polished Plate Glass has been almost universally used in the larger, more impressive buildings.

If Plate Glass cannot be used throughout it is recommended for the first three floors and "A" Quality Labeled Double Strength Window Glass from the fourth floor up.

Even in small hotels the public rooms such as lobbies and dining rooms should be glazed with Plate Glass.

As in apartment buildings local building codes make certain requirements where fire hazard is involved. See page 9 for information on fire resisting glass.

For corridors, partitions, windows, skylights, elevator doors and other glazing where the vision is to be obscured, see page 9.

School Buildings and Hospitals

"A" Quality Labeled Double Strength Window Glass is generally used but during the present era of low prices an increasing number of architects are specifying Polished Plate Glass.

In some schools certain doors and windows, where pupils may be subjected to unusual hazard in the event of breakage, are glazed with Safety Glass or Wire Glass.

In a number of recently constructed hospitals, Safety Glass has been used in psychopathic wards and in adjacent corridors.

Department Stores

Polished Plate Glass is universally used for store fronts and is generously used throughout the building. Where the public makes free use of swinging doors, Safety Glass is recommended.

Smaller Stores

Here, also, Polished Plate Glass is universally used for store fronts and is usually used in upper floors for front windows. "A" Quality Labeled Double Strength Window Glass is recommended for other glazing. Occasionally rear or side windows, facing alleys and courts, may be glazed with either Safety Glass or Wire Glass for the protection it affords against breakage by thieves.

The Exclusive Libbey·Owens·Ford Flat Drawn Process

THE Libbey·Owens·Ford flat drawn process, a development and improvement of the Colburn process, revolutionized the manufacture of glass when it was introduced some fifteen years ago. Although, since that time, other methods have been developed for producing high quality window glass, none of them produces a more lasting brilliance of finish than is to be found in L. O. F. glass.

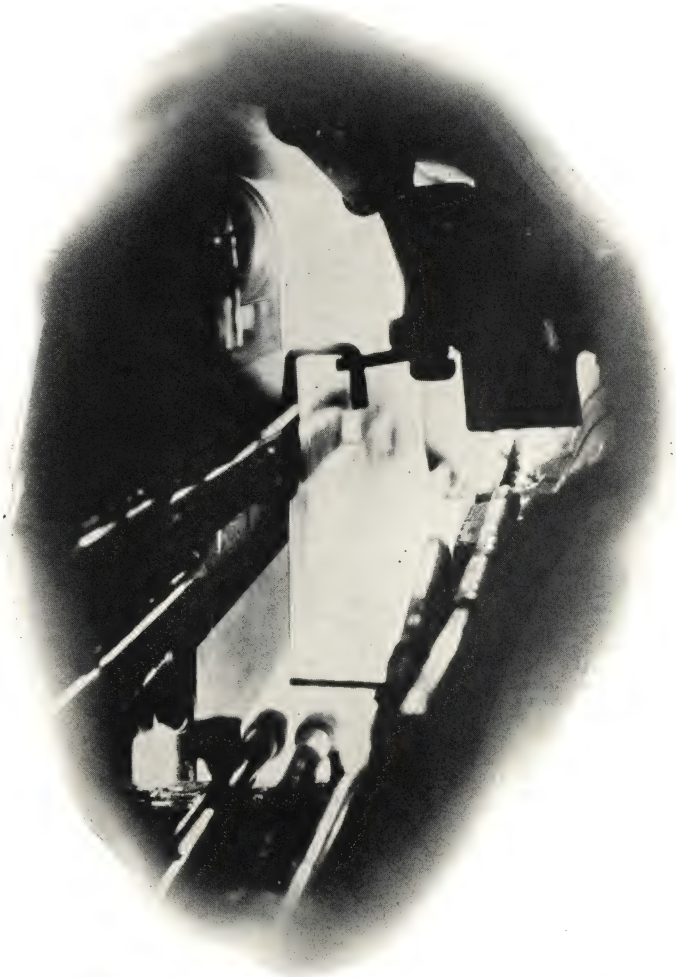
L. O. F. Window Glass is comparatively non-brittle, is exceptionally easy to cut, and is free from internal strain. These advantages are gained by slow annealing in long ovens or lehrs (five or six times longer than those used in other processes). The exclusive L. O. F. continuous manufacturing process is clearly illustrated by the diagrammatical drawing shown.

First the scientifically mixed batch is poured from the chute into a heating tank or melting furnace. Here the silica, soda ash, limestone, charcoal, cullet, and arsenic which make up the batch, are melted. The molten mass then flows into a refining chamber from which it is elevated or drawn a few inches and then passes over a bending roll, still in a semi-molten state.

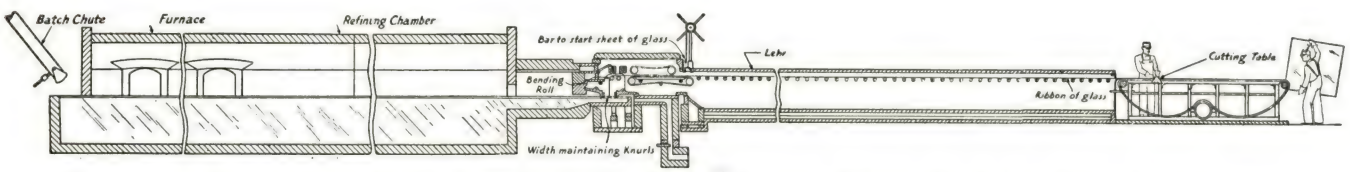
As the glass is raised from the fire chamber the natural fire finish is applied to both sides of the sheet. Leaving the bending roll slowly hardening, the glass is moved horizontally, perfectly flat at all times, into the long annealing oven or lehr more than 200 feet in length. The gradual annealing under a scientifically regulated and steadily diminishing temperature tempers the glass making it free from internal strain and giving it that uniform strength and freedom from brittleness which makes L. O. F. glass so easy to cut.

Emerging from the lehr the finished sheet moves still in a horizontal position, onto a cutting table for its first inspection and cutting. Further inspection, grading and cutting to standard sizes follow. The glass which has been graded to the "A" Quality requirements is then labeled. All Window Glass is packed in wooden boxes, 50 square feet to the box, except that over the 100-inch bracket. When the glass is over 100 united inches it is packed in wooden cases, 100 square feet to the case. In packing "A" and "B" Quality Window Glass a sheet of paper is placed next to each light to protect the surface of the glass.

The very simplicity of this process is a tribute to the genius of Colburn, Libbey and Owens. Yet simple as all this appears, only after years of experiment and research was it possible to produce Window Glass of such perfection.



The Formation of the Sheet by the L. O. F. Exclusive Process



Diagrammatical Drawing Showing the Continuous Straight Line Method of Producing Window Glass by the Exclusive L. O. F. Process

TECHNICAL DATA
FLAT DRAWN WINDOW GLASS

Libbey·Owens·Ford manufactures Flat Drawn Window Glass in several different qualities and of varying thickness. Single Strength and Double Strength Window Glass is regularly supplied in two standard qualities—"A" Quality and "B" Quality. All L. O. F. Window Glass is manufactured by the exclusive Libbey·Owens·Ford continuous flat drawing process. This results in a lasting brilliance of finish, uniformity of thickness and quality unsurpassed by other processes.

Tolerance in Thickness

Libbey·Owens·Ford Flat Drawn Window Glass table of thickness standards is given below:

	Thickness, in.		Lights per in.		Average weight, oz. per sq. ft.
	Min.	Max.	Min.	Max.	
Single strength	0.080	0.100	10.5	12.0	18.5
Double strength	.111	.125	8.0	9.0	24.5

Flatness

L. O. F. Flat Drawn Window Glass is naturally flat. The exclusive process of manufacture draws the glass into a flat sheet directly from the molten state.

Glazing

Government specifications state that window glass shall be glazed with the convex side out. L. O. F. Flat Drawn Window Glass can be glazed with either side out because it is truly *flat*—there is no convex side. This saves considerable time in glazing and minimizes breakage.

Dimensions

L. O. F. Flat Drawn Window Glass is cut to dimensions well within the allowable limits of Government Specifications—less than $\frac{1}{32}$ of an inch per $\frac{1}{8}$ inch thickness.

Packing

L. O. F. Flat Drawn Window Glass is paper packed in suitable cases that are padded with straw. Between each light of "A" and "B" Quality glass is a sheet of paper for the protection of the surface of the glass.

Labeling

Libbey·Owens·Ford originated the practice of labeling "A" Quality glass. Each light of "A" Quality Double Strength Window Glass bears the L. O. F. *blue* label, while each light of "A" Quality Single Strength Window Glass bears the L. O. F. *red* label.

Standard Specification

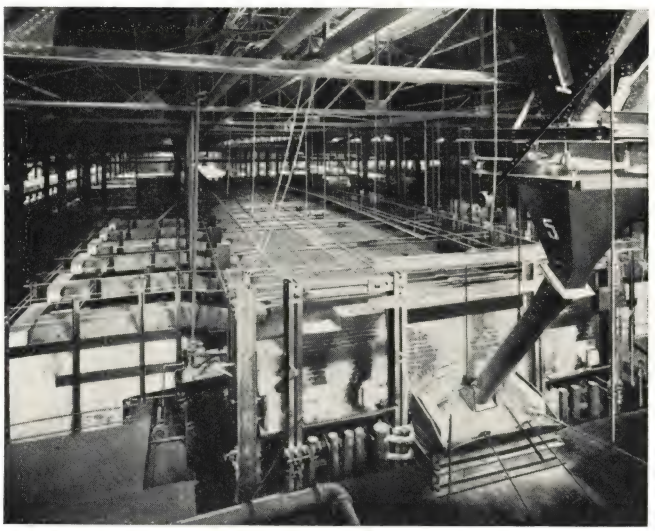
Flat Drawn Sheet Glass—All Flat Drawn Window Glass shall be Libbey·Owens·Ford "A" Quality Double Strength, except as otherwise noted, glass to be paper packed, and each light shall bear the Libbey·Owens·Ford label, indicating strength and quality of the glass.



The Blue Label for "A" Quality Double Strength



The Red Label for "A" Quality Single Strength



A Complete L. O. F. Window Glass Manufacturing Unit, Showing the Opening at the End of the Tank into Which the Batch Is Fed

Polished Plate Glass Manufacturing Processes and Data

THE LIBBEY·OWENS·FORD GLASS COMPANY manufactures Plate Glass by two entirely different methods. Large sizes of glass, such as used in store fronts and very large windows, are made by the Bischeroux process. Plate Glass blanks for smaller sizes such as used in automobiles and mirrors made by the tank drawing process.

In the pot casting method the pots, molded by hand from the finest quality of clays, are thoroughly dried, aged and cured, and when ready for use are preheated to a proper temperature. They are then filled with the mineral and chemical ingredients from which plate glass is made and are carefully and scientifically heated to an extremely high temperature in gas fired melting furnaces. This is an important factor in the production of quality Plate Glass. At the proper time the pot is removed from the furnace and conveyed to the Bischeroux casting machine. The molten batch is poured through rollers onto a moving table, forming the unfinished plate glass blank. The blank then passes from the casting table through a long annealing lehr where under gradually diminishing heat the glass is carefully tempered. This precision in annealing or tempering is another important contributing factor to high quality in Plate Glass. After emerging from the lehr the blanks are given their first inspection. The glass at this point has a rough surface and is hardly transparent. It is then ready for the grinding and polishing operations.

The rough plate is firmly held in plaster on a long line of moving tables. These tables pass under a series of rotating and oscillating grinders using sand as an abrasive until the rough surface is ground down to the point where it is smooth enough to be polished. The moving table passes on under another series of rotating felt polishers where, using rouge as the polishing agent, the glass finally emerges several hours after it has entered the grinding and polishing machine with one side completely ground and polished. After further inspection the plate is mechanically lifted and turned to start again the long journey back through another grinding and polishing machine which finishes the reverse side. On emerging from this machine the plate is thoroughly washed, and then delivered to the final inspection department. Here it is graded, selected and inspected in accordance with the rigid standards of quality constantly maintained by the LIBBEY·OWENS·FORD GLASS COMPANY.

The making of rough blanks for the smaller sizes of plate glass by the continuous flat drawing process is somewhat similar to that employed in making window glass. Here surface finish of the blank is of no importance, but flatness and careful annealing are essential. The grinding and polishing operations are identical with those employed for finishing the pot cast plate glass blanks. The grading of plate glass is a highly specialized trade. In fact it might be considered an art.

The very finest glass, which is used almost entirely in making the costliest mirrors, is known as "First Silvering Quality" and owing to the high cost of selecting this quality, it is never specified for building purposes.

The next quality is called "Second Silvering" and is often used for high grade glazing work but is seldom specified in sizes over 20 square feet.

Most of the plate glass used in glazing is known as "Glazing Quality" and the U. S. Government specifications set up definite requirements for tolerances in thickness and dimensions.

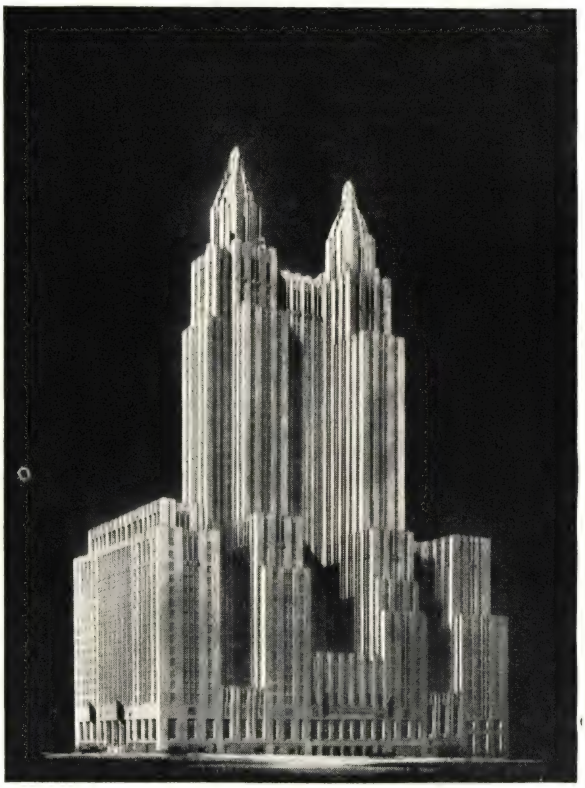
The general requirements under the U. S. Government standards for sizes and thickness, are as follows:

Size and Thickness

The standard thicknesses of plate glass shall be $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$ and $1\frac{1}{2}$ inches. Sheets are available $\frac{1}{4}$ inch thick in sizes having a maximum area of 250 square feet. Glass of $\frac{1}{4}$-inch thickness may be furnished having any desired dimension under the maximum of 126x250 inches. The standard stock thickness for glazing purposes is $\frac{1}{4}$ inch, but this may vary between $\frac{7}{32}$ and $\frac{5}{16}$ inch.

Tolerances in Thickness

The maximum and minimum thicknesses allowed shall not be more than the given thickness plus or minus one-half the difference between the standard thicknesses, although for $\frac{1}{4}$-inch glass occasional plates as thick as $\frac{5}{16}$ inch are supplied. The general variation in thickness should not be more than $\frac{1}{32}$ inch for individual lights under 10 square feet, in thickness up to $\frac{1}{4}$ inch. The variation in lights over $\frac{1}{4}$ inch in thickness should not exceed one-half the total tolerance for that thickness.



Waldorf-Astoria Hotel, New York, N. Y. Glazed Throughout with L. O. F. Polished Plate Glass and Blue Ridge Polished Wire Glass

SCHULTZE & WEAVER, Architects
THOMPSON-STARRETT CO., Builders
From a drawing by Lloyd Morgan

Standard Specification Polished Plate Glass

Where polished plate glass is specified, or shown on plans, it shall be manufactured by the LIBBEY·OWENS·FORD GLASS COMPANY, and shall be of (—) quality and (—) thickness (insert quality and thickness) in accordance with U. S. Government Standards.

Additional Information

For additional technical data for polished plate glass see catalogue in this edition of the Plate Glass Manufacturers of America.

Polished Plate Glass for Mirrors

THE use of mirrors and silvered plate glass panels is enjoying a widespread vogue with leading architects. The constantly broadening use of silvered plate glass is especially noticeable in recent designs for theaters, retail stores and other construction of public or semi-public buildings.

In *the best of the fine residences* recently constructed, full-length mirrored doors in bedrooms and bathrooms are very much in evidence and in many homes mirrored bathroom walls are becoming popular. After being conspicuously absent for more than a generation the mirror over the mantel is again seen. Some of the best designers among furniture manufacturers have been quick to grasp this trend by increasing the use of large size mirrors in their creations.

While it has long been recognized that mirrors give an effect of spaciousness to a hallway or room, their use for their decorative value as a part of the architectural design is now reaching its highest development.

Libbey·Owens·Ford Polished Plate Glass for mirrors is noted for its brilliant polish and its freedom from imperfections. The careful inspection and accurate grading described on the preceding pages even exceeds the requirements of Government Standards which became effective in December of 1930.

For the guidance of the architect and owner and for the protection of the mirror manufacturer, the following standards of quality have been approved by the Mirror Manufacturers Association of America and adopted by the U. S. Bureau of Standards:

AA Quality

AA quality mirrors shall be entirely free from major defects and as nearly perfect as it is possible to manufacture them. Only well distributed, fine seed, and small faint hair lines when not grouped shall be permitted.

A Quality

The central area of mirrors of this quality shall be free from major defects, but may contain well-scattered seed and short faint hair lines, when not grouped, and occasionally very light short finish visible only on close inspection.

The outer area, in addition to the foregoing, may contain seed and short faint scratches when not grouped.

No. 1 Quality

The central area of mirrors of this quality may contain scattered seed, faint hair lines, and light short finish.

The outer area in addition to the foregoing may contain short scratches and occasional strings not over 2 inches long.

No. 2 Quality

Mirrors of this quality may contain the following defects: Numerous scattered seed, occasional coarse seed, light reams, strings, light scratches, short finish if not torn, hair lines if not too densely grouped, and bull's eye if not visible from front inspection.

No. 3. Quality

Mirrors of this quality may contain all the defects which may be found in plate glass.

Thickness

Plate glass mirrors of commercial standard qualities shall be between $\frac{3}{16}$ and $\frac{5}{16}$ of an inch thick. If specific thicknesses are ordered a variation of $\frac{1}{32}$ inch plus or minus the given thickness shall be allowed.

Silvering

All commercial standard quality mirrors shall be silvered in an approved manner and guaranteed for a period of one year from the date of manufacture unless the mirrors are subjected to unusual conditions, such as open weather, moist walls, steamed rooms, direct sunlight, or similar conditions.



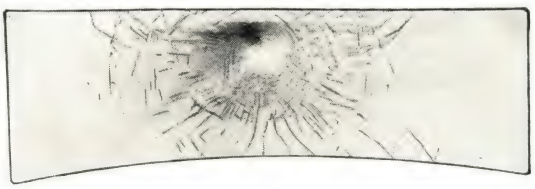
Grinding and Polishing Machine at the Rossford Plant of the Libbey·Owens·Ford Glass Co.

Safety Glass
(Non-shatterable)

SINCE it was first used during the World War laminated non-shatterable glass, now generally known as Safety Glass, has been progressively improved until it is now used in a variety of ways. Practically all automobile, bus and taxicab manufacturers furnish it as standard or optional equipment in their products. It is widely used by the aircraft industry, by motor boat and yacht builders, and many railway coach builders are experimenting with its use.

Its application to building construction is of more recent origin, but it can be furnished both in the form of Safety Sheet Glass and Safety Plate Glass. Architects are specifying it for revolving and swinging doors, in window ventilators, and in similar installations where the public is subjected to unusual hazard in the event of glass breakage. In several recent hospital jobs, Safety Glass has been used in the psychopathic wards and in the corridors adjoining those wards.

Libbey·Owens·Ford Safety Glass is made by an exclusive process whereby two sheets of thin glass are bonded under heat and great pressure to a center sheet of transparent pyroxylin plastic. In use, these glass sheets may of course crack or break, but they adhere so strongly to the plastic that the danger from scattering or flying pieces of glass is thereby reduced to a minimum. By the Libbey·Owens·Ford process the edges are sealed to withstand moisture seepage, to prevent separation and give long life to the product.



Under Impact the Broken Pieces of Glass Adhere to the Center Sheet of Plastic; thus Danger from Flying Fragments of Glass Is Reduced to an Absolute Minimum



Harborview Hospital, Seattle, Wash.
THOMAS, GRAINGER & THOMAS, Architects
DR. W. D. WALSH, Medical Consultant
Libbey·Owens·Ford Safety Glass used in Psychopathic Wards, all other glazing
L. O. F. Double Strength "A" Quality Flat Drawn Window Glass

Blue Ridge Figured and Wire Glass

MANUFACTURED BY BLUE RIDGE GLASS CORPORATION, KINGSPORT, TENN.

Sold by LIBBEY·OWENS·FORD GLASS COMPANY, Toledo, Ohio, Through Leading Glass Jobbers

Blue Ridge Glass

Rolled Figured and Wire Glass, Polished Figured and Wire Glass, for Partitions, Doors, Transoms, Windows and Skylights.

Where to Obtain Blue Ridge Glass

Leading Glass Jobbers and Glazing Contractors carry Blue Ridge Glass in stock or can get quick shipment of any pattern, size and thickness from the factory's large supplies.

PATTERNS, THICKNESSES, SIZES AND WEIGHTS

Thickness, in.	Patterns	Maximum width, in.	Maximum length, in.	Approximate weight per sq. ft., lbs.
	Rolled Figured Glass			
1/8	Industrex, Luminex, Velvex, Hammered, Ribbed, Diffusex, Pebblex, Florex, Mazex	60	132	2
7/16	Industrex, Luminex, Velvex, Hammered, Ribbed, Diffusex, Pebblex, Florex, Mazex	60	132	2½
7/32	Muralex, Transex, Prism	60	144	3¾
1/4	Industrex, Luminex, Velvex, Hammered, Ribbed, Diffusex, Pebblex, Florex, Mazex	60	144	4
	Wire Glass			
1/4	Industrex, Luminex, Velvex, Hammered, Ribbed, Diffusex, Pebblex, Florex, Mazex Muralex	60	144	4
3/8	Rough	60	144	5½
1/4	Polished	60	144	4
	Polished Figured Glass			
7/32	Diffusex, Industrex, Pebblex	60	144	3¾

Blue Ridge Figured and Wire Glass is Specified by Architects Because of Its

1. Uniform quality and thickness.
2. Brilliant, sparkling appearance.
3. Attractive and efficient patterns.
4. Easily cleaned designs.
5. Light transmitting and diffusing effectiveness.
6. Wire Glass Fire Retarding Properties (approved by Underwriters' Laboratories Inc. as Number R-2129).

Suggestions to Architects

State width (horizontal measurement) first and height (vertical measurement) second, when writing the size of any kind of glass.

Wire glass is usually set with the wire running vertically, hence the first dimension given is understood to be across the wire twists (width) unless specifically shown otherwise.

Ribbed glass is generally glazed with the ribs running vertically (parallel to height).

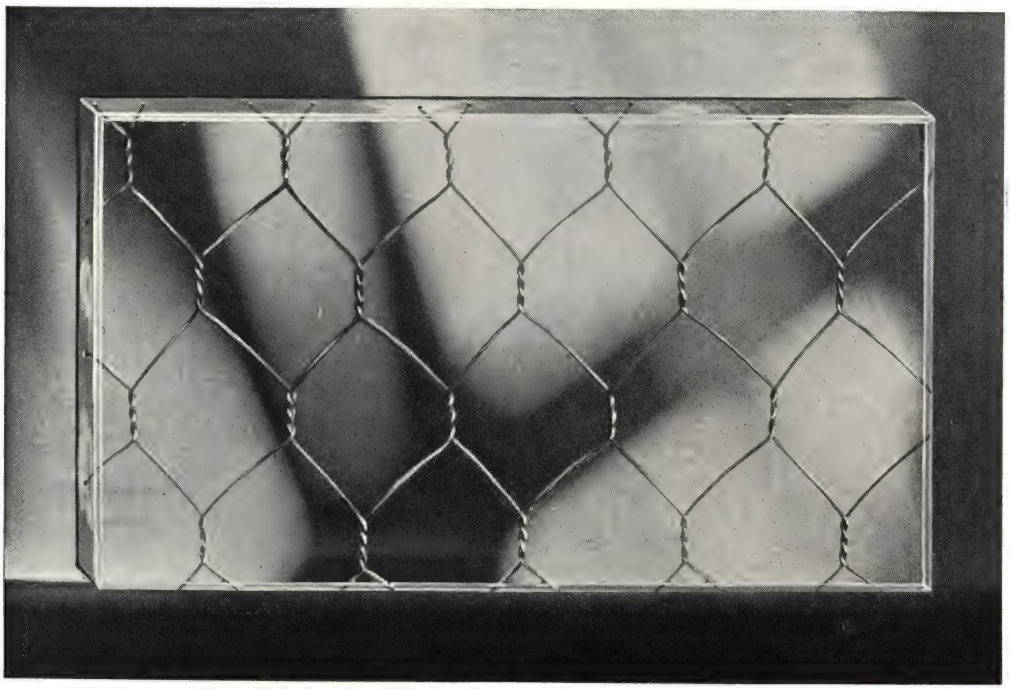
Prism glass distributes light best when prisms are set horizontally (parallel to width).

Specify kind of glass by name and give thickness and finish (see table of patterns, thicknesses, sizes and weights).

Stipulate Blue Ridge Glass Corporation as the manufacturer and insist that Blue Ridge Glass be furnished.

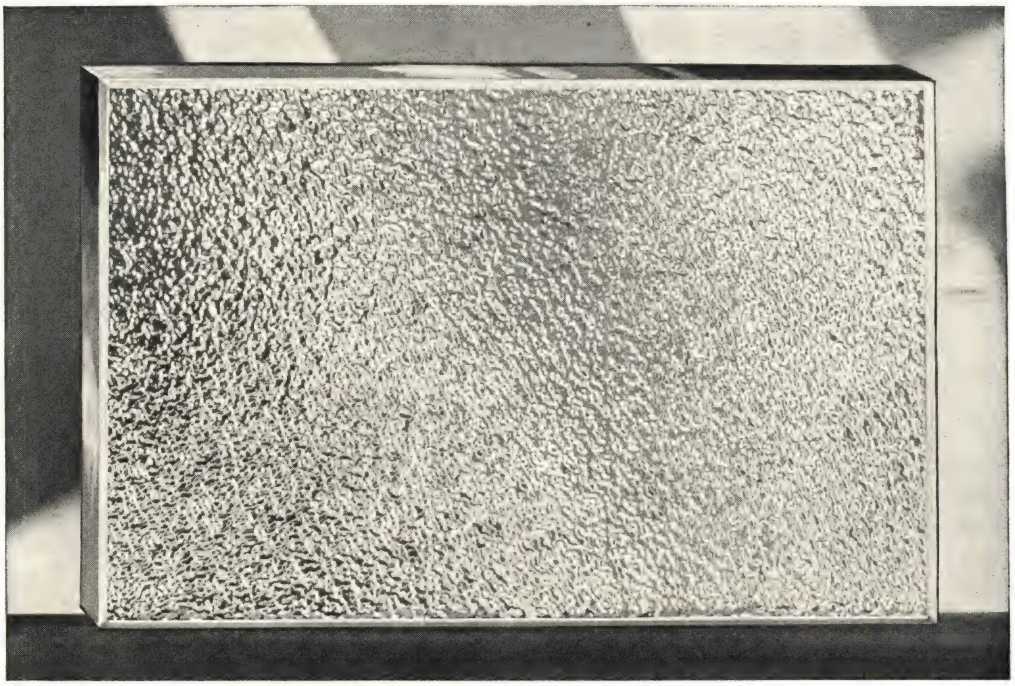
Standard Specification, Obscure and Wire Glass

Where rough or polished wire or obscure glass is specified herein, or shown on plans, it shall be (....) inch in thickness and shall be (....) pattern (specify thickness and pattern desired), and shall be manufactured by the Blue Ridge Glass Corporation.



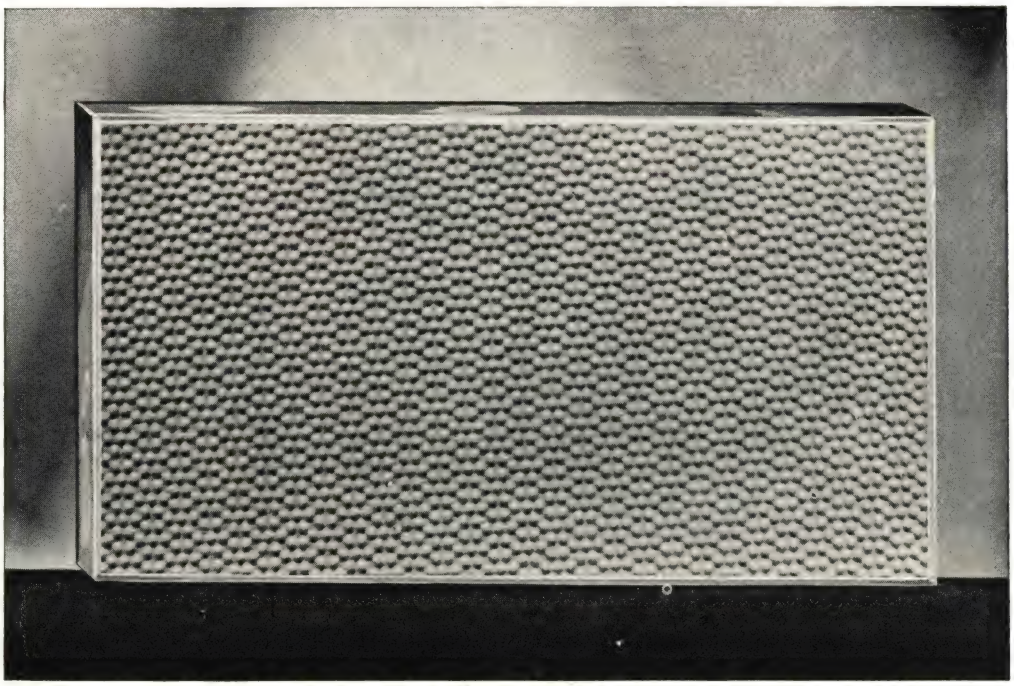
Polished Wire Glass
(Wire Mesh Shown Actual Size)

Used in all openings where clear vision and the security of non-scatterable fire retardant glass are desired. Genuine polished plate glass with wire reinforcement. Blue Ridge's outstanding quality product



Muralex Glass
(Pattern Shown Actual Size)

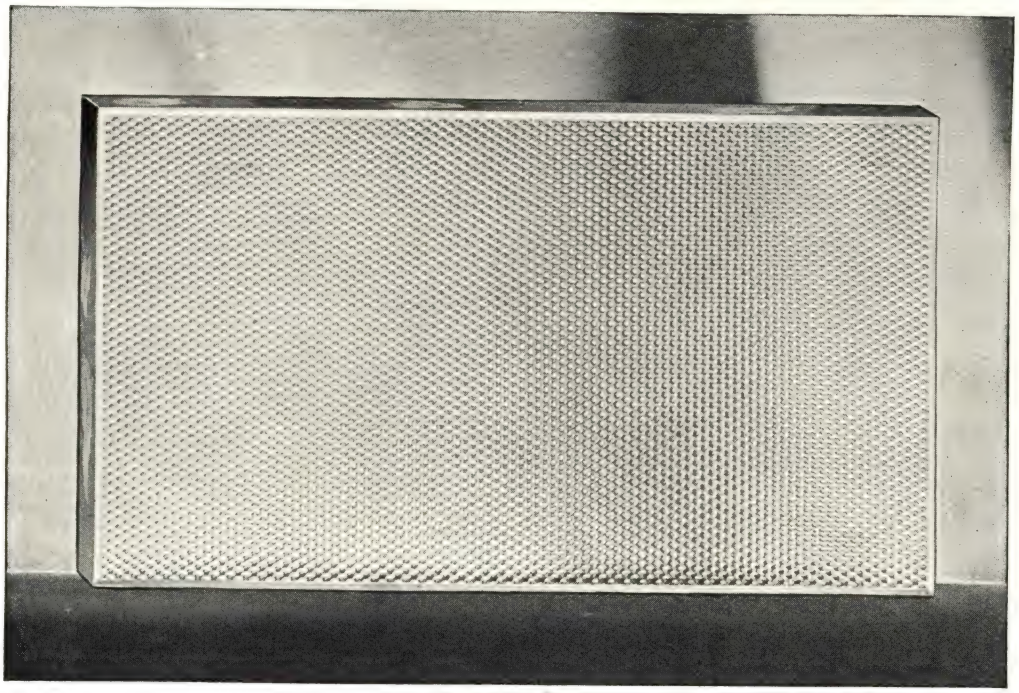
A new glass for partitions, doors and transoms. Its modest dignified beauty harmonizes with any style of architecture and its mechanical efficiency insures its popularity. The pattern is finely engraved to reduce dirt collections and to afford easy cleaning. Specify Muralex throughout the building's interior—available both plain and wired. (See table of sizes, thicknesses, etc.)



Diffusex Glass
(Pattern Shown Actual Size)

Primarily for interior partitions, doors and transoms, but equally effective in any location where an adequate volume of softly diffused light is desired.

An attractive grouping of small and very slightly elevated lenses spaced far enough apart to avoid dirt collecting pockets and to permit easy cleaning with a moist cloth.



Industrex Glass
(Pattern Shown Actual Size)

For industrial and commercial buildings—exterior and interior openings. A compact arrangement of lens shaped figures combining effective distribution of light and attractive appearance without the disadvantage of deeply cut grooved lines. Not a "dirt collector." Use a moist cloth to clean Industrex Glass.



Luminex Glass
(Pattern Shown Actual Size)

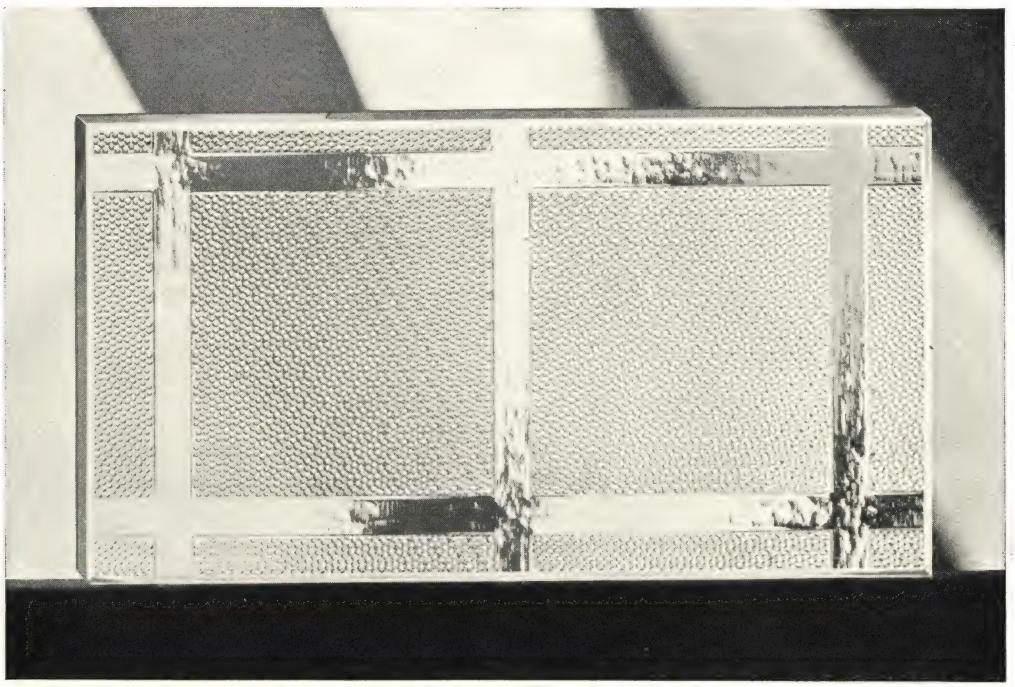
Especially recommended for industrial buildings when the cost of keeping glass clean is an important factor and only medium distribution of light is required. A relatively transparent pattern of extremely fine texture that can be glazed and cleaned like clear glass.



Velvex Glass

(Pattern Shown Actual Size)

A highly practical glass for skylights, factory walls and monitors but also suitable for office partitions, doors and transoms. This unique pattern is extremely shallow, yet it creates the illusion of depth when light rays pass through the glass. An exceptionally clean glass—not totally obscure but sufficiently so for ordinary commercial and industrial building conditions.

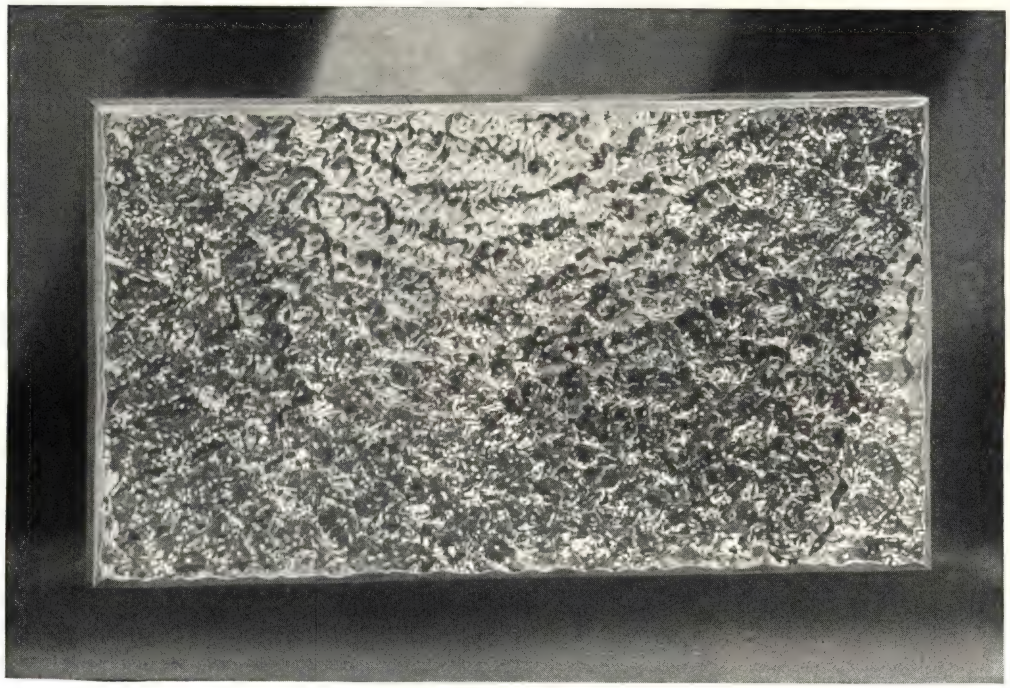


Transex Glass

Pattern Shown ½ Size (Squares 3¼x3¼ in., division lines ⅜ in. wide)

For store front transoms. A solid sheet of glass made to resemble separate panes set in metal bars. No cemented joints to weaken under the stress of wind and rain storms.

The background pattern (Diffusex) and the smooth division lines are uniformly and but slightly elevated without pits, grooved or sharp angles in either—hence Transex will remain clean under extremely unfavorable conditions and distribute light efficiently long after dirt collections have destroyed the effectiveness of ordinary tiled or prism transoms.



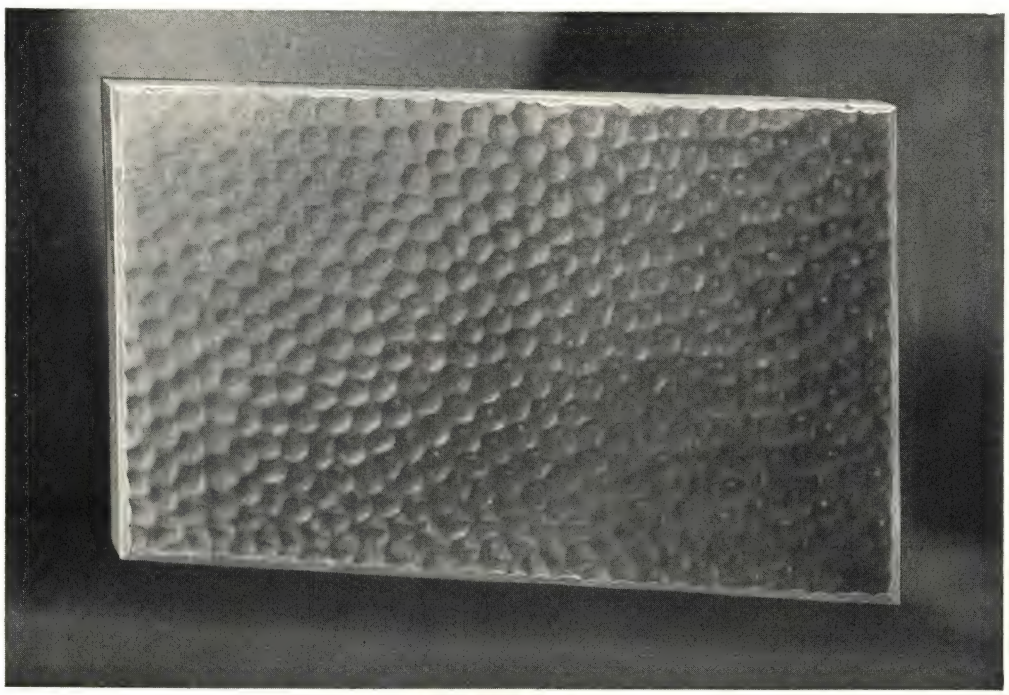
Pebblex Glass

(Pattern Shown Actual Size)

An unusually brilliant and obscure glass for office building interiors; diffuses light splendidly and affords privacy within the room.

Pebblex is more deeply imprinted than some of the newer Blue Ridge patterns such as Diffusex and Muralex.

Its attractive appearance has led many architects to specify it.



Hammered Glass

(Pattern Shown Actual Size)

For general industrial glazing—exterior and interior.

The contiguous lenses forming the pattern distribute the light passing through the glass and accentuate the brilliance of the metal. A clean glass with beauty and mechanical efficiency.



Florex Glass

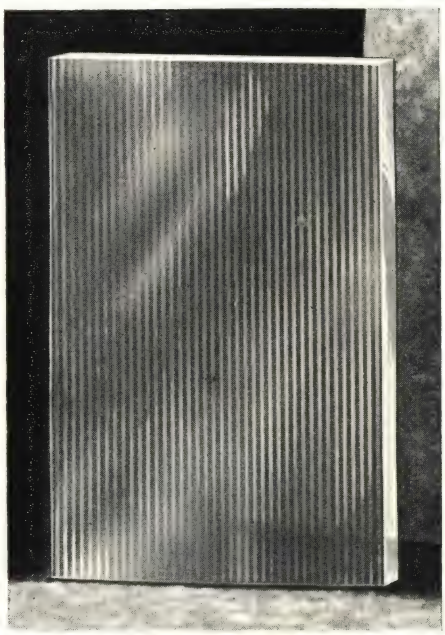
Long a favorite for interior glazing. Its brilliance comes largely from the high quality of the glass metal as the pattern was designed under the Blue Ridge principle of avoiding sharp angular grooves and corners as far as possible.

Patterns Shown Actual Size



Mazex Glass

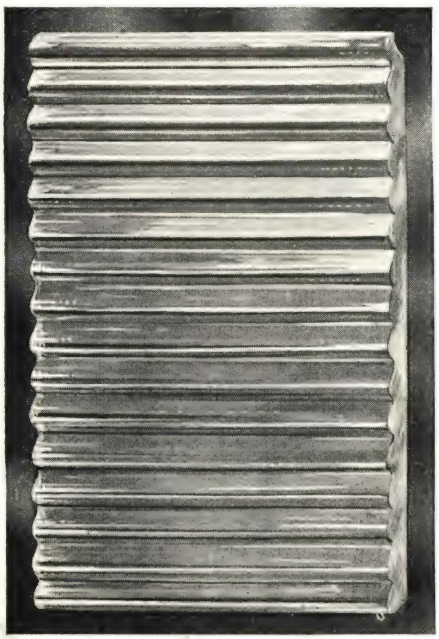
Another design for building interiors; highly obscure and distributes light remarkably well. Popular for many years. Like Blue Ridge Florex, Mazex owes its brilliance to the exceptionally high quality of the metal.



Ribbed Glass

This glass is used for industrial glazing only. Diffuses light very well when clean but collects dirt more rapidly and is more difficult to clean than Luminex, Industrex and Velvex.

Patterns Shown Actual Size



Prism Glass

Store front transoms are the most popular use but it deflects light rays so well that wherever it is necessary to throw light to the ceiling of a room Prism is an effective upper sash glass.



Union Guardian Building, Detroit, Mich., Glazed with L. O. F. Polished Plate Glass

SMITH, HINCHMAN & GRYLLS, Architects
W. E. WOOD CO., General Contractors



Administration Building, Chicago World's Fair, Glazed with L. O. F. Flat Drawn Window Glass

E. H. BENNETT, H. BURNHAM and J. A. HOLABIRD, Architects
J. B. FRENCH COMPANY, Builders



A Picture Window in Living Room of Kingsley N. Cannon Residence at San Francisco

IRVINE AND EBBETS, Architects
M. P. JORGENSEN, Contractor
This is an example of the effective use of a Picture Window



McGraw-Hill Building, New York, Glazed with L. O. F. Polished Plate Glass and Blue Ridge Polished Wire Glass

HOOD, GODLEY & FOUILHOUX, Architects
STARRETT BROTHERS & EKEN, Builders



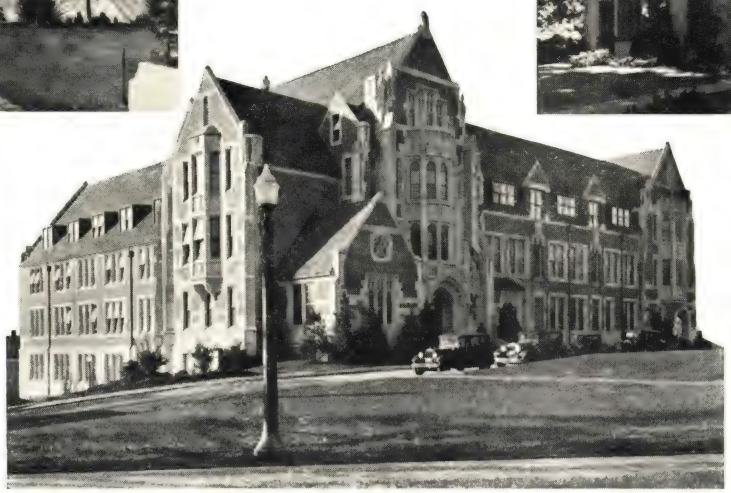
Home of Charles and Kathleen Norris, Palo Alto, Cal., Glazed with L. O. F. Double Strength "A" Quality Flat Drawn Window Glass

BIRGE M. CLARK, Architect
WELLS P. GOODENOUGH, Builders



R. W. McKinnon Residence, Chicago, Ill., Glazed with L. O. F. Double Strength "A" Quality Window Glass

MAYO & MAYO, Architects
A. J. BROWNING, Contractor



Butterick Hall, Agnes Scott College, Atlanta, Ga., Glazed Throughout with L. O. F. Double Strength "A" Quality Flat Drawn Window Glass


L
O
F


BLUE RIDGE GLASS CORP
MANUFACTURERS OF
QUALITY
GLASS
KINGSPORT
TENN.

INDESTRUCTO GLASS CORPORATION

Manufacturers of Bulletproof and Scatterproof Glass Since 1919

FARMINGDALE, LONG ISLAND, N. Y.

FACTORY TELEPHONE, Farmingdale 716

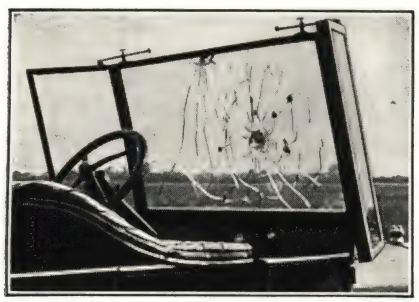
NEW YORK OFFICE: 160 Varick Street, Telephone WAlker 5-7835

Indestructo Bullet Resistant Glass

Designed to provide great strength and resistance to penetration, especially of bullets from firearms. It is a clear vision, laminated product, made of alternate layers of plate glass and a flexible, transparent binding material, firmly united in one solid sheet under a patented process, which not only provides bullet resistance *but also insures against separation, discoloration or reduced transparency.*

The degree of resistance of laminated glass is in direct ratio to the strength of the bond uniting the glass with the transparent, flexible material. The Indestructo bond is accomplished without gelatins or other adhesives which frequently dry out or suffer natural chemical reaction causing loosening of the bond, total separation or objectionable yellow discoloration, rendering the glass unfit for the uses primarily intended.

Revolver Resistant Glass—This standard material can not be penetrated by any revolver, regardless of caliber or ammunition. The windshield in the accompanying photograph withstood 11 shots from a .38 caliber long barrel police special revolver in a small area and a final shot from a .45 automatic in the center of the already weakened area. There was no penetration, no displacement of glass from the back and no dangerous mass action.



Indestructo Glass in Windshield
Twelve shots without penetration

Special Bulletproof Glass—Glass, which will resist penetration from any weapon, may be produced by varying the combination of thicknesses and number of layers. Data on heavy side arm and shot gun resistant glass is given in table below. In most cases the standard revolver resistant material provides adequate protection at minimum cost.

Indestructo Scatterproof Glass

Developed primarily for protection against injury from flying glass in windows of buildings or vehicles. It is made in two grades, plate quality and sheet quality.

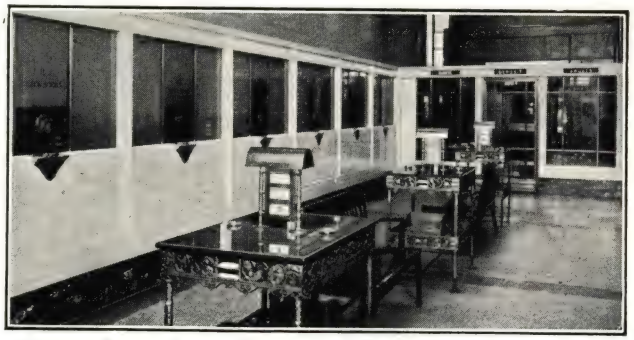
This type of glass is being used more and more in many ways for buildings and construction work. It has been found valuable in entrance doors, both swinging and revolving, and in overhead lighting fixtures in restaurants and other public places.

Sizes

There are limitations in the maximum size of any one sheet that can be produced. Continual improvements in process and equipment are always increasing the maximum size. It is suggested that we be consulted for information as to sizes when a job is being laid out.

THICKNESS AND WEIGHTS OF INDESTRUCTO GLASS

Description	Thickness, in.	Tolerance, in.	Wt., lb. per sq. ft.		Number glass layers
			Net	Crated	
Bullet Resistant:					
Revolver	1	1/16	11	15 to 16	3
Heavy side arms	1 1/8 to 1 1/4	1/16	13	18	3
Shot gun	1 1/8 to 1 3/8	3/32	14 to 16	17 to 20	4
Scatterproof:					
Grade A	3/16 to 5/8		3 to 6	4 to 8	2
Grade B	1/8 to 1/4		2 to 4	3 to 6	2



Bronze Speak Fixtures and Sunken Deal Trays

Installation and Fixtures

Indestructo bullet resistant glass requires no special methods of setting or framework, other than that the frame should be large and strong enough to receive and carry the heavier and thicker glass. Aside from this, standard practices in setting glass apply.

There are various types of fixtures for passing of money and for communication between teller and customer, any of which are well adapted for use with this glass. One type has bronze speak fixtures and sunken deal trays while another has sunken deal tray with an offset wicket giving a space of 1 in. around the glass for passage of the voice thus eliminating the use of speak fixtures.

Without proper equipment Indestructo glass can not be cut to size after manufacture, so it is necessary that exact sizes be furnished with orders if shapes are rectangular or circular. If irregular shapes are required templates or patterns should be furnished. This glass can be drilled, ground, polished and otherwise worked the same as ordinary glass, but this work must be done by the manufacturer. It also can be etched, chipped or sandblasted to produce ornamental surface patterns.



Offset Wicket with 1-in. Space on Sides for Voice Passage and Sunken Deal Trays

Guarantee

Indestructo glass is furnished under a guarantee against deterioration unfitting it for use due to faulty manufacture.

It is also guaranteed for inside glazing against let-goes and edge separations for a period of fifteen (15) months from date of manufacture; provided, however, that if either glass is cracked at time of inspection, this guarantee will not apply.

PITTSBURGH PLATE GLASS COMPANY

Pennvernon Flat Drawn Window Glass

PITTSBURGH, PA.

For Warehouses and Branch Offices, see our pages on Vista Plate Glass
For our Other Products, see Manufacturers' Index

PENNVERNON FLAT DRAWN WINDOW GLASS

Specifications

When specifying window glass, use the following paragraph to insure the highest grade:

PENNVERNON
FLAT DRAWN WINDOW GLASS

"Except where otherwise specified, all openings shall be glazed with Pennvernon Window Glass, flat drawn. Quality and thickness to be as specified in detail on plans.

"Where "A" quality is specified, all glass shall bear the Pennvernon label until approved by the architect. Where other qualities are used, glass shall be delivered to the job in original packages with Pennvernon and quality of glass stenciled thereon. All glass shall be properly set, well sprigged, puttied and back puttied with the best oil putty. When metal sash is used, glaze with best Steel Sash Putty."

Development

The PITTSBURGH PLATE GLASS COMPANY, which has long been known as one of the world's largest plate glass manufacturers, recently turned its attention to the manufacture of window glass. The tremendous resources of this company were employed in the development of a sheet glass which embodies all of the improvements made in window glass manufacturing methods during the last few years. The company went farther than this by instituting other improvements, which have caused architect after architect to state that this new flat drawn sheet glass is the finest, the most brilliant, and the most consistent in quality of any window glass he has ever seen.

Manufacture

Due to its method of manufacture by a new patented process, Pennvernon Window Glass is absolutely flat. It cannot be otherwise, for at no time from when the white molten sheet leaves the tank until it emerges from the vertical annealing oven does it depart from the perpendicular. It is born flat and kept flat. No more blowing of cylinders, no more splitting, reheating, flattening and finally cooling of the glass; for now the sheet moves steadily, drawn directly upward between ever moving rollers, as though gripped by an invisible hand. Upward the sheet rises, hour after hour, day after day, the same even thickness, the same brilliant lustre. Gone are the old bowed surfaces, the surface burns, the uneven thickness, the "strings," the extreme waviness, so long identified with window glass. In their place is a flatness and brilliancy never before believed possible in a fire-finished glass. The manufacturing is supervised by the same organization which has made other products of the PITTSBURGH PLATE GLASS COMPANY standard throughout the country.

The results of this new process are plainly evident in the appearance of the glass itself. Pennvernon Window Glass has a new uniformity of quality—an unusual flatness of surface, clear transparency, and even thickness. Even more striking is the high lustre, the brilliant fire polish on both sides. There is no wrong side. Special methods of treating this product prevent staining and loss of lustre. Due to the perfect flatness of this window glass, it is easier to cut, either side may be glazed outward, breakage is reduced to a minimum and time is saved in the glazing operation. The surface undimmed by bending or refractories, Pennvernon Window Glass, we believe, embodies the last word in modern methods of window glass manufacture.

Thickness

Tolerances in thickness of single and double strength Pennvernon Window Glass will be as per the U. S. Government Standards of 10½ to 12 lights to the inch, or approximately $\frac{3}{32}$ in. for single; and 8 to 9 lights to the inch, or approximately ⅛ in. for double.

Qualities

U. S. Government Standards apply throughout.

A—The highest grade for regular commercial use, contains no defects to perceptibly interfere with straight vision.

B—Glass free from glaring defects, but containing enough slight imperfections to prevent its being graded as "A" quality.

Special Qualities—*AA*—The best quality obtainable in window glass. This quality is higher than a commercial necessity, and is available only in limited quantities.

Steel Sash—Specially selected for the requirements of this class of work. Defects so located as not to obstruct light transmission.

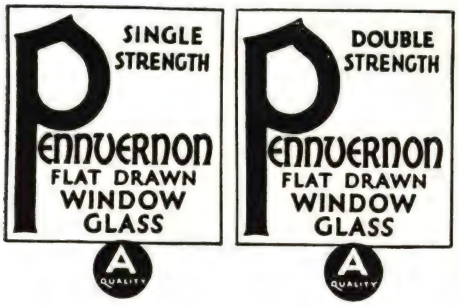
Greenhouse—A special quality selected to eliminate defects injurious to growing plants.

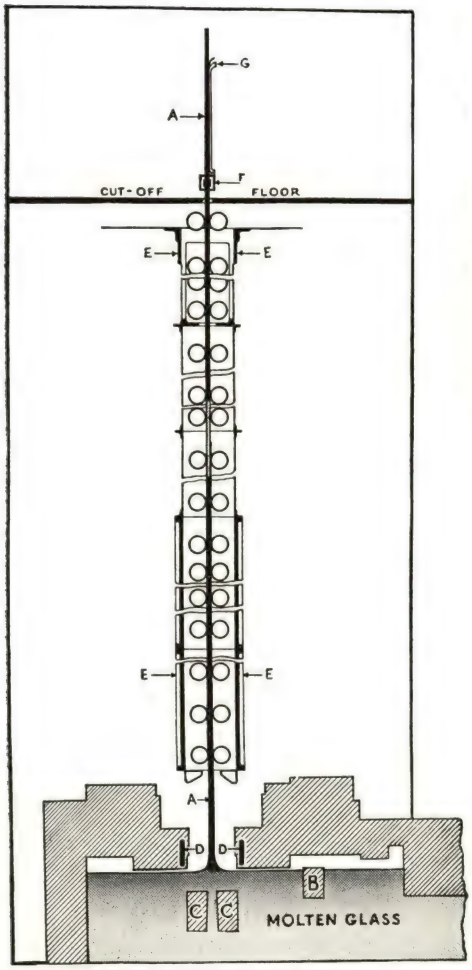
Inferior Grades—Grades known as "Fourth" and "C" qualities are available in limited quantities at a reduced price. These contain such defects as to eliminate them from the above qualities, but do not contain defects serious enough to cause breakage in shipment.

LABELS, PACKING, DELIVERIES, ETC.

Labels

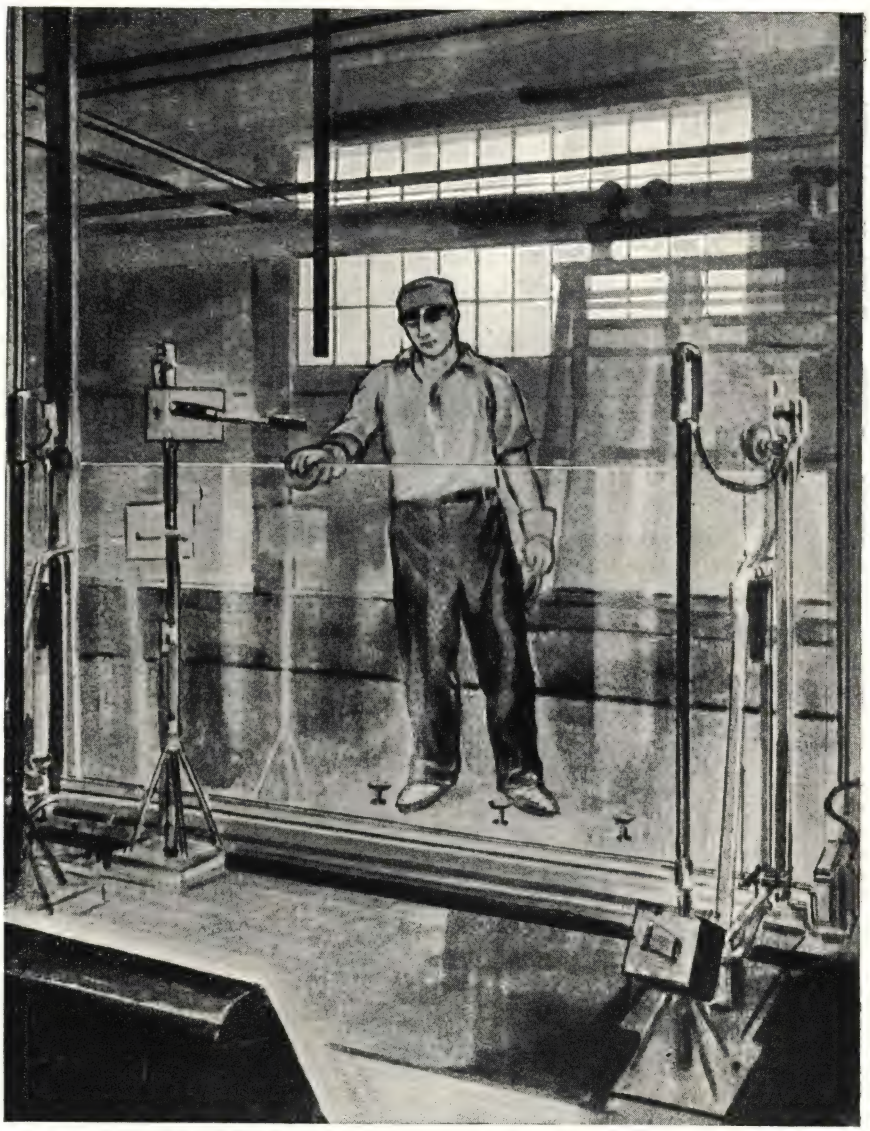
The Pennvernon label (red on single strength, green on double strength) identifies a superior product. These labels are used on all "A" and "AA" quality glass and should be left on until inspected by your superintendent, for they are your guarantee of quality.





Cross Section of Glass Machine Showing the Sheet of Glass Being Drawn

A-A—The sheet of glass. B—Skim bar. C-C—Draw bar. D-D—Water coolers to chill the sheet. E-E—Machine case. F—Cut-off wire. G—Edge cut-off. O-O—Asbestos-covered rolls



At the Top of the Machine Pennvernon Window Glass Emerging as a Finished Sheet

Packing

Pennvernon Window Glass is paper packed to insure retaining its brilliant lustre. Glass is shipped in boxes containing 50 sq. ft. in sizes up to 100 united inches and 100 sq. ft. in larger sizes, with the name Pennvernon, quality, thickness and size clearly stenciled on one end of the box. Boxes are constructed of the best commercially dry lumber with heavy bottoms on larger sizes and cleats on smaller sizes which insure strength with light weight. Glass is embedded in clean rye straw or hay, completely protecting it against careless handling.

Additional Information

Immediate deliveries are obtainable on large as well as small orders through the company's numerous warehouses located in leading industrial centers throughout the country; through sash and door manufacturers and leading glass jobbers.

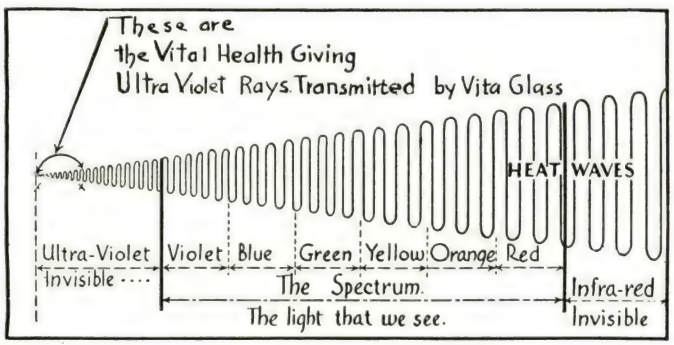
Additional literature and information on Pennvernon Window Glass may be secured from our warehouse serving your territory. Send for attractive book describing the manufacture of this new Window Glass.

VITA* GLASS

VITAGLASS CORPORATION
TELEPHONE
AShland 4-7082
100 East 42nd Street, NEW YORK, N. Y.

VITA GLASS—TRANSMITS VIOLET RAYS—BUILDS HEALTH

Vita Glass is a sparkling white clear glass which lets indoors the health-giving ultra-violet rays from sunlight. These rays are shut out by ordinary glass. In the chart below, all the different known rays of sunlight are shown. Only the spectrum and infra-red rays pass through ordinary glass. *All* the rays, even the invisible ultra-violet rays, pass through Vita Glass. These ultra-violet rays are known to have the greatest germicidal and health-building power. They come from every direction—direct from the sun and by reflection from the sky and clouds. Thus Vita Glass creates health and cleanliness every day. In Vita Glass this power to transmit the effective ultra-violet rays is permanent and *is guaranteed so.*



Made in U. S. A.

Vita Glass is now made in the United States in the company's own plant. Although produced from the same formula that made it famous throughout the world, the present quality of production surpasses the original English-made Vita Glass. It can be had for immediate shipment in any quantity, in sheet, plate, wire, cathedral, figured or any standard glass type.

Where Vita Glass Is Used

Vita Glass should be used in every window in every room where people live or work. No matter how little a room is occupied, the germicidal properties of the whole light admitted through Vita Glass make it economically sound for use in residences, apartments, office buildings, factories, schools, hospitals, hotels, etc. Vita Glass makes *every room a solarium.* No sunporch can fulfill its purpose without the whole, ultra-violet sun rays admitted through Vita Glass.

Vita Glass Is a Sound Investment

Vita Glass has proved itself a sound investment innumerable times, often earning its entire cost for the purchaser. In apartments and hotels it has proved an attractive rental feature. Realtors find that it increases the attractiveness of their houses, thus increasing sales. Used in offices and factories it has so improved the health of workers as to more than pay for itself in increased efficiency and preventing lost time through colds and illness.

Price in Reach of All

The cost of Vita Glass is now slightly more than the cost of ordinary glass.

The following table, although not accurate for all parts of the country, gives a comprehensive idea of the cost of Vita Glass:

An average home glazed throughout with Vita Glass	$100-150
An average class room glazed with Vita Glass	50- 60
An ordinary hospital ward glazed with Vita Glass	50- 75
An ordinary business office glazed with Vita Glass	15- 25

Vita Glass Easy to Get

Vita Glass is sold through glass distributors and dealers everywhere. For quotations, samples or information, ask your glazier or write us direct.

Permanence Guaranteed

The permanence of the ability of Vita Glass to transmit ultra-violet rays is guaranteed in the following unqualified manner:

"We agree that any Vita Glass supplied you by or through us (regardless of the time the glass is in window use), may at any time be tested by the United States Bureau of Standards, or at the Massachusetts Institute of Technology, and, if as a result of such official test, it should ever be found that its transmission does not exceed the minimum standard of effective transmission, which has been determined and published by the American Medical Association's Council on Physical Therapy, we will refund the cost of the glass and the test.

Vitaglass Corporation."

Marked for Your Protection

Vita Glass comes in all glass sizes and thicknesses. Each light of genuine Vita Glass bears a red, blue and black label with the wording "Lamplough Vita Glass" thereon.

Vita Glass Specifications †

Where called for hereinafter, ultra-violet ray transmitting glass manufactured in the United States, shall weigh approximately 20 ounces per square foot and shall transmit the vital ultra-violet rays of natural light down to 2,900 Angstrom units in wave length. The effectiveness for biological results of the glass used shall have been demonstrated by at least five (5) controlled tests on living organisms, and installations in hospitals shall have proved satisfactory over periods of not less than four years.

The manufacturer shall guarantee that for the life of the glass it will pass tests by the United States Bureau of Standards or the Massachusetts Institute of Technology and exceed the minimum standard of effective transmission which has been determined and published by the American Medical Association's Council in Physical Therapy.

†Specifications for other types and kinds of glass on request.

A Few Vita Glass Installations

Hospitals and Institutions

Bellevue Hospital, New York, N. Y.
Doctors' Hospital, New York, N. Y.
Fordham Hospital, New York, N. Y.
Montefiore Hospital, New York, N. Y.
New York Post Graduate Hospital, New York, N. Y.
Presbyterian Hospital, New York, N. Y.
St. Luke's Hospital, New York, N. Y.
Manhattan Eye, Ear and Throat Hospital, New York, N. Y.
Children's Hospital, Detroit, Mich.
Methodist Hospital, Philadelphia, Pa.
N. J. Orthopædic Hospital, East Orange, N. J.
St. Joseph's Hospital, Providence, R. I.
St. Luke's Hospital, San Francisco, Calif.
St. Mary's Hospital, Grand Rapids, Mich.

Schools, Colleges, etc.

Miss Chapin's School, New York, N. Y.
Chicago Latin School, Chicago, Ill.
Episcopal Academy, Overbrook, Pa.
Hathaway Brown School, Cleveland, Ohio
Jesse Spaulding School for Crippled Children, Chicago, Ill.
St. Marks School, Southboro, Mass.
University of Wisconsin, Madison, Wis.
Western Reserve University, Cleveland, Ohio

Hotels, Apartment Houses, Office Buildings, etc.

Bon-Air Vanderbilt Hotel, Augusta, Ga.
Brown's Physical Training Farm, Garrison, N. Y.
Chalfonte-Haddon Hall, Atlantic City, N. J.
Equitable Trust Company, New York, N. Y.
Hotel Ambassador, East Chicago, Ill.
Majestic Apartments, New York, N. Y.
Medical Arts Building, New York, N. Y.

*VITA is the trade-mark (Reg. U.S. Pat. Off.) of and indicates glass and glassware manufactured for and sold by VITAGLASS CORPORATION, New York, N. Y.

Glass

by Mississippi

Polished Wire Glass
Polished Figured Wire Glass
Plain Figured Wire Glass
Plain Figured Glass
Polished Figured Glass

The Right Glass for the Particular Purpose

MISSISSIPPI STYLES

Thousands of Square Feet of MISSISSIPPI GLASS



Southwestern Bell Telephone Co. Building, St. Louis, Mo.

MAURAN, RUSSELL & CROWELL, Architects,
St. Louis, Mo.

All Windows of Polished Wire Glass

MISSISSIPPI GLASS COMPANY
MISSISSIPPI WIRE GLASS COMPANY

220 FIFTH AVENUE

CHICAGO — NEW YORK — ST. LOUIS

MISSISSIPPI GLASS

A Standard for Every Architectural Daylighting Requirement

Products

PLAIN and POLISHED FIGURED GLASS, POLISHED WIRE GLASS, PORT LIGHTS, DECK, VAULT or FLOOR LIGHTS.

Mississippi Glass

The various patterns of Mississippi Figured Glass make it possible to choose styles that will be in keeping with the architecture of a building, as well as to obtain the maximum possible advantage from daylight illumination.

Brilliancy, strength, true cutting surface, uniformity of color and excellence of quality in Mississippi patterns combine with moderate cost to make Mississippi Glass the choice of thousands of architects, engineers and builders.



Identification Label on Mississippi Wire Glass

Mississippi Wire Glass

The MISSISSIPPI WIRE GLASS COMPANY is the original manufacturer of Solid Wire Glass, and its product is universally recognized as the standard wire glass, being the product upon which the Underwriters' standard was based in 1899.

By our process of manufacture, Standard Wire Glass is cast solid, and is superior in quality to any similar product on the market.

Wire Glass is rolled plate glass having a wire netting embedded equidistant from either surface. This process is automatically effected while the glass is in a molten state and, therefore, insures homogeneous and solid wire glass.

Adaptability of Wire Glass

The object of Wire Glass is to afford perfect and constant fire protection at a minimum cost, at the same time admitting and diffusing the light. It is particularly suitable for use in windows, doors, transoms, skylights, and all places where fire or breakage protection is required.

Advantages of Wire Glass

When employed as above mentioned, Wire Glass may be fractured by severe heat or sudden shock, but the wire mesh will hold the shattered pieces in place, preventing their falling and causing serious injury or loss of life. It will also prevent draft and hold a fire within the bounds of its origin.



Identification Label on Mississippi Glass

Underwriters' Requirements, Extract from Rules—1906

"(2) Size of Glass—(a) The unsupported surface of the glass allowed shall be governed by the severity of exposure and be determined in each case by the underwriters having jurisdiction, but in no case shall it be more than 48 in. in either dimension or exceed 720 sq. in. (b) The glass to be of such dimensions, after selvage is removed, that the bearing in the groove or rabbet is not to exceed 1/8 in. less than the full depth called for in rules 7 and 8. (c) The glass to be retained by the structural part of the frame or sash independently of the material which may be used for weatherproof purposes. Only non-inflammable material to be used in setting glass in the sash."

Ordering

Glass being one of the last materials to go into a building, it is often not ordered far enough ahead to give the manufacturer time to cut the glass to sizes and make shipment in time to enclose the building by the date desired. It is, therefore, advisable to give this point consideration in due time, as the tremendous demand for figured glass and figured wire glass necessitates orders taking their turn as they are received.

In ordering always specify width first. In wire glass, the twist of the wire runs with the length of the sheet. When giving sizes remember that the first dimension is understood to be the width.

How to Specify Wire Glass

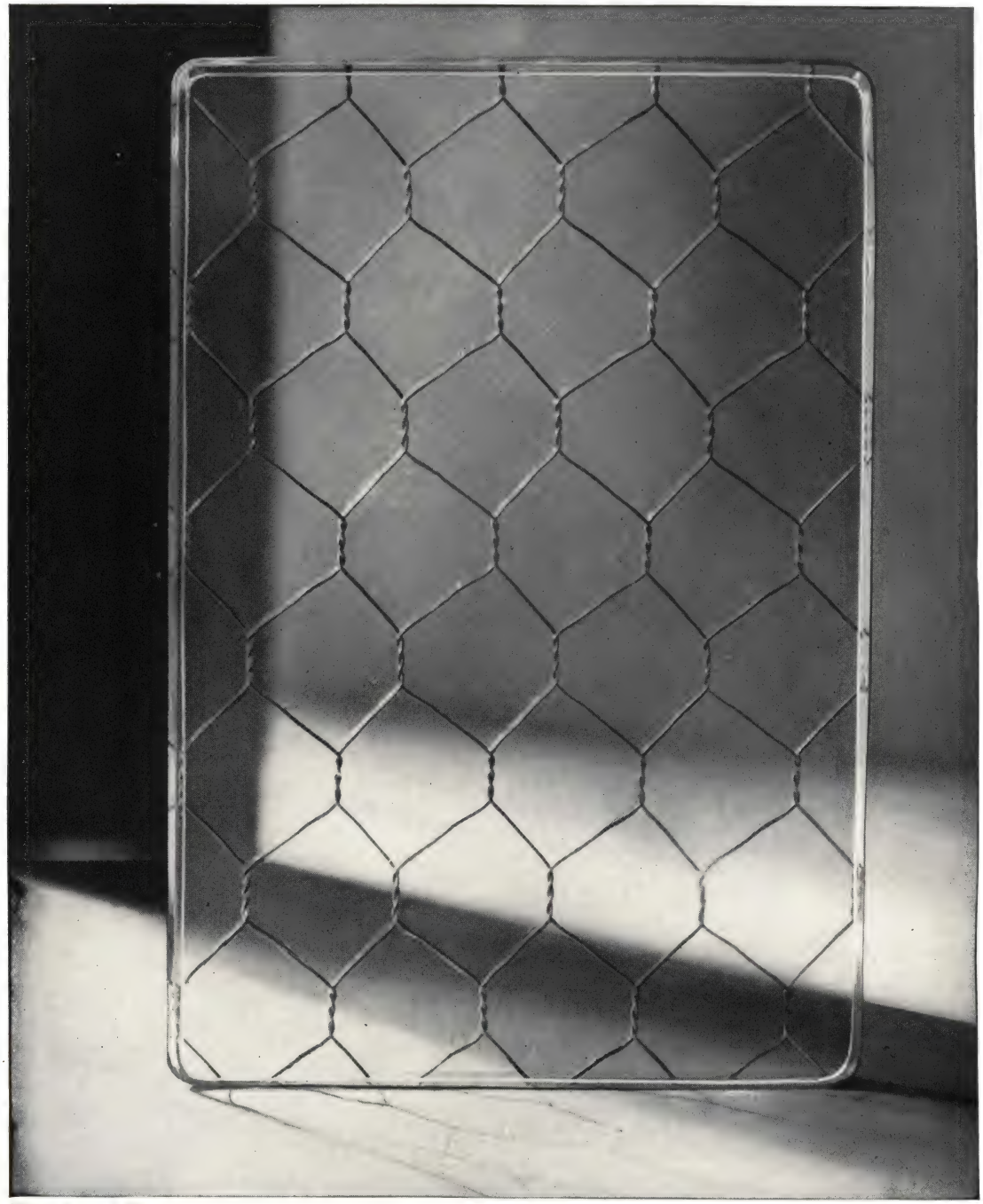
Wire Glass shall be installed in (specify location) and in all places marked "W.G." on plans and elevations.

The Wire Glass to have a thickness of at least 1/4 in. at thinnest point. Wire mesh to be not larger than 7/8 in., and no wire used for such mesh to be smaller than No. 24 B&S gauge. Plane of the wire mesh to be practically midway between the two surfaces of the glass.

Selvage shall be removed from glass before framing.

(State here type or types of glass to be used and where.)

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Wire Actual Size

Mississippi Polished Wire Glass

The Standard

In 1893 the Mississippi Company began the manufacture of wire glass. It was a rather crude-looking material in comparison with the present perfected product, but it served the purpose for which it was intended—a material which would permit light and vision and act as a fire retardant.

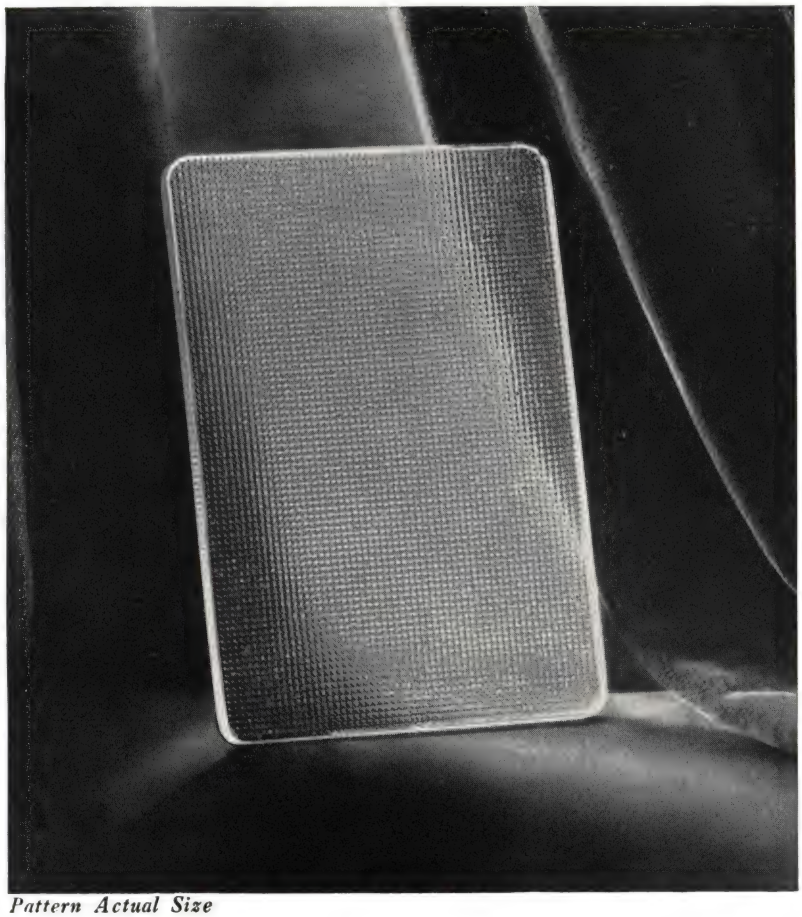
Many practical demonstrations soon convinced engineers, architects and the general public that it was possible to protect a building from fire by a material that would not keep the interior in utter darkness.

A circular sent out by the Mississippi Company on August 24, 1899, stated that "The Solid Wire Glass manufactured by the Mississippi Glass Company is the only make of Wire Glass which has been officially approved, after tests, by the Boards of Fire Insurance Underwriters of the principal cities of the United States, and acceptable for its superior manufacture and fire retardant quality, subject to their rules."

The present Underwriters' Laboratories, organized in 1901, following the earlier approval of underwriters throughout the United States, recognized the solid wire glass manufactured by the Mississippi Company as the Standard, and gave it the title of "FIRE RETARDANT No. 32."

Naturally, processes of manufacture have been vastly improved, and are constantly being improved by the Company's engineers. Mississippi Wire Glass is cast solid and is made from specially refined glass metal. It has received universal recognition because of its superior quality and finish. Mississippi Polished Wire Glass is sold by glass distributors everywhere. See table of sizes and thicknesses on page 12.

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

FACTROLITE GLASS

Scientifically designed to obtain maximum daylight illumination in modern factories.

This pattern is the product of extensive research by Mississippi Engineers in the efficient use of daylight in modern factories, and is the last word in the scientific daylighting of such buildings. It will give the most uniform distribution of light in all directions that it is possible to obtain, and will increase the illumination in a building from 38% to 72% as compared with plain glass.

✦

Factrolite is manufactured in three thicknesses in plain glass and in two thicknesses in wire glass. See table of sizes and thicknesses on page 12.

Factrolite as an Aid to Industry

This pattern has been scientifically designed to accomplish definite results.

FACTROLITE

(1) The elimination of glare so far as possible by the complete breaking up of the direct rays of the sun and the uniform diffusion of sunlight so that strong contrasts are eliminated and the illumination is softened, thus approaching that of north sky light.

Illumination in a room twenty-five feet or more deep may be increased from 38% to 72% by using Factrolite instead of plain glass. The improved illumination through Factrolite materially relieves eye fatigue and automatically increases quantity and quality of production.

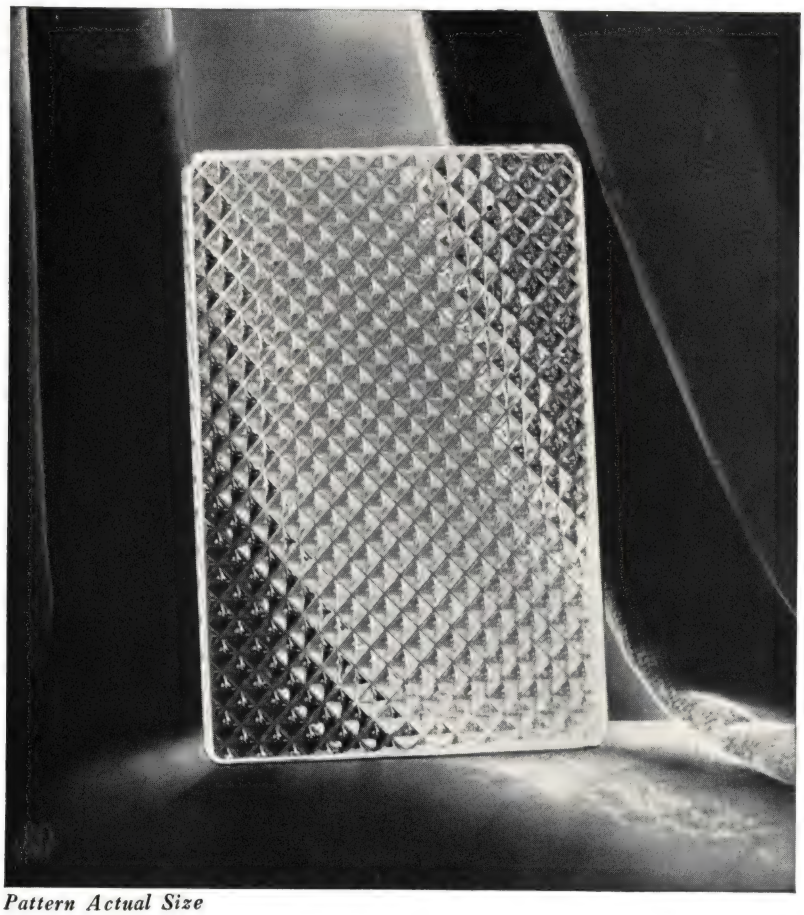
(2) Factrolite may be easily cleaned as all depressed surfaces are straight lines and there are no pockets in which dirt becomes embedded so that it can not be dislodged with a stiff brush.

Factrolite has been used in hundreds of the most efficient industrial plants in America, including such famous names in industry as Western Electric Company, Ford Motor Company, New York Edison Company, Dunlop Tire & Rubber Co., Pacific Mills, American Thread Co., Jenkins Bros., Inc., and the United States Government.

The list of satisfied users is constantly growing because no factory can be considered truly efficient that does not make the proper use of daylight—and no product equals Factrolite for efficient daylight illumination.

(See Chart page 10 and Graph page 11.)

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Aurora Glass

The ideal glass for partitions. The pattern is cut at an angle which gives the maximum transmission of light, and at the same time deflects it to where it is wanted. It combines high quality, pleasant appearance and efficient light distribution.

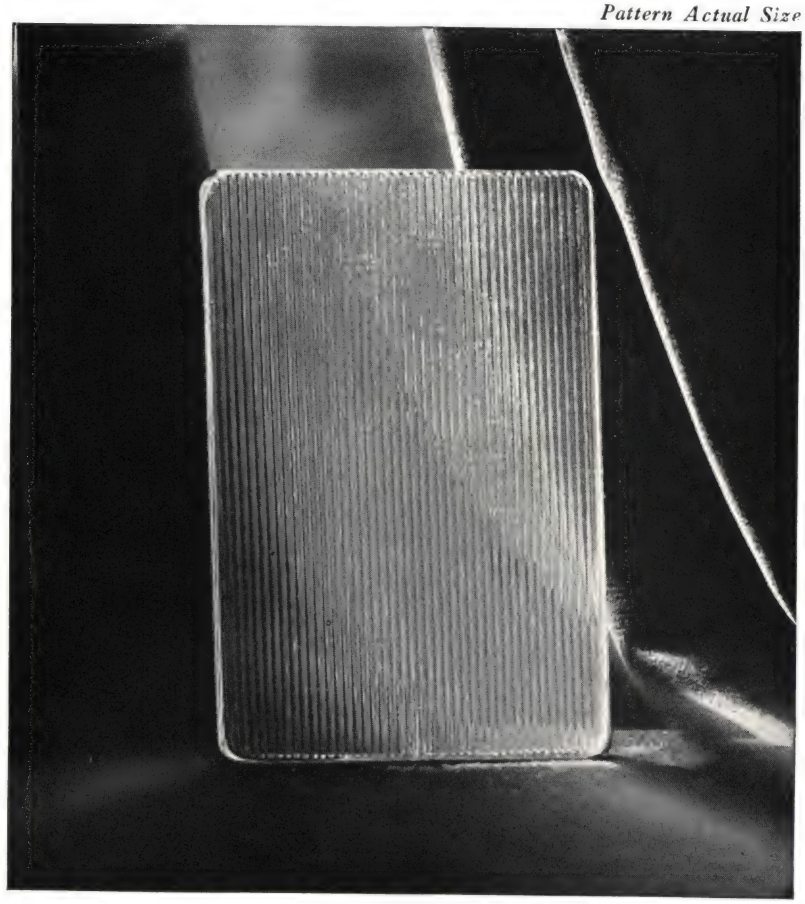
✦

AURORA is manufactured in two qualities, plain and polished. See table of sizes and thicknesses on page 12.

✦

Specify
"Mississippi"

Pattern Actual Size



Ribbed Glass

A ribbed glass supreme in the quality of its material and in its cutting surface. It is a simple design which affords excellent light diffusion and is extensively used for skylights and windows in factories, power plants, and other industrial buildings.

✦

This pattern is also manufactured in Wire Glass.

✦

Leading distributors everywhere can supply this and other Mississippi products. Samples gladly sent upon request.

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Pentecor Glass

A glass specially made for use in skylights, with ribs cut at an angle to collect and transmit the maximum amount of light without loss from total reflection. The light is deflected at right angles to the ribs, and will increase the light in a building, at a point fifty feet from the light source 130% as compared with plain glass. When installed in skylights set at the proper angle, Pentecor will conduct condensation and prevent dripping.

(See Chart page 10 and Graph page 11.)

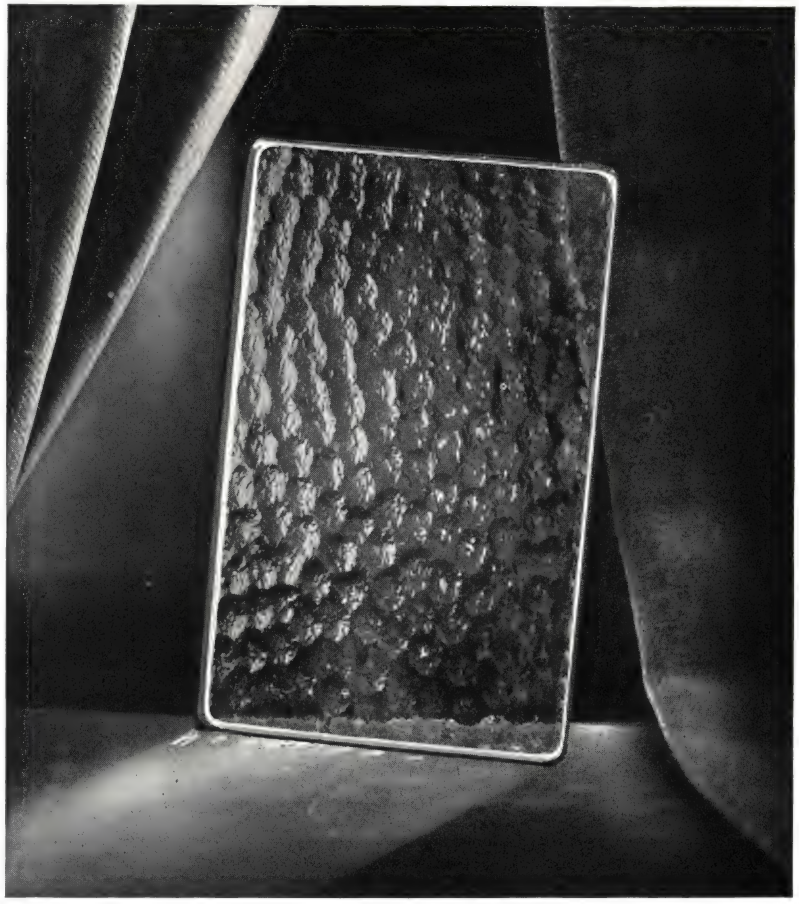
✦

Pentecor is also made in Wire Glass. See table of sizes and thicknesses on page 12.

✦

Specify
"Mississippi"

Pattern Actual Size



Hammered Rough Glass

This is an example of superior Mississippi quality—no better plain Hammered Rough Glass is produced.

It is most appropriate for use in skylights and industrial buildings where distribution of working light is not an important consideration. Its design and fine qualities also make it popular to harmonize with certain styles of architecture.

✦

Hammered Rough Glass is also manufactured in Wire Glass.

✦

Leading distributors everywhere can supply this and other Mississippi styles. Samples gladly sent upon request.

For Full List of Sizes and Thicknesses of Mississippi Products **See Page 12**



Pattern Actual Size

Syenite Glass

A figured glass which, because of its irregular pattern, is suitable for many styles of architecture. It obstructs the vision and provides ample diffusion of light.

✦

Syenite is also made in polished glass, and in Wire Glass both plain and polished. Consult the tables on page 12 for the various styles and thicknesses of this effective pattern.

✦

Specify

"Mississippi"

Ondoyant Glass

This is the oldest pattern of figured glass produced by Mississippi, and one that has retained its popularity since its introduction. It obstructs the vision while affording a liberal distribution of light. It is widely used for transom and ceiling lights, and is predominant in leaded work because of the pleasing light effects produced by its light-retaining, rippled surface corrugations. Its casual pattern harmonizes with nearly all decorations.

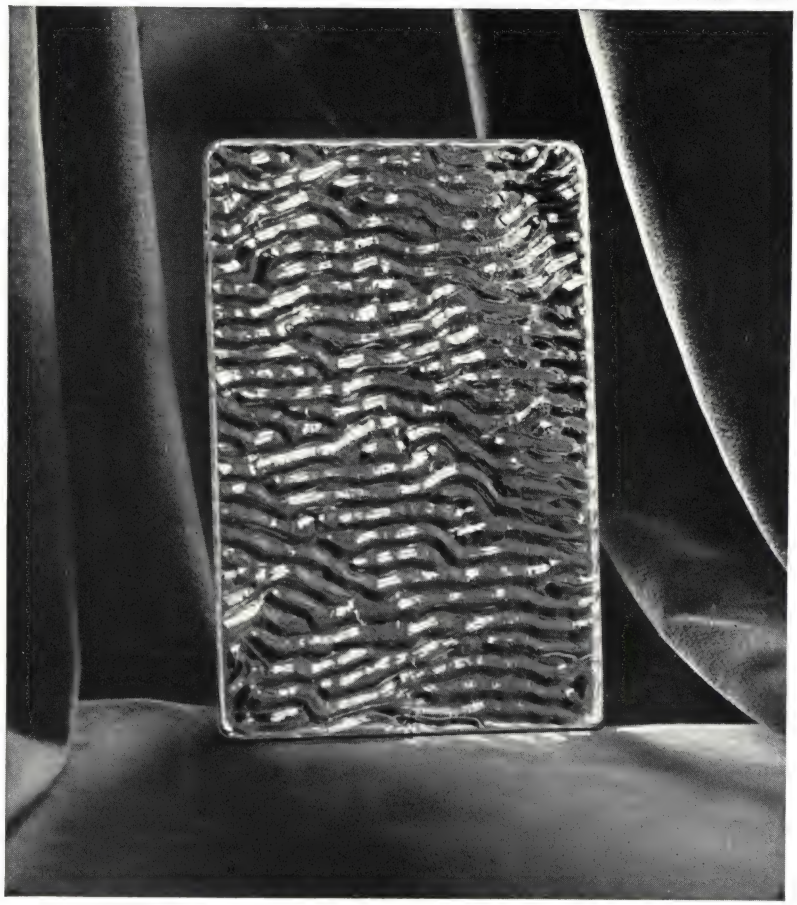
✦

Ondoyant Glass and other Mississippi patterns are sold by leading distributors everywhere.

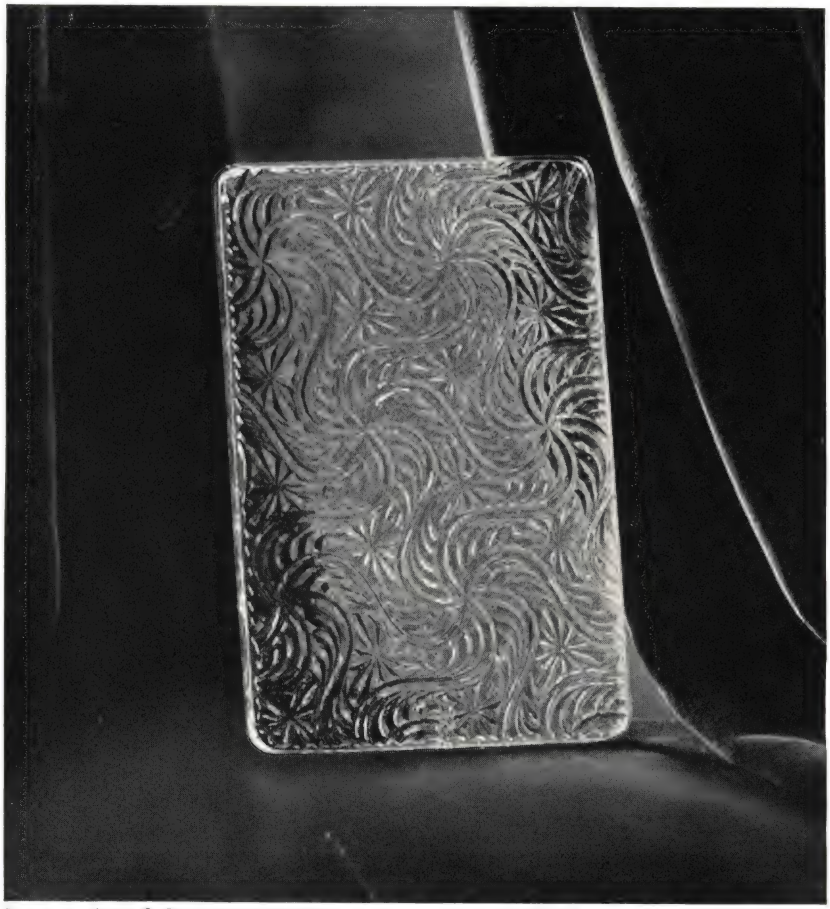
✦

To make certain of obtaining the best quality be sure to specify "Mississippi."

Pattern Actual Size



For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Maze Glass

A figured glass with a brilliant pattern formed by a succession of prismatic figures filled with smaller prisms which, by nature of the angles at which they are cut, diffuse and distribute the light in all directions.

✦

The Maze pattern is also manufactured in Wire Glass. See table of sizes and thicknesses on page 12.

✦

Specify
"Mississippi"

Pattern Actual Size



Florentine Glass

This is one of the earliest styles of figured glass produced. It is still used in large quantities because of the efficient manner in which its attractive prismatic design diffuses light while obstructing the vision. Because of these qualities Florentine Glass is very effective for doors, transoms and partitions. Its rich design makes it adaptable for many styles of architecture.

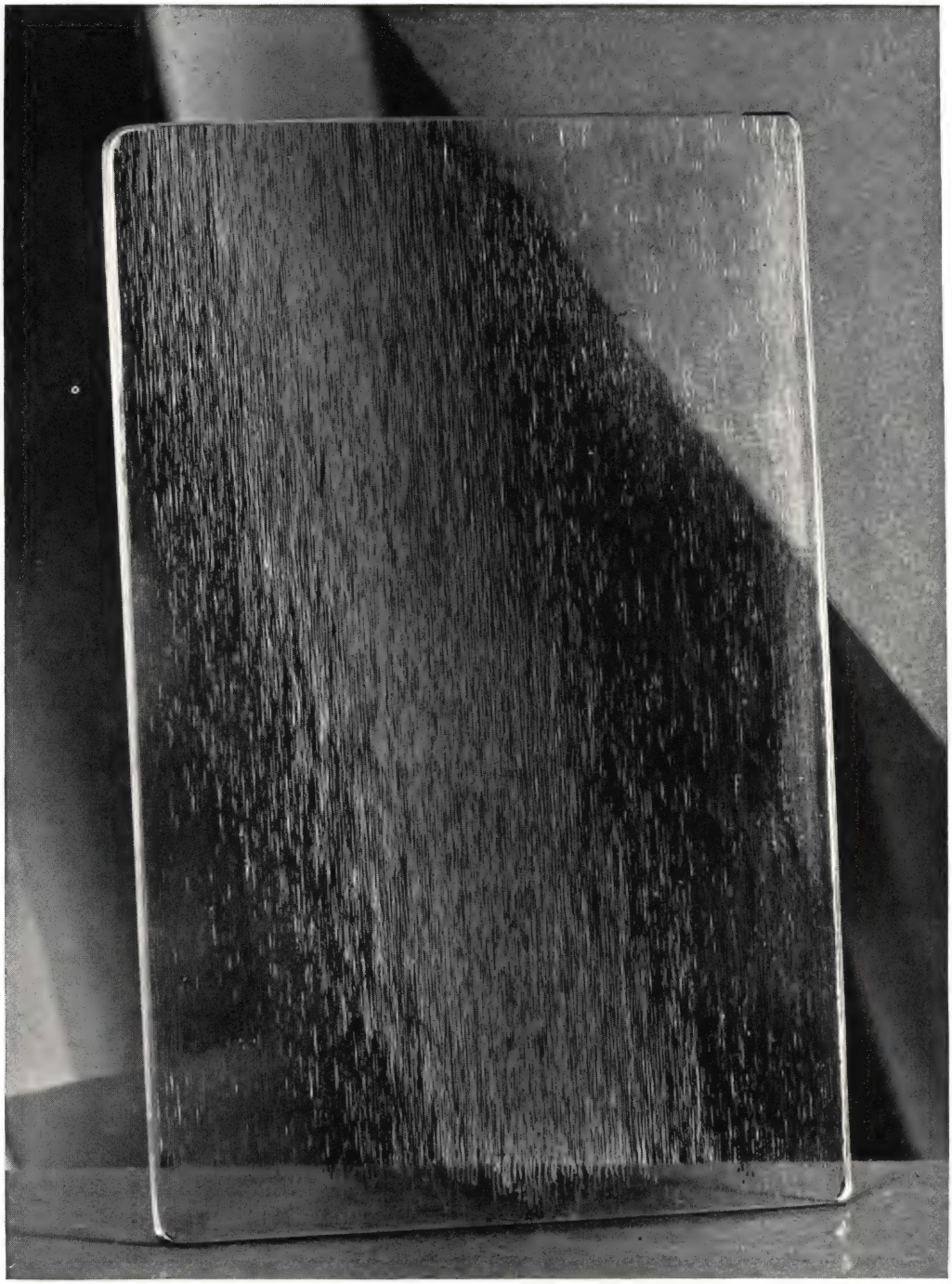
✦

Florentine Glass and other Mississippi patterns can be obtained from leading glass distributors everywhere. Samples will be gladly sent upon request.

✦

To make certain of obtaining the best quality be sure to specify "Mississippi."

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Hylite Glass

In Hylite, Mississippi presents an exceptional pattern which will be found most effective for a variety of uses where ordinary transparent glass is not quite desirable. Its pattern, composed of minute "etching point" depressions, obstructs vision sufficiently to permit a reasonable amount of privacy, although the glass appears to have perfect transparency at first sight.

Because of the character of its pattern, Hylite is easier to clean than any other obscure or semi-obscure glass.

✦

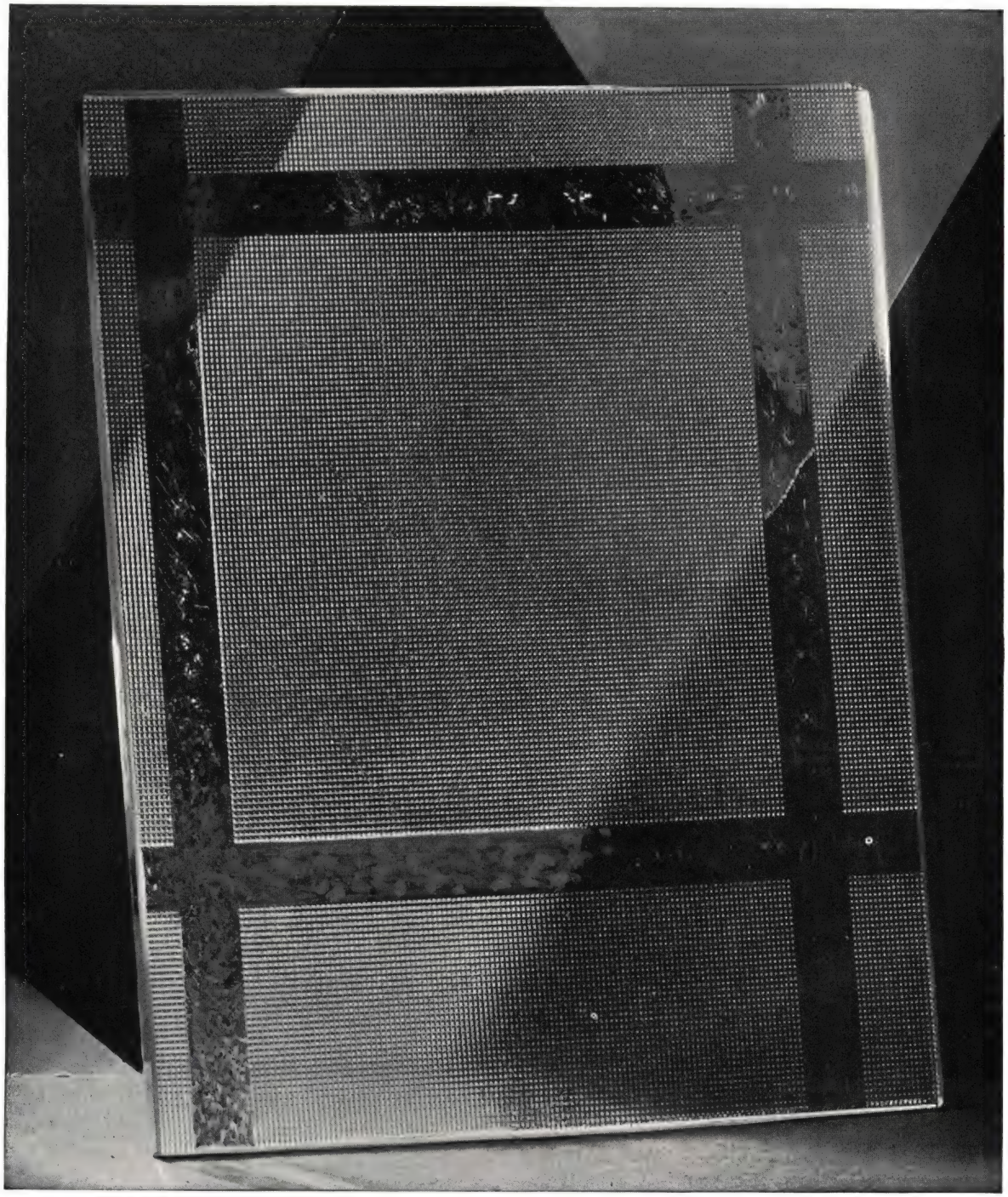
Hylite is also made in Wire Glass in two thicknesses. Consult the tables on page 12 for exact sizes.

✦

Specify

"MISSISSIPPI"

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12



Pattern Actual Size

Translite Glass

A translucent glass of exceptional quality especially made for transoms. Its pattern of broad, semi-transparent stripes crossing in 3½-in. squares makes this an unusually effective glass for transoms—a place where too often no thought is given to the decorative value of the glass.

Translite adds the finishing touch to a job well done. It is easily kept clean, and having excellent light distributing qualities, can be effectively used for windows in halls, bathrooms, etc., where an effective design, good light and privacy are considerations.

✦

To make certain of obtaining the best quality be sure to

Specify

"MISSISSIPPI"

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

Glass Designed Especially for Industrial Buildings

After extensive tests of the light transmission and distribution qualities of every available type of glass had been made, the Mississippi Glass Company developed two new types of glass to accomplish definite results—Factrolite for vertical sash and Pentecor for pitched skylights.

The following charts and graphs, together with condensed data, will doubtless be of service when determining the glass to specify for special purposes.

REPORT NO. 24558
DISTRIBUTION OF LIGHT TRANSMITTED THROUGH FACTROLITE—INCIDENT LIGHT ON ROUGH SIDE OF GLASS—RELATIVE LIGHT INTENSITIES

Test of Factrolite—The tests were made by measuring the distribution of light in two planes perpendicular with each other, with light from an incandescent lamp 3 ft. distant falling normally upon and passing through the glasses. The relative light intensities are recorded in per cent of the normal (0°—normal—equals 100%).

Angles	First plane		Plane perpendicular to first plane	
	Right	Left	Right	Left
0 (normal)	100%		100%	
2½	60.5	86.5	85.2	75.4
5	41.8	51.8	41.0	28.9
7½	24.0	30.6	15.8	13.8
10	9.88	13.3	1.33	9.14
15	1.43	4.45	.39	1.31
20	.101	.81	.....	.....

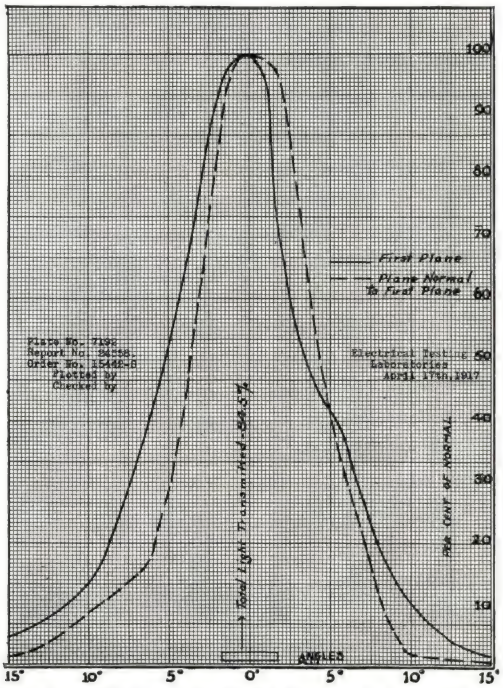


Chart Showing Efficiency in Light Transmission with Factrolite

Economy of Factrolite—Today, as never before, owners of industrial buildings are coming to realize the advantages of properly controlled daylight.

Whereas more heat is required to maintain a given temperature in a building with 80% of its wall area glass than is required for a wall area of 20% glass, this additional heat is required for only five months of the year, whereas with the 20% glass area, it is necessary to artificially light the building a large part of the time.

Factrolite breaks up the rays of the sun, diffusing the light and distributing it equally, so that glare is reduced to a minimum.

REPORT NO. 47571
LIGHT TRANSMISSION THROUGH NEW PENTECOR GLASS RENDERED TO THE MISSISSIPPI GLASS COMPANY ORDER NO. 42294-S

Distribution of light through the sample of sheet glass was made with the incident light falling normally upon rough side of glass. Measurements were made in plane at right angle to prism.

The light source used was a filament of small dimension, approximately 0.1x0.1 of an inch, and placed at a distance of three feet from the glass. Light distribution measurements were made by observations of the light through the glass. The observations were taken at different angles as noted on the graph.

The values of the light transmitted through the sample are in per cent of the maximum.

Transmission Factor

Light transmission measurements were made first with unidirectional light falling normally upon the surface of the glass and, second, with diffused light falling upon the glass. In making the latter measurements, a hemisphere of uniform brightness was employed.

Results of Test

The distribution data are shown in Table No. 1 and on Plate No. 22310 reproduced below.

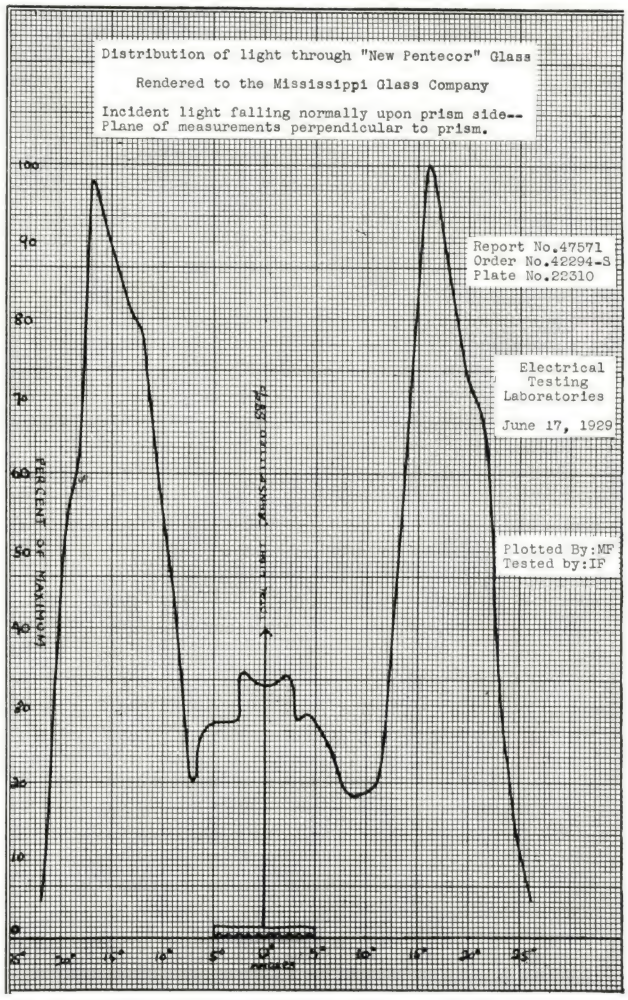
The light transmission values are shown on Table No. 2.

TABLE NO. 1
Distribution of Light Transmitted through "New Pentecor" Sheet Glass
Incident light normal to rough side of glass
Relative light intensities in per cent of maximum

Angles	Left	Right
0°	32.5	32.5
1	33.0	32.5
2	34.3	33.9
3	27.7	28.0
4	28.0	28.9
5	27.8	28.0
6	25.7	25.7
7	20.0	21.4
8	35.7	18.4
9	42.8	17.9
10	57.2	18.9
11	66.1	19.7
12	76.8	32.2
13	80.4	50.0
14	83.9	75.0
15	89.3	89.3
16	94.7	100.0
17	92.8	94.6
18	62.5	85.7
19	57.2	78.6
20	42.8	71.4
21	17.9	67.9
22	4.8	59.0
23		35.7
24		21.4
25		9.8
26		4.8

TABLE NO. 2
Transmission of Light

Sample	Side toward light	Transmission Factor	
		Unidirectional light	Diffused light
New Pentecor Glass	Rough	0.88	0.685
	Smooth	0.88	0.685



For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

BRIEF OF REPORT NO. 28482

RENDERED TO THE MISSISSIPPI GLASS COMPANY

DISTRIBUTION OF ILLUMINATION THROUGH FIGURED SHEET GLASS WINDOWS IN A MODEL ROOM

ORDER NO. 16649-S

Object

An investigation to study the distribution of daylight illumination in a room with various types of ¼-in. figured sheet glass used in the window.

Test Room

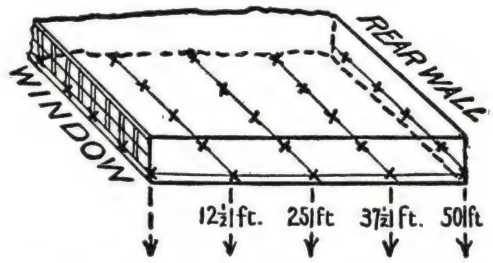
Model, representing a room 50x100x14 ft.

Scale, 1 ft. = 25 ft. (24x48x7 in.)

Windows—Continuous on one side of room 3 ft. high, sill 4 ft. from floor.

Ceiling and walls—White gloss finish (commercial factory paint).

Floor—Brown linoleum (having reflection factor of average factory floor).



AVERAGE HORIZONTAL ILLUMINATION OF LINES OF TEST STATIONS

Source of Light

Concentrated filament incandescent lamp, representing the sun at 30 degrees from horizon. The intensity of the sun was approximately proportioned to the size of the room.

Sky uniformly bright within ±20%

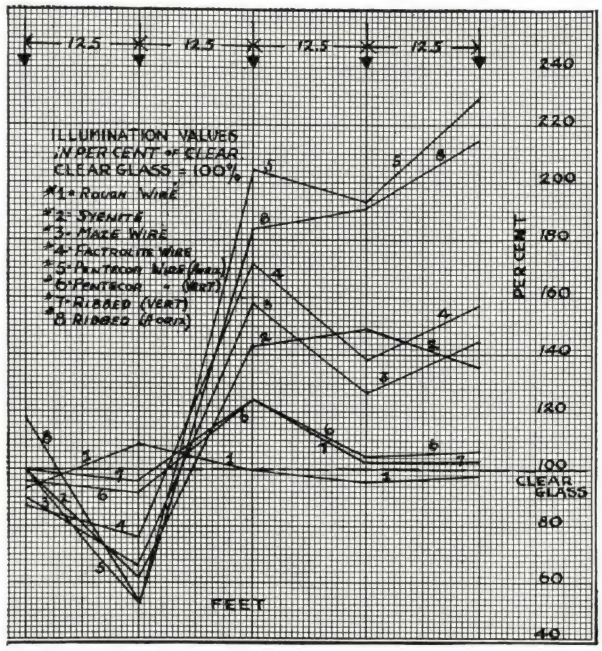
Light within the room—direct sunlight, 80%; skylight, 20%.

Tests

Test Stations in five lines as shown.

Horizontal illumination on working plane—equivalent to 40 in. above floor.

Transmission of light through glass samples.



	Transmission, per cent of clear	Average horizontal illumination of lines of test stations				
Distance from window in feet	...	0	12½	25	37½	50
Clear Glass	100	28	16.8	1.4	0.80	0.85
		Values in per cent of clear				
⅛ Hammered Rough Glass		107	107	107	99	106
⅛ Syenite Glass		100	62	143	149	136
¼ Maze Wire Glass		90	65	158	127	145
¼ Factrolite Wire Glass		89	75	172	138	157
¼ Pentecor Wire Glass, glazed horizontally		100	52	204	193	230
¼ Pentecor Wire Glass, glazed vertically		96	92	123	104	106
¼ Ribbed Glass, glazed vertically		100	96	124	101	103
¼ Ribbed Glass, glazed horizontally		118	52	183	191	215

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

MISSISSIPPI PRODUCTS

Thicknesses, maximum sizes and approximate weights of Wire Glass and Figured Glass

POLISHED FIGURED GLASS

Style	Thickness inch	Maximum width, inches	Maximum length, inches	Approximate weight per sq. ft., lbs.
Apex ..... about	1/4	50	100	4
Aurora	1/4	50	100	4
Syenite	1/4	50	100	4

PLAIN FIGURED GLASS

Aurora	1/8	48	130	2
"	3/16	60	130	2 1/2
"	1/4	60	130	3 3/4
Factrolite	1/8	48	130	2
"	3/16	48	130	2 1/2
"	1/4	48	130	3 3/4
Figure No. 2	1/8	42	110	2
" "	3/16	42	110	2 1/2
Florentine	1/8	48	130	2
"	3/16	60	130	2 1/2
Hammered Rough	1/8	48	130	2
" "	3/16	48	130	2 1/2
" "	1/4	48	130	3 3/4
" "	3/8	48	130	5 1/4
" "	1/2	48	130	7 1/2
Hylite	1/8	48	130	2
"	3/16	48	130	2 1/2
"	1/4	48	130	3 3/4
Maze	1/8	48	130	2
"	3/16	60	130	2 1/2
Ondoyant	1/8	30	100	1 3/4
Pentecor	1/8	48	130	2
"	3/16	48	130	2 1/2
Ribbed	1/8	48	130	2
"	3/16	48	130	2 1/2
"	1/4	48	130	3 3/4
"	3/8	48	130	5 1/4
"	1/2	48	130	7 1/2
Syenite	1/8	48	130	2
"	3/16	60	130	2 1/2
Translite	3/16	60	130	2 1/2

POLISHED WIRE GLASS PORT LIGHTS

Thicknesses 1/4, 1/2, 3/4 and scant 1 inch. Diameter circles 6 to 24 inches

"WIRE GLASS"

Style	Thickness inch	Maximum width, inches	Maximum length, inches	Approximate weight per sq. ft., lbs.
Factrolite	1/4	48	130	3 3/4
"	3/8	48	130	5 1/4
Hammered Rough	1/4	48	130	3 3/4
" "	3/8	48	130	5 1/4
Hylite	1/4	48	130	3 3/4
"	3/8	48	130	5 1/4
Maze	1/4	48	130	3 3/4
"	3/8	48	130	5 1/4
Pentecor	1/4	48	130	3 3/4
Polished	5/16	50	130	4
"	5/8	30	72	8
Ribbed	1/4	48	130	3 3/4
"	3/8	48	130	5 1/4
Syenite, Plain	1/4	48	130	3 3/4
Syenite, Polished	5/16	50	130	4

DECK, VAULT OR FLOOR LIGHTS

Ground Wire Glass	3/4	30	72	9 3/4
Hammered Rough Wire Glass	3/4	30	72	9 3/4
Polished Wire Glass	3/4	30	72	9 3/4
Ribbed " "	3/4	30	72	9 3/4

Mississippi Sales Policy

It has always been the policy of the MISSISSIPPI GLASS COMPANY to market its products only through glass distributors who always carry a large stock, assuring prompt delivery anywhere.

This policy has proven most beneficial to those who specify Mississippi, because the general contractor, owner or architect knows that he is assured of keen competition by inviting bids from reputable dealers.

Furthermore, by specifying a Mississippi pattern all dealers will figure on one and the same quality.

It is advisable to request your local glass distributors to quote you square foot prices on Mississippi products so that you can keep these comparative prices in your files with your copy of the latest Mississippi catalogue designed in accordance with the A.I.A. specification for filing. Should you not have this catalogue, one will be sent you upon request.



Reynolds Tobacco Building, Winston-Salem, N. C.

SHREVE & LAMB, Architects

JAMES BAIRD CO., Contractors

All Interior Doors and Partitions of Mississippi Polished Aurora Glass

Select the proper glass for the purpose intended from the Mississippi styles shown in this catalogue. To make certain of obtaining the best quality always

Specify

"MISSISSIPPI"

Polished Wire Glass
Syenite Wire Glass
Syenite Polished Wire Glass
Maze Wire Glass
Factrolite Wire Glass
Pentecor Wire Glass
Hammered Rough Wire Glass
Ribbed Wire Glass
Hylite Wire Glass
Aurora
Syenite

Syenite Polished
Apex
Maze
Florentine
Figure No. 2
Ondoyant
Factrolite
Pentecor
Ribbed
Hammered Rough
Hylite

Translite

MISSISSIPPI GLASS COMPANY
MISSISSIPPI WIRE GLASS COMPANY

CHICAGO NEW YORK ST. LOUIS

For Full List of Sizes and Thicknesses of Mississippi Products See Page 12

PITTSBURGH PLATE GLASS COMPANY

Tapestry Glass

PITTSBURGH, PA.

For Warehouses and Branch Offices, see our page on Vista Plate Glass
For our Other Products, see Manufacturers' Index

Tapestry Glass

This unique glass has proven increasingly popular since its introduction about eight years ago, and has become one of the best known of the PITTSBURGH PLATE GLASS COMPANY'S long line of products. No other type of obscure glass possesses the same qualities or advantages. Its inherent beauty and decorative possibilities have already led to its widespread use in modern buildings. Tapestry Glass was named for the beautiful richness of texture of its surface.

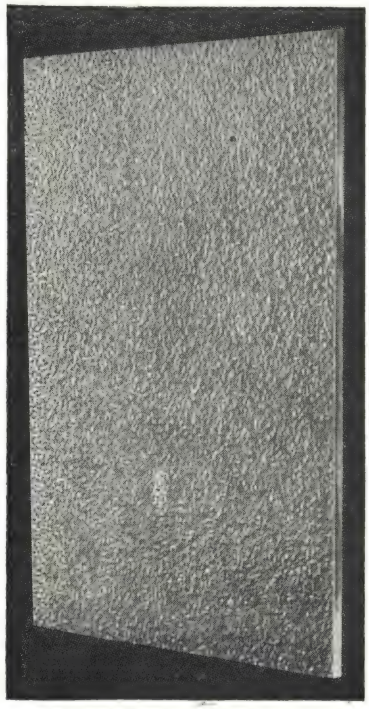
Qualities

The unusual qualities of Tapestry Glass result from two causes; the satin-like finish of its surface, and its inner transparency. Below its silvery surface this glass is clear and evenly transparent. The ingredients and initial processes involved in its manufacture are the same as those used in making the finest quality plate glass. This inner transparency is the reason why Tapestry Glass transmits the light so readily. The silvery surface is the secret of its diffusing properties, and it is one of the most artistic obscure, light diffusing glasses available for building purposes. It is also one of the most efficient, and spreads illumination into the darkest corners.

The effect of Tapestry Glass is almost impossible to describe in words. If an object is held close against the back of a piece of Tapestry Glass, you will be quite surprised to find this glass almost as transparent as ordinary glass. But move the object only a few inches away and the outlines are lost, and as the object moves farther away it disappears into scarcely more than a shadow. Thus Tapestry Glass affords unusual privacy. Yet it never gives a sense of blank opaqueness. Tapestry Glass reveals a silvery sheen, a glowing depth, which transparent glass cannot have—and which glass whose surface has been merely pressed into a pattern does not possess.

Decorative Treatment

Tapestry Glass invites many interesting and novel treatments. It may be obtained with both surfaces in the original Tapestry finish; or with one polished and one tapestry surface. Polished Tapestry is desirable when used with Plate Glass so as to present a uniform outward appearance, and also in hall doors and windows where obscurity is needed together with polished plate beauty of reflection. The surface may be varied with chipping or sandblasting. Chipping, either single or double process, produces an interesting tracery pattern and may be done over the entire plate or to any design required. Sandblasting produces a delicate frosted effect, and symmetrical designs or artistic lettering can be supplied in this manner. Tapestry Glass may also be colored, by what is known as the Italian process, which gives it the effect of stained glass; or the surface may be mitered into intricate patterns of lines and angles.



Plain Tapestry Glass



Sand-blasted Border, Clear Field



Satin Finish Miters, Clear Field

Uses

The wide variety of decorative treatments to which Tapestry Glass is adaptable makes its applications practically limitless. In general it may be used wherever an artistic medium is required which will admit light and at the same time obscure the view. The following are a few of the many places this glass may be used to good advantage: Doors, corridor partitions and ceiling lights in offices, hotels, institutions and apartments; store front transoms and side lights; churches and fraternal buildings; bathroom and hall windows, and front doors, as well as bookcases and cupboard doors in the home; steel sash for factory buildings; professional offices; telephone booths; indirect lighting devices, and many other special uses.

Advantages

In addition to its artistic qualities Tapestry Glass possesses numerous practical advantages. Its moderate surface irregularities make it easy to clean, which ensures economy of maintenance. Its excellent diffusive qualities eliminate sharp glare, but provide plenty of illumination. The obscuring quality of Tapestry Glass is ideal for shutting out an unwanted view without sacrificing light. Its strength and durability are equal to plate glass of the same thickness. There is no real substitute for the individuality of Tapestry Glass.

Sizes and Thickness

Tapestry Glass is made in two thicknesses, $\frac{3}{16}$ and $\frac{1}{4}$ in., in sizes up to 72x170 ins. It may be obtained with the Tapestry finish on both sides in either thickness, or with one surface Tapestry and one surface polished in the $\frac{1}{4}$-in. thickness.

Specification

To ensure obtaining genuine Tapestry Glass, the following specifications should be used:

All door lights, transom lights, partition lights and other openings so indicated on the plans, shall be Tapestry Glass (state whether plain or polished), manufactured by the PITTSBURGH PLATE GLASS COMPANY. Glass shall be glazed in the best approved manner and left whole upon completion of the job. Each light shall be identified by the manufacturer's label which is to remain on the glass for the architect's inspection.

Samples, Information, etc.

Complete information and samples of Tapestry Glass may be obtained from any warehouse of the PITTSBURGH PLATE GLASS COMPANY, conveniently located in all the principal cities of the United States. Send for the booklet showing the extraordinary possibilities of this unusual glass.

HIGHLAND-WESTERN GLASS COMPANY

WASHINGTON, PA.

SALES OFFICES

NEW YORK, N. Y., 1182 Broadway CHICAGO, ILL., 111 W. Washington Street

FACTORIES: WASHINGTON, PA.; STREATOR, ILL.; FULLERTON, CALIF.

Products

ROLLED FIGURED GLASS; WIRE GLASS; POLISHED WIRE GLASS; POLISHED FIGURED GLASS; and CATHEDRAL GLASS in plain and mixed colors.

Patterns

Hammered	Moss	Tilite
Ribbed	Silverglass	Superlite
Smooth Rough (Luxlite)	Mystic	Colonial
Solite	Carnation	Holly
Raylite	Pyramid	Artex
Florentine	Prism	Polished Wire

Patterns are scientifically designed to give proper diffusion and obscurity for the locations for which they are intended.

Quality raw materials, and modern manufacturing methods make Highland-Western Glass unexcelled in brilliance, clarity and light transmission values.

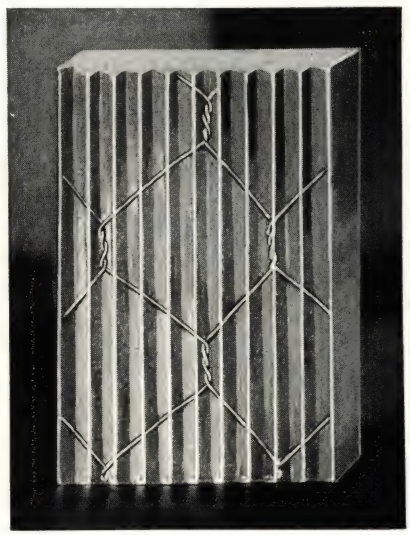
Some of the most popular patterns are illustrated herewith over headings indicating their usual uses. Samples of all patterns manufactured sent on request from our offices.

Uses

Industrial Buildings—Sidewall sash; monitors and skylights.

Commercial and Institutional Buildings—Partition, transom and door lights; elevator shafts; skylights and areaways.

General—Any location requiring daylight with privacy, or where the direct rays of the sun must be diffused or re-directed.



Raylite Wire

For use up to 15 ft. from floor

Industrial—Skylights

Fire Protection

Fire protection is afforded by the use of Highland-Western Glass, which is tested in the laboratories of the National Board of Fire Underwriters and is officially listed by them as "Fire Retardant No. 295." Most of the patterns listed above can be furnished in Wire Glass.

Distribution

Large stocks carried by leading jobbers throughout the country, and our nation-wide chain of three modern plants assure a dependable supply of glass and prompt delivery on the job.

Sizes

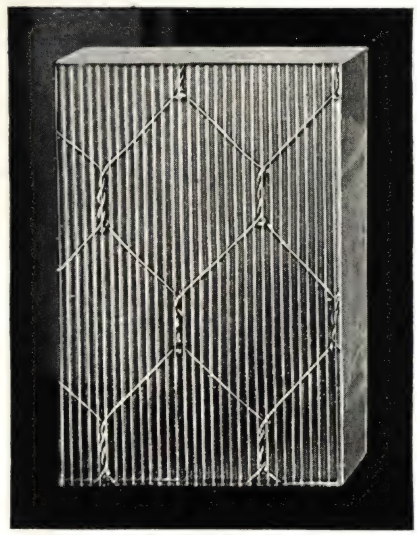
Specify in the order given:

Thickness—⅛, $\frac{3}{16}$, ¼ and ⅜ in.

Widths—Up to 48 in.

Lengths (Height)—Up to 144 in.

Approximate weights—⅛-in. thickness, 2 lbs. $\frac{3}{16}$-in. thickness, 2¾ lbs. ¼-in. thickness, 3½ lbs.



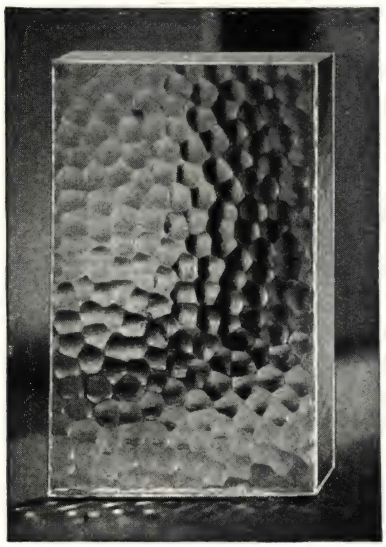
Ribbed Wire

For use over 15 ft. from floor

Industrial—Skylights



Smooth Rough (Luxlite)

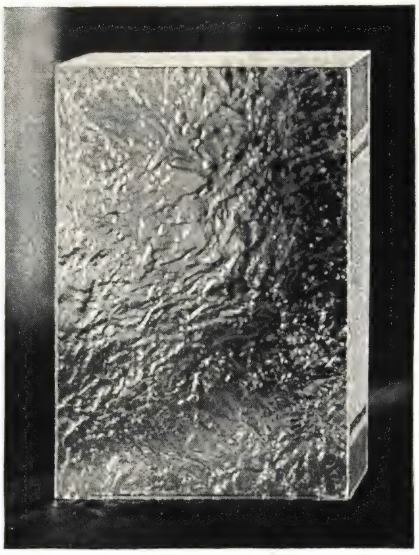


Hammered

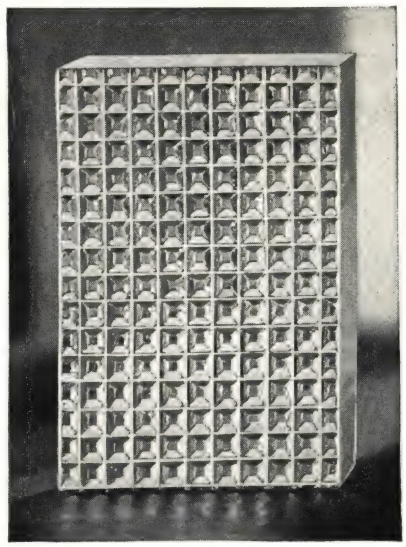


Solite

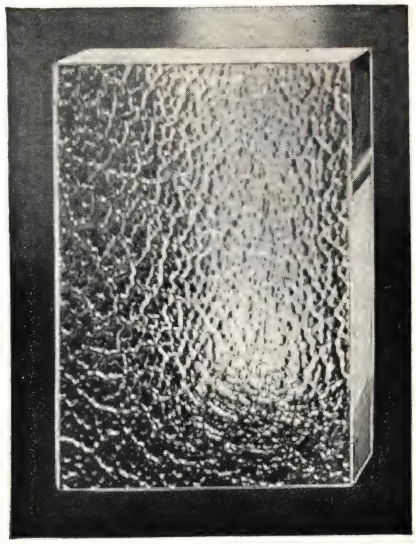
Industrial—Sidewall Sash



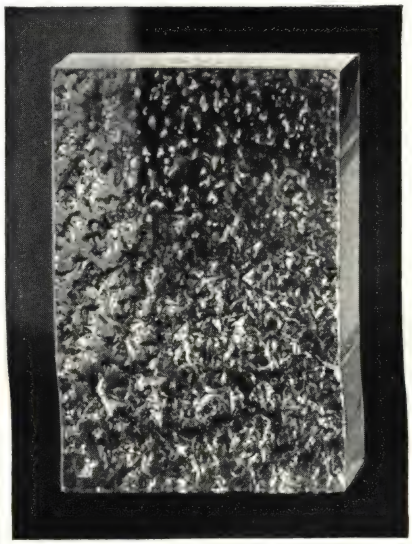
Carnation



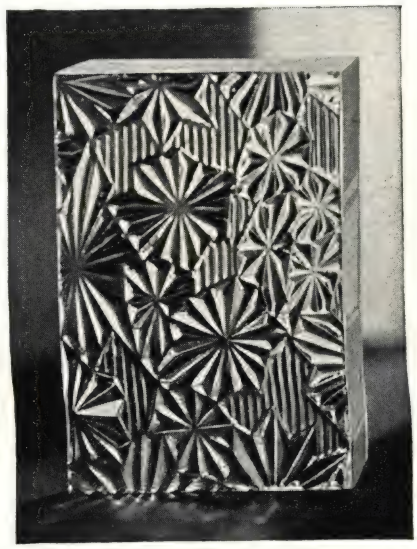
Pyramid



Artex



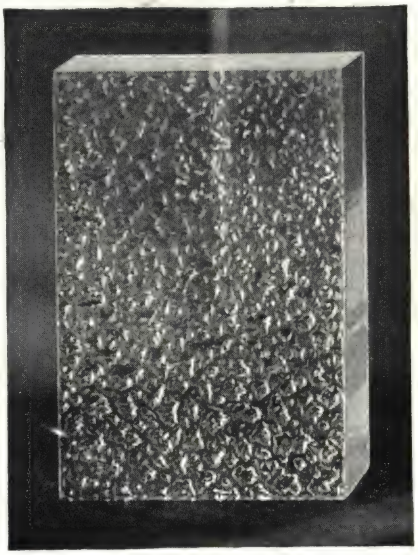
Moss



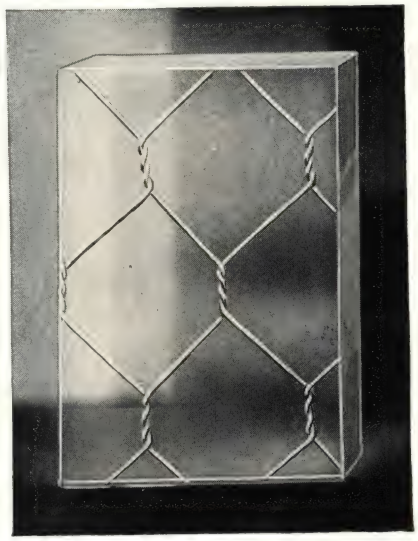
Florentine



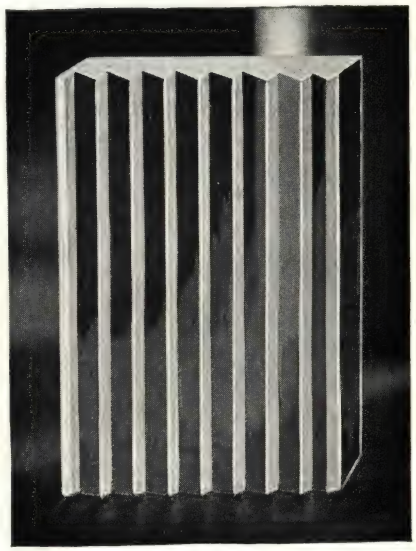
Mystic



Silverglass



Polished Wire



Prism

Commercial and Institutional—Partitions and Similar Uses

MANUFACTURERS GLASS COMPANY

Manufacturers of Pressed Lens Glass
A Diffusing Glass for Daylight Illumination

38 South Dearborn Street, CHICAGO, ILL.

SUPPLIED BY LEADING GLASS JOBBERS EVERYWHERE

Products

PRESSED LENSRIB GLASS, with and without wire, for skylights and ceilings.

PRESSED LENS GLASS SHEETS, for store fronts, office partitions, skylights, and general glazing.

Pressed Lensrib Glass (With or Without Wire)

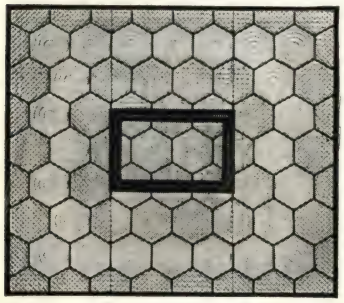
Lensrib, with or without wire, especially adapted for glazing skylights, ceilings, side walls, etc., increases daylight illumination 50% or more and has perfect cleanability. Transmits the vertical light and gives a shadowless light without glare. No loss from reflected light.

The extraordinary volume of daylight illumination (shadowless light) is unusual and the glass may be used in all classrooms, laboratories and science buildings, even those more modest in design.

One of the advantages of high levels of illumination is the enhanced production attained from the greater ease, accuracy and safety with which the student or workman can perform his operations, whether laboratory, machine shop, printing plant or laundry.

It is quite possible to increase the daylight illumination from skylights, ceilings and other sash, 50 to 100 per cent as measured in foot candles by using the Lensrib pattern. A shadowless light even is possible by the use of sufficient glass area. Such calculations are based upon the following factors from 1 to 10, inclusive.

1. No loss from reflected light.
2. Gets the vertical light.
3. Highest possible transmission.
4. Maximum diffusion or redirected light passing through.
5. No glare.
6. Self-cleaning surface, perfect cleanability.
7. Heat dispersion.
8. Fracture resistance.
9. Conceals the light spots from reflectors.
10. More light on dark days.



Hexagonal Tile

Same superficial area as 4x4 in. This clever new design gets away from straight lines, is unique and snappy, glazed in copper plated bars to fit any openings

Rates Highest Classification for: Light Transmission (95%); Redirected Light; Perfect Cleanability; Crystal White Color; Diffused Light; Attractive Appearance; Non-Corrosion; Moderate Cost.

We claim no other glass excels for so many uses:

Office partitions	High school gymnasiums' ceilings
Doors	Hospitals
Bank screens	All skylights (everywhere)
College libraries' ceilings	Solariums (for sanitary reasons)
Chemical laboratories	Art gallery ceilings
University centers	Assembly Hall ceilings

Transoms (over plate glass windows)

Light for Seeing—Perfect Light Distribution

Schools everywhere now deficient in natural daylight may be perfectly lighted by the use of Pressed Lens Glass in the exterior upper sash in about two-fifths the glass area. The U. S. Department of Health, Washington, Bulletin No. 159, reported on test of typical school study room "From the desks in the row farthest from the windows the illumination was below the accepted standard of 5-ft. candles much too frequently."

We can guarantee the use of Pressed Lens Glass in the exterior upper sash to increase the illumination at the desk height and above in the fourth row and beyond 100 per cent, probably more.

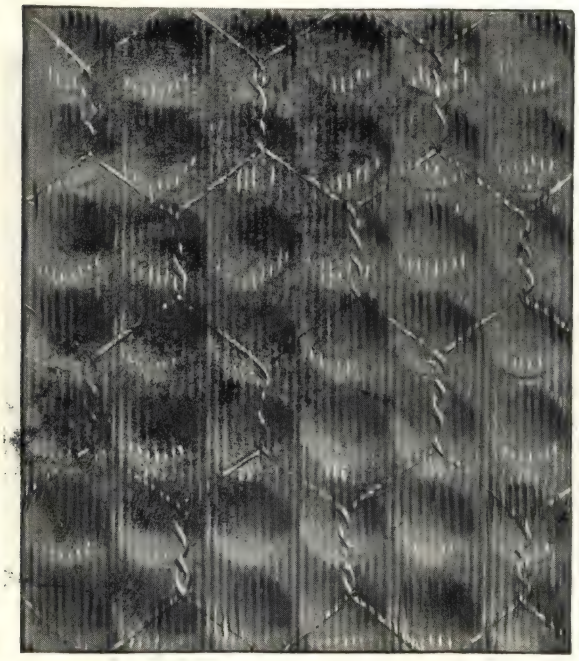
Interior office planning finds Pressed Lens Glass valuable for the effectual screening of divided rooms. In obtaining this high degree of obscurity we have not sacrificed the lighting possibilities. Pressed Lens Glass is more striking in appearance than ordinary kinds of figured glasses and serves all of the purposes of an ideal partition glass at a minimum cost. 70,000 ft. used on this job.



Buhl Building, 29 Stories, Detroit, Mich.



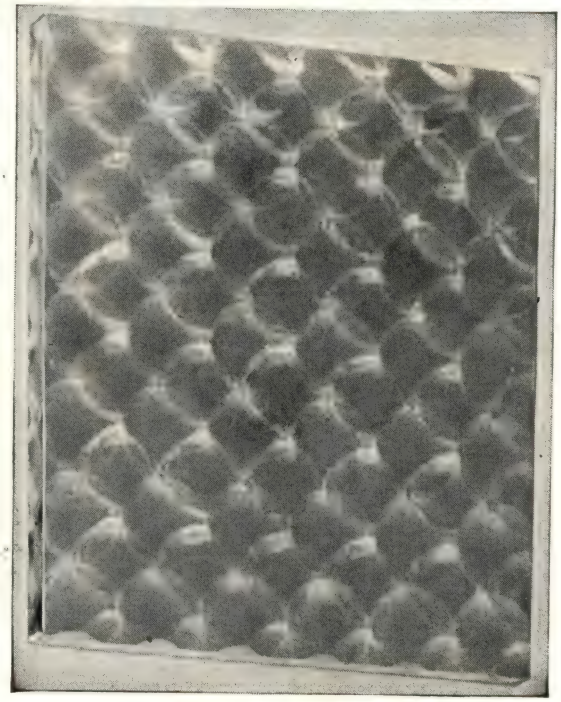
Pressed Lens 4x4 Tile Frames to Fit Any Opening



Pressed Lensrib Wire Glass

Specify ¼-in. Lensrib Glass, plain and wired

There Is No Substitute for Vision



Pressed Lens Wire Glass

Specify $\frac{3}{16}$-in. Pressed Lens Glass, plain and wired

Pressed Lensrib (Wire) Glass

A Diffusing (Wire) Glass for Skylights, Ceilings and Side Walls, Giving 50 to 100 per Cent Increased Light—Gets the Primary Light

For acceleration of physiological and process requirements everywhere:
Gymnasiums
Natatoriums
Solariums
Hospitals
Utility Power
Printing
Machines
Laundries
Garage Plants
Especially designed for daylight illumination of:
Art Galleries
Museums
Biological
Chemical
Engineering
Photo-Chemical
Laboratories
Libraries
Auditoriums

Description — Underwriters' standard ¼-in. wire glass, Lensrib surface formation consisting of circular lenses ½ in. in diameter, 4 to the square inch, on one surface, overlapped on the opposite side by parallel lenticular ribs 22 to the inch. Should be glazed with lenses outside and ribs running vertically on the inside.

Characteristics — In this new product the illuminating engineer has linked together the angles of refraction in such fashion as to invent something very new in glass. *Multiple refraction,* also called diffusion, a spreading of the light flux without glare by which vision indoors more nearly approximates natural outdoor environment, has been achieved with such specific results that the increase in foot candles as read by a photometer may be 50% to 100%, and under some conditions 200% to 300%.

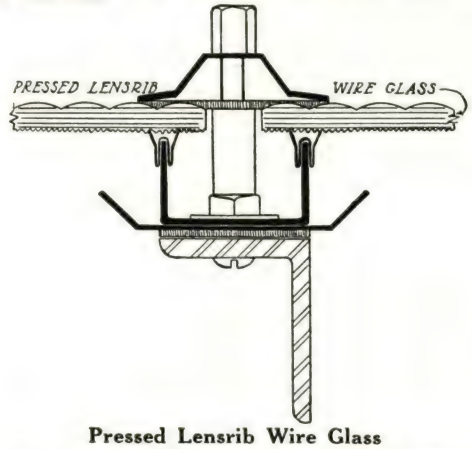
A knowledge of physiological and process requirements proves that nerve wracking glares, sunspots, shadows and under-illumination generally, may be almost if not entirely cured by the use of a moderate area of Pressed Lensrib Glass.



Perfect Light Distribution

Photometric Illumination Chart D-93 on this page, definitely and specifically charts the lines of multiple refraction as compared with other glass, and shows a spread of nearly 50° in redirected light, from which it is a simple calculation to predict in advance where dimensions are known, the necessary glass area and the location of openings, orientation, etc., necessary to correct most of the existing evils of defective daylight illumination.

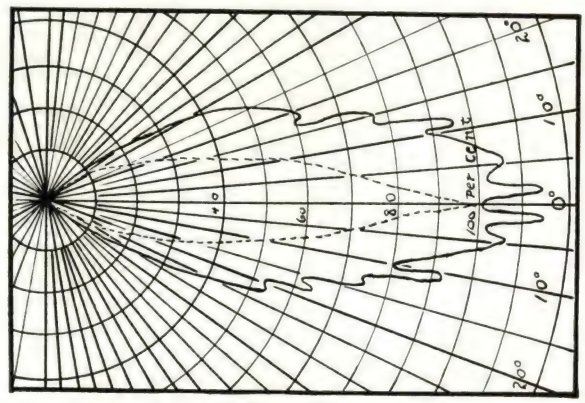
Glass with a flat surface loses 50% or more light from reflection (see Higbee & Randall's Symposium on Illumination) while Pressed Lensrib takes the vertical light at any angle and redirects it widely by a process of multiple refraction.



Pressed Lensrib Wire Glass

Shows perfect waterproof glazing in most approved standard type puttyless construction. Details upon request

How to Specify—All skylights, sidewalls, ceilings, and other openings, are to be glazed with Lensrib Wire Glass as shown on plans and specifications, which product is made by the MANUFACTURERS GLASS COMPANY, First National Bank Building, Chicago, Ill.; this glass shall be glazed with lenses on the exterior and ribs underneath, so that any condensation may be drained by the rib channels.



Distribution of Light Through Pressed Lensrib Glass as Compared with Ordinary Ribbed Glass, etc.

Continuous lines show Pressed Lensrib Glass to have a 50° spread, or angle of light diffusion.

Dotted lines show ribbed glass typical of similar factory glass to have little value for diffused light.

Test No. 46329 by Electrical Testing Laboratories, New York, March 5th, 1928

PRESSED PRISM PLATE GLASS COMPANY

Manufacturers of Ornamental Polished Plate Glass Products

27 North Dearborn Street
CHICAGO, ILL.

551 Fifth Avenue
NEW YORK, N. Y.

"Imperial" Ornamental Plate Glass.
"Imperial" Rubanite.

TRADE MARK IMPERIAL P P P PLATE GLASS PRODUCTS REG.U.S.PAT.OFF.

"Imperial" Prism Plate Glass.
"Imperial" Prism Skylight Glass.

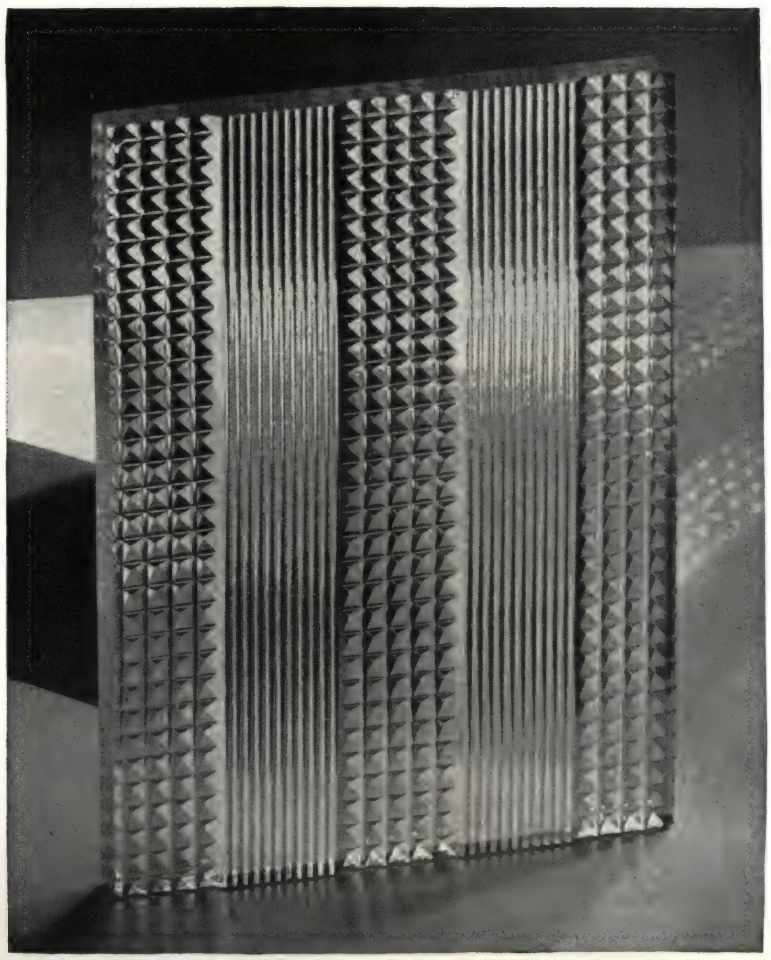
ANNOUNCING A NEW PATTERN

"Imperial" *Rubanite*

(the ribbon pattern)

Craftsmanship in design and plate glass quality characterize this newest addition to the line of "Imperial" Ornamental Plate Glass.

"Imperial" Rubanite is a polished plate glass with a brilliant and distinctive *die pressed* pattern. Rubanite may be obtained in sizes 84 ins. wide measured across the ribbons and 72 ins. high measured along the ribbons.



"Imperial" Rubanite
(the ribbon pattern)
Actual size

IMPERIAL ORNAMENTAL PLATE GLASS

Distinguishing Characteristics

All the products illustrated are ground and polished plate glass with clean-cut prismatic figures *die pressed* on one side.

They may be readily distinguished by their uniformity of pattern and absence of disfiguring waves or roller marks on either smooth surface or figured surface.

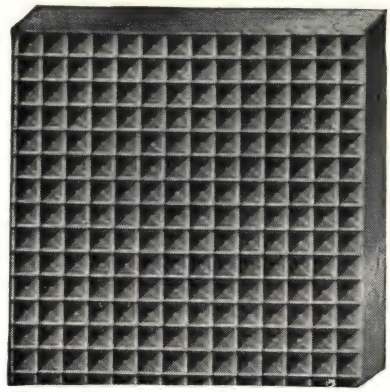
They are strong, durable and easily cleaned. The patterns harmonize with any style of finish and a wide range of modern architecture.

Being polished plate glass they blend as only plate glass can with the plain polished plate glass windows which characterize modern building elevations and interiors.

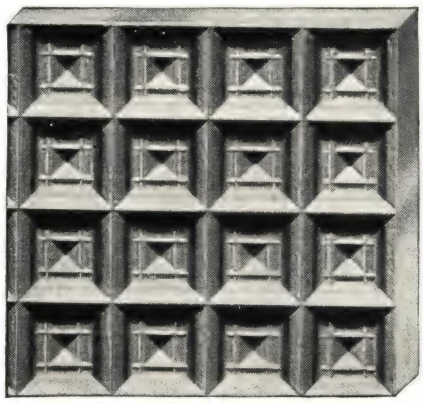
Quality and Dimensions

All the products are made in one standard plate glass quality and the ornamental patterns, Styles O-1, O-2, O-3, O-4, O-5 and Rubanite are furnished in standard plate glass thickness, namely, ¼ to $\frac{5}{16}$ inch. The plate prism glass for store front transoms and upper sashes of exterior windows is ⅜ to $\frac{7}{16}$ inch thick.

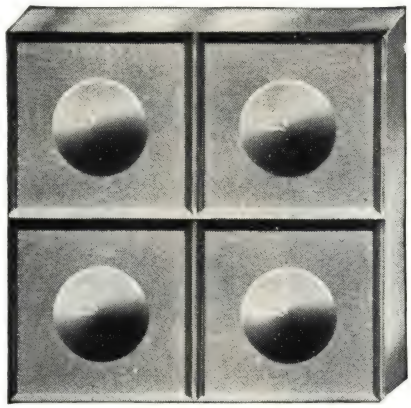
The maximum size of the five ornamental patterns, No. O-1 to O-5, inclusive, 72 inches wide by 84 inches high. Maximum size of Rubanite and of prism plate glass 84 inches wide (horizontal dimension) by 72 inches high.



"Imperial" Ornamental Plate, Style O-1



"Imperial" Ornamental Plate, Style O-2



"Imperial" Ornamental Plate, Style O-3
(Semi-transparent)

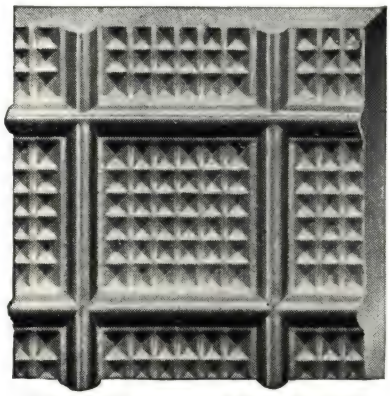
Suggested Specifications

All sash doors, transoms and other openings in corridor partitions and all interior communicating sash doors and partition openings, shown or indicated as containing glass, from the ..... to the ..... floors, inclusive, except *(Note 1)*, shall be glazed with ["Imperial" Ornamental Plate Glass, Style *(Note 2)*] [Rubanite] as manufactured by PRESSED PRISM PLATE GLASS CO.

All exterior toilet room windows, the ceiling sash under skylights in the ....., casement doors and sash partitions on mezzanine and ....., and all other openings not otherwise mentioned which are shown or indicated as containing obscure glass or marked O-1, O-2, O-4, etc., shall be glazed with "Imperial" Ornamental Plate Glass of the style indicated, as manufactured by the PRESSED PRISM PLATE GLASS CO.

(Note 1) except (here may be mentioned fire exit doors, hose cabinet doors, elevator enclosures or other incidental openings which need to be of a clear plate glass or polished wire glass, etc.)

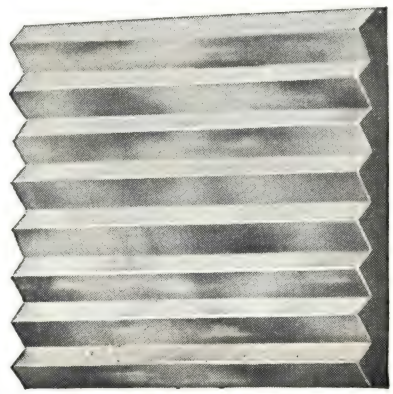
(Note 2) Style—(Insert here O-1, O-2, O-3, O-4, O-5 or Rubanite. Selection of a definite style prior to asking for bids minimizes the possibility of substitution or misunderstanding.)



"Imperial" Ornamental Plate, Style O-4



"Imperial" Ornamental Plate, Style O-5



"Imperial" Prism-Plate Glass

MAGNALITE—DIFFUSING-OBSCURING GLASS

(REGISTERED U. S. PATENT OFFICE)

EASTERN DISTRIBUTOR
J. Merrill Richards
119 West First Street
BOSTON, MASS.

WESTERN DISTRIBUTOR
American 3 Way-Luxfer Prism Co.
1301-1305 South 55th Court, CICERO, ILL.
55 West 42nd Street, NEW YORK, N. Y.

Product

MAGNALITE, a Diffusing-Obscuring Glass.

For Skylights, see J. Merrill Richards in Manufacturers' Index.

For "B/G" Lead Coated Copper Sheets, see Lead Coating Division of Boston Galvanizing Works in Manufacturers' Index.

Description

Magnalite is a clear sheet glass with both surfaces smooth and crossed by scientifically designed cylindrical lenses at right angles to each other on either surface. Type "A" Magnalite is manufactured with the lenses approximately ½ in. on centers, and Type "B" approximately ¼ in. on centers.

Purpose

Magnalite is the result of scientific experiments to produce a glass to accomplish five definite results:

Even Light Diffusion—The scientific construction of the lenses produces uniform diffusion of light over areas in shape similar to glass openings—see diagrams.

Maximum Light Transmission—The lenses are designed to allow the maximum of light transmission.

Cleanability—Containing no pockets in which dirt can collect, Magnalite is very easily cleaned.

Obscurity—The cylindrical lenses distort vision to make it obscure in the true sense of the word.

Heat Diffusion—Magnalite diffuses heat from sun rays.

New Process Manufacture

All types of Magnalite Diffusing-Obscuring Glass are manufactured by the Mississippi Glass Company by a new Continuous Process which produces a truly remarkable glass. The cylindrical lenses are perfectly reproduced and the finish on either surface has a brilliant lustre. New process Magnalite is a quality glass.

Adaptability of Magnalite

(1) **For Ceiling Lights**—Magnalite forms a perfect screen and hides all steel and floodlight equipment, thoroughly diffusing the light from illuminating units, as well as daylight.

(2) **For Windows**—Magnalite will redirect light from acute angles, diffuse sunlight to produce an even work-light and light dark corners.

(3) **For Partitions**—Magnalite is so obscuring that absolute privacy is assured.

(4) **For Skylights**—Magnalite "A" wired will reduce interior sun glare 86.4%. The underside corrugations serve as condensation leads. The diffused light will be spread over an area the shape of the skylight opening.

Specification

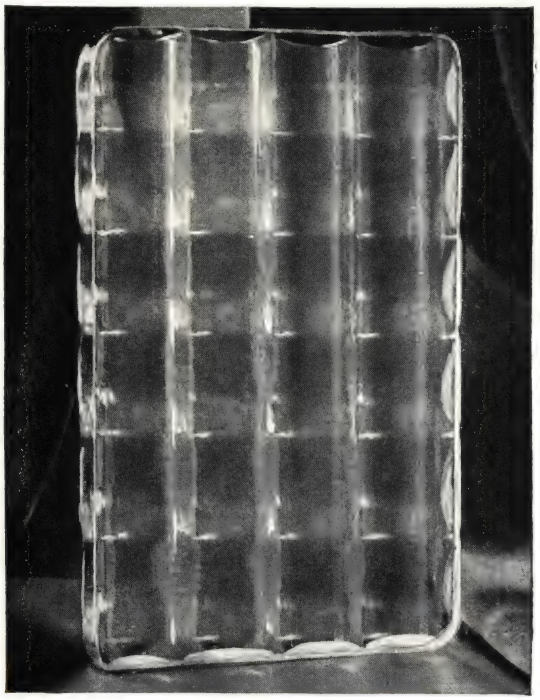
Magnalite Type ["A"] ["A" Wired] ["B"] as distributed by J. Merrill Richards, 119 W. First St., Boston, Mass., or the American 3 Way-Luxfer Prism Co., New York, and Cicero, Ill. Lettering surfaces to have lenses in a vertical position. Outside sash to be glazed with the lenses vertical on the outside.

Distribution and Samples

Magnalite is sold by leading glass dealers everywhere. Write to your leading glass dealer or direct to us.

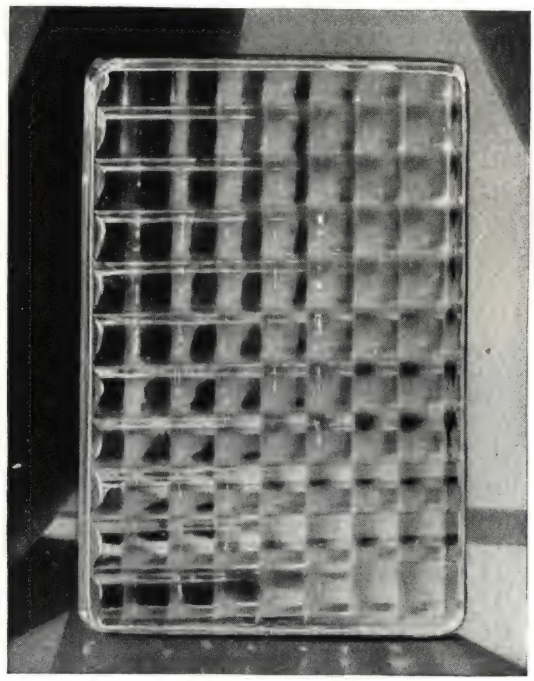
DIMENSIONS AND WEIGHTS OF "MAGNALITE" GLASS

Type	Approximate thickness, in.	Maximum size sheets, in.		Approximate weight per sq. ft., lb.
		Wide	Long	
"A" Plain	¼	58	132	2¾
"A" Wired	⅛	56	132	4½
"B" Plain	¼	58	132	2¾



Magnalite Type "A"

Designed principally for use in large openings and locations distant from vision. Wired sheets of Type "A" for skylights and locations where a wire glass is required



Magnalite Type "B"

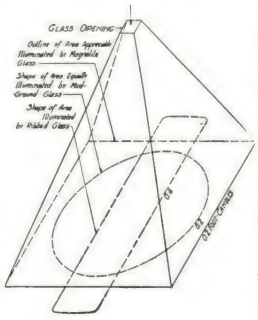
Designed for general use, where a design smaller than Type "A" is more architecturally correct. Also suitable in locations close to vision

LIGHT DIFFUSION TESTS

Isolux Diagrams (Contour Maps)

Method

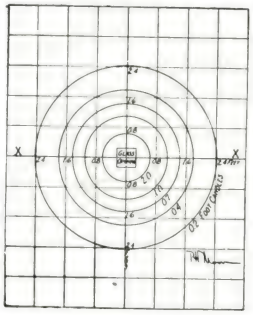
Tests made in a photometer room, two stories high, painted dead black to eliminate reflected light. Source of light was a concentrated filament 1000-watt, 115-volt, P.S.—40 Mazda lamp without reflector mounted base up, filament 4 ft. above test opening. Glass opening 6 in. square. Plane of measurements 6 ft. 5 in. below opening. Measurements made by Macbeth illuminometer. Tests conducted by P. H. Moon, in charge of Industrial Lighting at Massachusetts Institute of Technology.

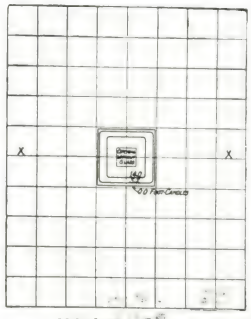


Right:

Mud Ground Glass

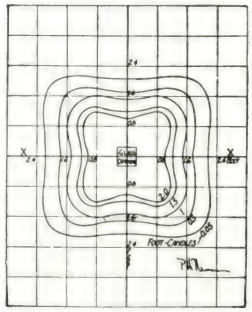
Mud ground glass gives a concentric distribution, as might be expected from its nature. The maximum illumination is about the same as that obtained with Magnalite "A," but it will be noted that the light is not thrown into the corners as with Magnalite





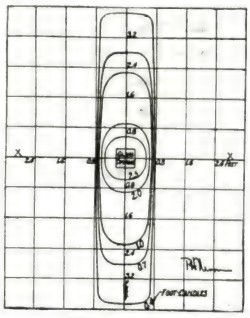
Without Glass

No glass. Without glass all light falls within a square about 1 ft. 4 in. on a side and the illumination is uniform over nearly all this area. This corresponds roughly to direct sunlight through an open window or a window with plain glass



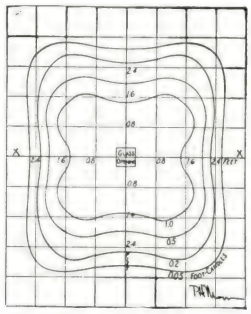
Magnalite "A"

Light is diffused evenly over an area approximately the shape of glass opening. Light is directed into corners. Illumination directly beneath glass (corresponding to sun glare) is reduced 86.4% in comparison with the unobstructed opening. Area of appreciable* illumination is increased approximately 10 times over its value without glass



Ribbed Glass

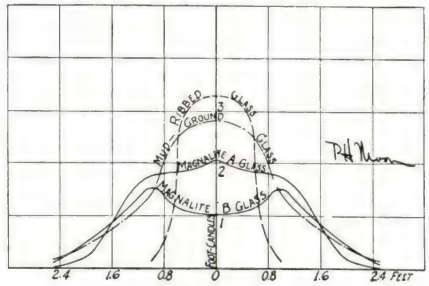
Ribbed glass throws light into a band with its long dimension perpendicular to direction of ribs. A fairly good but narrow rectangular distribution is obtained. Brightness of illuminated area directly below window is greater than with Magnalite



Magnalite "B"

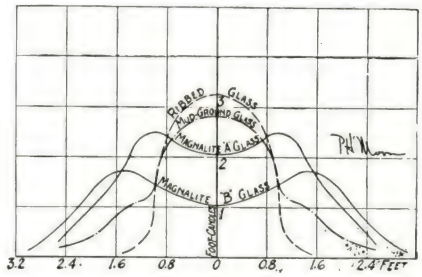
The characteristics are similar to those of Magnalite "A," but the area illuminated is approximately 11% greater and the interior sun glare is reduced slightly more (by 90%)

Profile Diagrams



X Axis

Note how light is softened and spread to the sides by Magnalite



45° Axis

Showing how Magnalite throws light into the corners

Summary

Magnalite produces an even light distribution over a large area which is approximately the same shape as the glass opening. Light is thrown into corners. Most figured glasses transmit the greatest amount of light in line with the light source.

Magnalite softens this direct light and spreads it over a large area, so that Magnalite "A" cuts down the maximum light 35% more than mud ground glass and 36% more than ribbed glass; while Magnalite "B" reduces the maximum 46% more than mud ground, and 55% more than ribbed. With Magnalite the area illuminated to an appreciable extent* is over 2½ times as great as that with mud ground glass and twice as great as with ribbed glass. The illuminating units are *not visible* through Magnalite. Magnalite is easily cleaned and is always efficient.

*The area considered is the area illuminated in the tests to one footcandle or greater, corresponding to about 6½% of the illumination obtained directly beneath the unglazed opening.

Glass	Maximum Illumination	Angle of diffusion on 45° axis	Area illuminated
No glass.....	15.4	0°	2.2 sq. ft.
Magnalite "A".	2.1	22°	9.0 sq. ft.
Magnalite "B".	1.5	24°	10.2 sq. ft.
Mud ground...	2.8	12°	3.8 sq. ft.
Ribbed	3.3	4°	5.9 sq. ft.

TRANSMISSION TEST

Conducted by Electrical Testing Laboratories, New York

Sample	At 0° Incidence Unidirectional light	Diffused light
Magnalite "A".....	91%	79%
Magnalite "B".....	87½%	73%

ALLEN-DREW COMPANY

DIVISION OF BABCOCK-DAVIS CORPORATION

474 Dorchester Avenue

BOSTON, MASS.

For Our Other Pages, see Manufacturers' Index

MOTOR OPERATED DISAPPEARING PLATE GLASS SHOW WINDOW (PATENTED)

Possibilities of This Type of Show Window

The example illustrated and described is one of several of our installations of a disappearing type of salesroom windows.

One of our most interesting developments is the electric operation of the whole street front show window including front entrance doors. This is about 75 ft. long and the several bays, together with entrance doorway, disappear below the sidewalk. Its operation allows practically an open air show room which can be closed up at night or in bad weather.

These conditions are simply offered as suggestions of possible further development of conditions of this nature. Any size opening can be taken care of by our equipment.

The illustration shows how an unusual condition in an automobile showroom was handled. The only exit and entrance to the showroom was from the front of the building. Ordinary methods sometimes used for small show windows were not practical or satisfactory in appearance for this size window.

A disappearing type window was finally decided upon. The following description will serve as a guide for other problems of a similar nature.

Construction of the Frame

The plate glass sections are limited in width to 20 ft. If a larger opening is desired, it will be necessary to introduce mullions between the glass sections, but the entire front opening can be constructed as a single section if desired.

The window frame must be designed structurally strong enough to support the plate glass without depending on the glass in any way for support. The lower section of the window frame is to carry cable sheaves which are used to raise and lower the window. All sides of the window frame should be properly weatherstripped and slot closing plate should be used at bottom. This plate to form a weatherstrip when the window is closed and to cover the slot in the frame when the window is open.

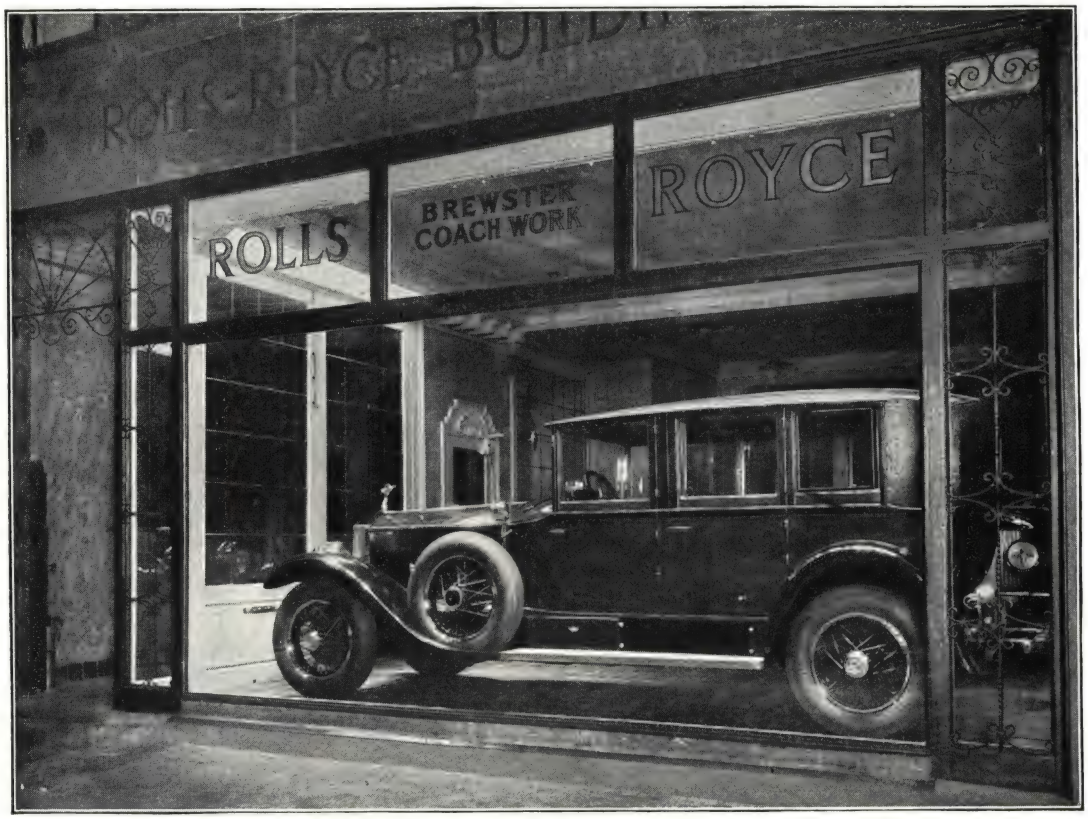
We will be very glad to consult and co-operate with architects in designing the structural supports and members for installations of this character.

Operating Mechanism

Provision should be made in the construction of the building for anchorage of the dead end of the operating cable, passing the cable over the window sheaves and winding the cable on the drum. The window is raised in the cable sling so formed.

An equalizing shaft runs the entire width of the window and the winding drums are placed at the points coinciding with the window sheaves. In opposition to these winding drums is placed a drum to which the cable or chain for counterweight is attached. The window is to be evenly counterweighted at all times. This equalizing shaft is directly connected to the motor equipment.

The size of the unit to be used for operating these windows varies according to the weight of the window and the speed of operation desired, the existing structural conditions and any other items of variable nature.



Disappearing Plate Glass Show Window in Rolls-Royce Show Rooms, Boston, Mass.

AMERICAN 3 WAY-LUXFER PRISM CO.

1301-1305 South 55th Court
CICERO, ILL.
(Suburb of Chicago)

55 West 42nd Street
NEW YORK, N. Y.

PRODUCTS DISTRIBUTED THROUGH ALL LEADING GLASS JOBBERS

Products

3 WAY-LUXFER PRESSED TILE DESIGNS.

3 WAY-LUXFER GEOMETRICAL DESIGN TRANSOMS.

3 WAY-LUXFER SHEET PRISM.

3 WAY-LUXFER VENTILATORS in Steel, Bronze and Aluminum.

For our Sidewalk and Vault Lights, and Daylight Roofing, see Manufacturers' Index.

3-WAY Daylighting Products

They daylight, they ventilate, they beautify, they advertise, they add distinction

3 Way-Luxfer Pressed Tile Designs

3 Way-Luxfer daylighting products are used for store front transoms, windows, skylights, interior doors, partitions and ceiling lights. They are made and assembled in a number of different designs.

The diamond shaped tile in the Lux Lens design and the 6-in. square diffusing tile are new developments. All styles are made in the pressed tile and built in panels to fit the opening. In these panels ventilators either with or without screens can be built to provide any desired ventilating area. In addition, firm names or business in colored glass can be incorporated for advertising signs.

Specifications—All transom lights, interior partitions and ceiling lights shown on plans shall be glazed with 3 Way-Luxfer Pressed Tile (design as selected) as made by the AMERICAN 3 WAY-LUXFER PRISM CO. These lights shall be in rigid panels, weatherproof and waterproof.

3 Way-Luxfer Geometrical Design Transoms

Geometrical designs for transoms are offered where some general design scheme may be intended and where the standard 4-in. squares or larger may not be desired. By using sheet prism glass in the construction of transoms, the same very satisfactory daylighting can be obtained as with the use of tile prism. However, in addition to the prism glass designs, we are in a position to fabricate these same panels from almost any other type or pattern of glass, and in every case these panels are built to fit the transom and, where necessary, are divided into suitable sections made interlocking by our improved 3-Way lock joint process. 3 Way-Luxfer Transoms are adaptable to any type of store front construction.

3 Way-Luxfer Sheet Prism

A prismatic sheet glass which, like the tile prism, is the only commercial adaptation of the natural law of light refraction, and may be best used in windows or openings where a maximum redirection of the light into dark interiors is desired. Easy to clean—therefore the maximum light transmission can be maintained. Can be furnished with or without wire in any size up to 60 ins. high by 120 ins. long.

3 Way-Luxfer Ventilators

While 3-Way Ventilators were originally designed and built by us for use in our transom lights, the demand for a well constructed inexpensive type of ventilator has grown to such an extent, that we have been called upon to build a number of different types of ventilators, so designed that they may be used for various purposes and for different types of setting.

Construction—These ventilators are light weight, but because the frames are built of angle steel, securely and solidly riveted inside of a mounting frame of angles, channels or flats, they are very strong and rigid.

Ventilators can be furnished in the pivoted or swinging type, or in the hinged type as may be desired. Standard frames are electro-galvanized but can also be furnished copper plated.

Something New in Bronze and Aluminum Ventilators

With the recent increased use of bronze and white metal for store front construction and windows, as well as interior work, we have found it necessary to equip our shop to make our ventilators in the standard commercial bronze and aluminum and we are now prepared to build our various types in either the bronze or aluminum as well as the steel.

These ventilators are built essentially the same as the steel ventilators, light weight but very strong and rigid, and the cost is low considering the quality.

Can be furnished in either the natural finish or plated.

These ventilators do not rust or corrode and should last the life of the building. Ventilators are obtainable through your store front contractor or glass contractor.

Details and prices on all types of ventilators are available upon request.

Removable Flat Screening—The specially designed 3-Way Removable Flat Screening can be provided for all of our standard types of ventilators. It is made of 24-mesh copper or bronze wire cloth thereby serving to keep out much dust as well as insects.

Further Information

Further information, photographs or samples of any of the above mentioned products will gladly be submitted upon request.

BRASCO MANUFACTURING COMPANY

Patented Metal Store Fronts

HARVEY, ILLINOIS

(Chicago Suburb)

DISTRIBUTION AND COMPLETE STOCKS THROUGHOUT UNITED STATES AND CANADA

LOCAL REPRESENTATIVE

Products

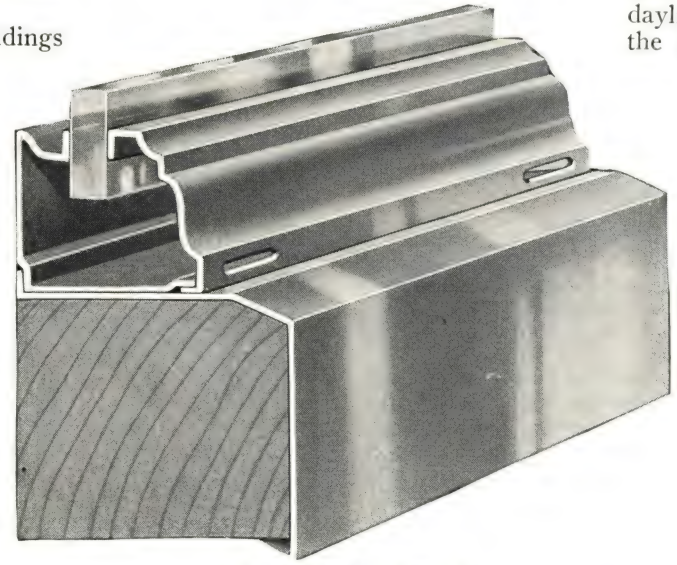
BRASCO PATENTED COMPLETE METAL STORE FRONTS in Bronze, Permawite (aluminum alloy), Monel Metal, Copper, Extruded Bronze and Extruded Aluminum.

Also Cold Rolled Mouldings in all metals, including stainless steel, rustless iron, monel metal, special alloys of all descriptions, nickel silver, copper, brass, bronze, aluminum and special steels; Solid Metal Store Front Ventilators and Showcase Doors; Thresholds, Kick Plates and Door Guards; Metal Covered Wood Mouldings.

For Davis Extruded Bronze and Extruded Aluminum Store Front Construction, see Products' Index.

Time Tested Principles

All Brasco systems embody the essential elements to insure safety and permanence in the setting of plate glass. They combine simplicity and practicability with modern architectural beauty and feature throughout the principle of *indirect screw pressure*, maximum daylighting, extra wide grip on the glass and special provision for full absorption of movement and vibration in the plate.

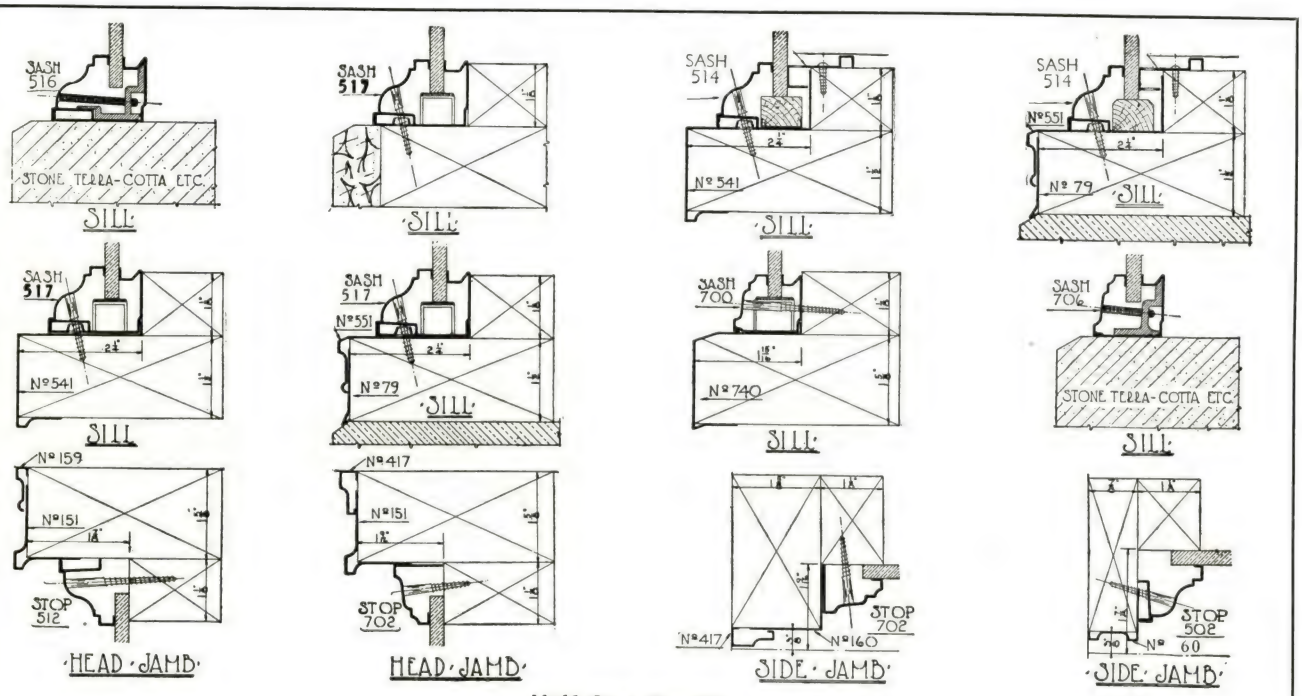


Series 600 in Monel Metal

Illustration shows the self-supporting type used in conjunction with sill 649. Gauge of sash face and back members .040; of sill, .031. All attaching screws also of Monel Metal

Samples and Details

Actual full size samples of all sash and bars in various metals will be gladly forwarded to any architect. Samples are plainly marked with gauges of each member in decimal thickness. Details and illustrations on these pages show only a few typical Brasco sections. Write for complete individual portfolios of Series 500, 600 and 700 hollow metal construction in various metals and of extruded bronze and extruded aluminum.



Half Size Details

Brasco Store Fronts may be obtained in Monel Metal, Bronze, Copper, Permawite, Extruded Bronze and Extruded Aluminum

Sectional Details

The illustrations on this and the preceding page show typical sections.

Write for complete, full size details.

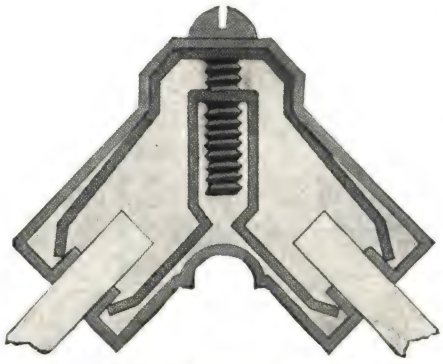


No. 6 Corner Bar

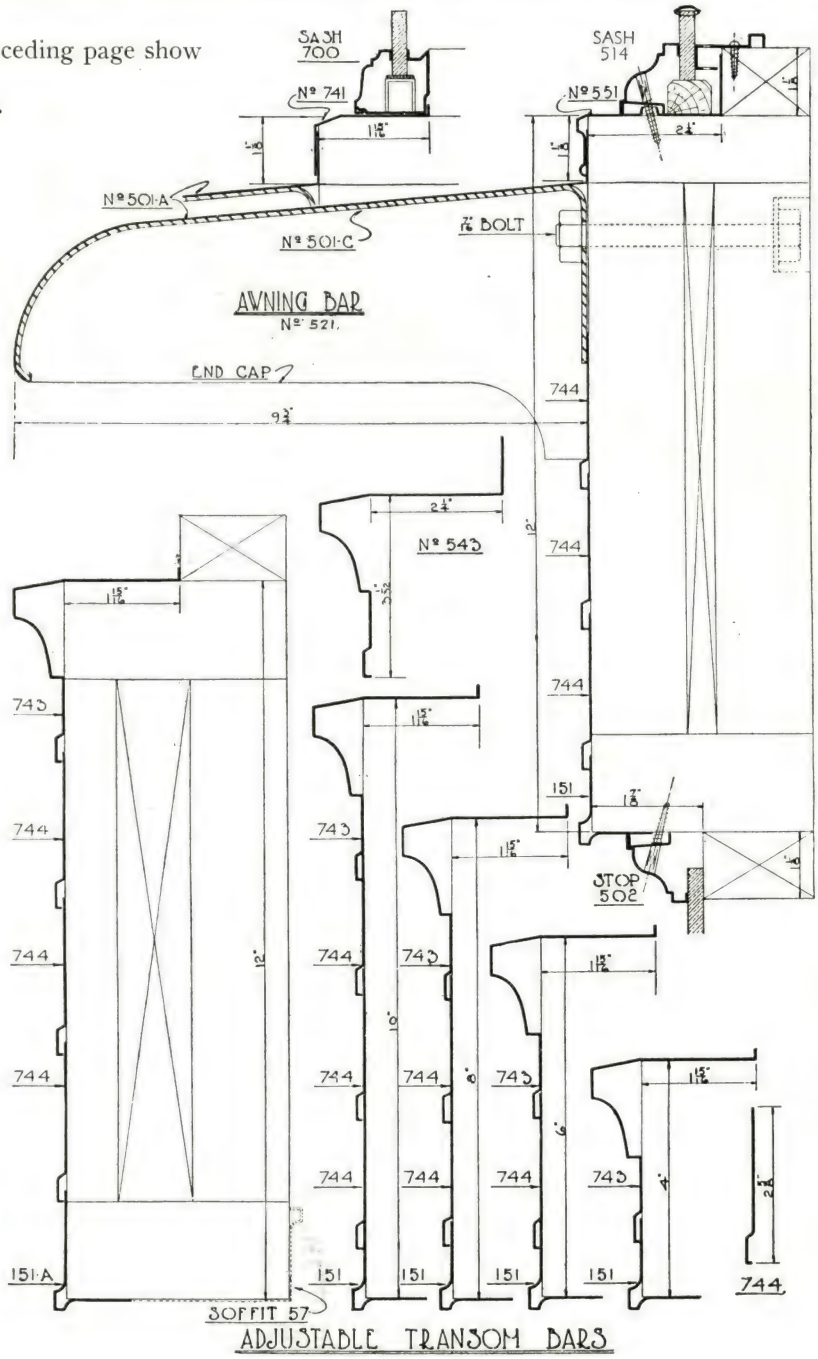
Continuous Reinforcement

The halftones in this column as well as the half-size details below illustrate the continuous steel reinforcement which has always been a feature of all *Brasco* bars.

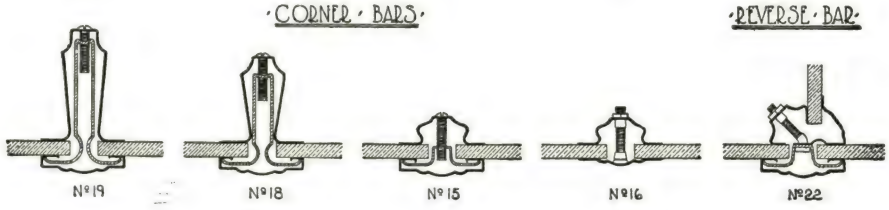
The indirect screw pressure principle of holding glass is employed throughout these bars regardless of size or angle.



No. 14 Reverse Bar







CAPITOL BRONZE CORPORATION

Manufacturers of Copper, Bronze and Aluminum Store Front Mouldings and Ornamental Bronze Work

TELEPHONE
Greenpoint 9-6033

420 Morgan Avenue
BROOKLYN, N. Y.

AGENTS

AMARILLO, TEX., Vernon-Williams Co. Inc., 203 W. 6th Street
ATLANTA, GA., V. H. Kriegshaber & Son, Inc., 666 Greenwood Avenue
CHICAGO, ILL., Henry A. Struck, 409 Burnham Building
CLEVELAND, OHIO, William A. Owens, 2021 Prospect Avenue
CLOVIS, N. M., Vernon-Williams Co. Inc.
COLUMBUS, OHIO, V. W. Ventilator Co., 471 E. Broad Street
DALLAS, TEX., Weaver Ornamental Works, 1801 Carty Street
HOUSTON, TEX., Walcott, Maisey & Paige, 328 West Building
LUBBOCK, TEX., Vernon-Williams Co. Inc., 1316 Texas Avenue
OKLAHOMA CITY, OKLA., The Lusco Brick & Stone Co.
PHILADELPHIA, PA., James H. Clancy, Harrison Building
PITTSBURGH, PA., J. H. Cunningham, Century Building
RICHMOND, VA., Earnest Bros., Inc., 805 East Franklin Street
SAN ANTONIO, TEX., J. L. O'Hearn, 617 Houston Building
SEATTLE, WASH., E. C. Hanselpacker & Co., 721 Virginia Street
ST. LOUIS, MO., August Court Co., 1020 Ambassador Building

Products

We carry in stock for immediate shipment a full line of STORE FRONT MOULDINGS in Extruded Bronze and in Hollow Copper, Bronze and Aluminum.

For our Hollow Metal and Metal Covered Doors, see Manufacturers' Index.

Special Work

We have complete facilities for promptly manufacturing and shipping any special metal work which may be required for special or unusual designs.

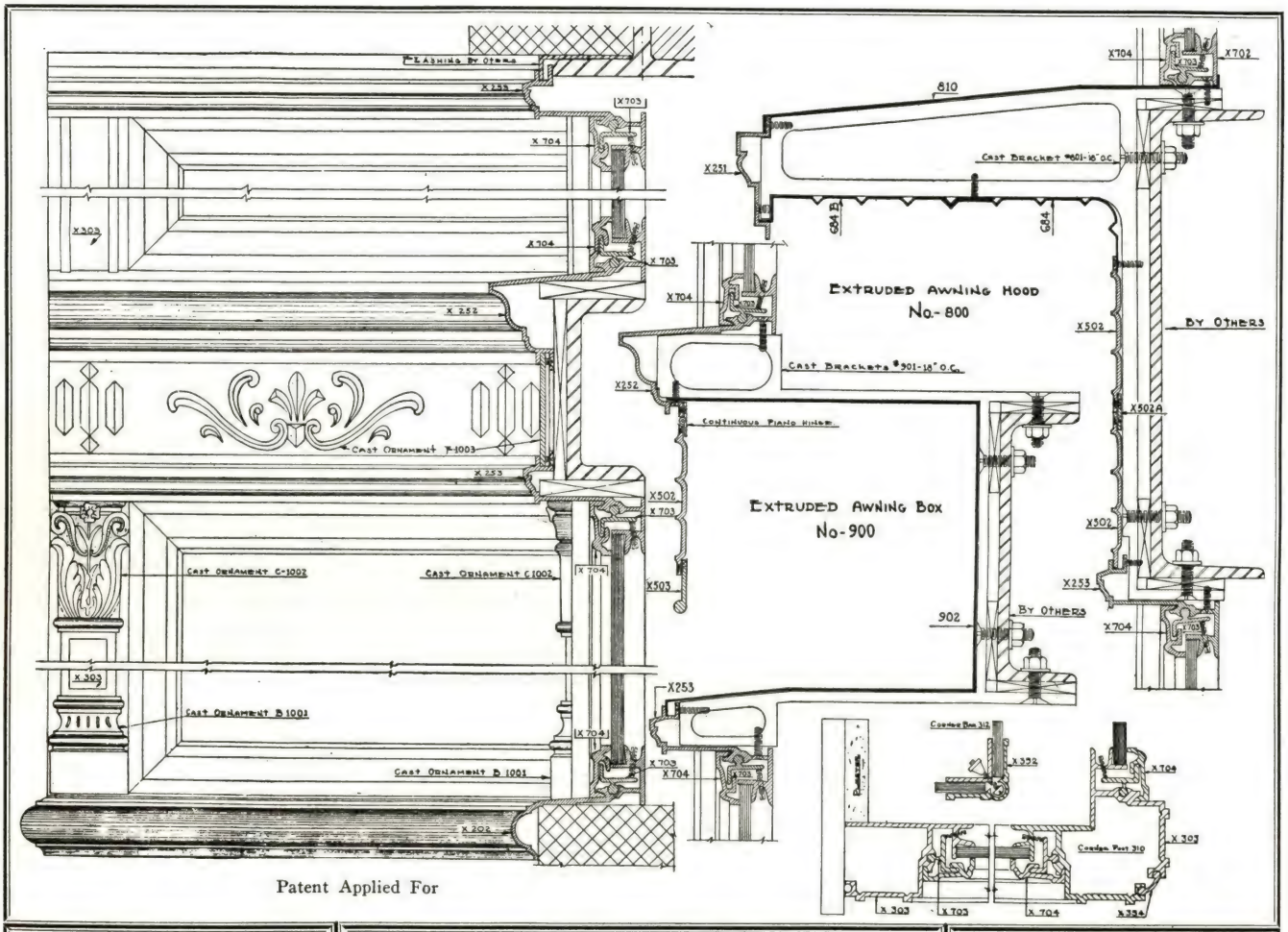
Finish

Extruded bronze mouldings are carried in stock in the yellow metal. The surface finish is produced as ordered immediately before shipment.

All hollow metal mouldings are carried in stock with surfaces having a mill finish. Other finishes can be furnished promptly.

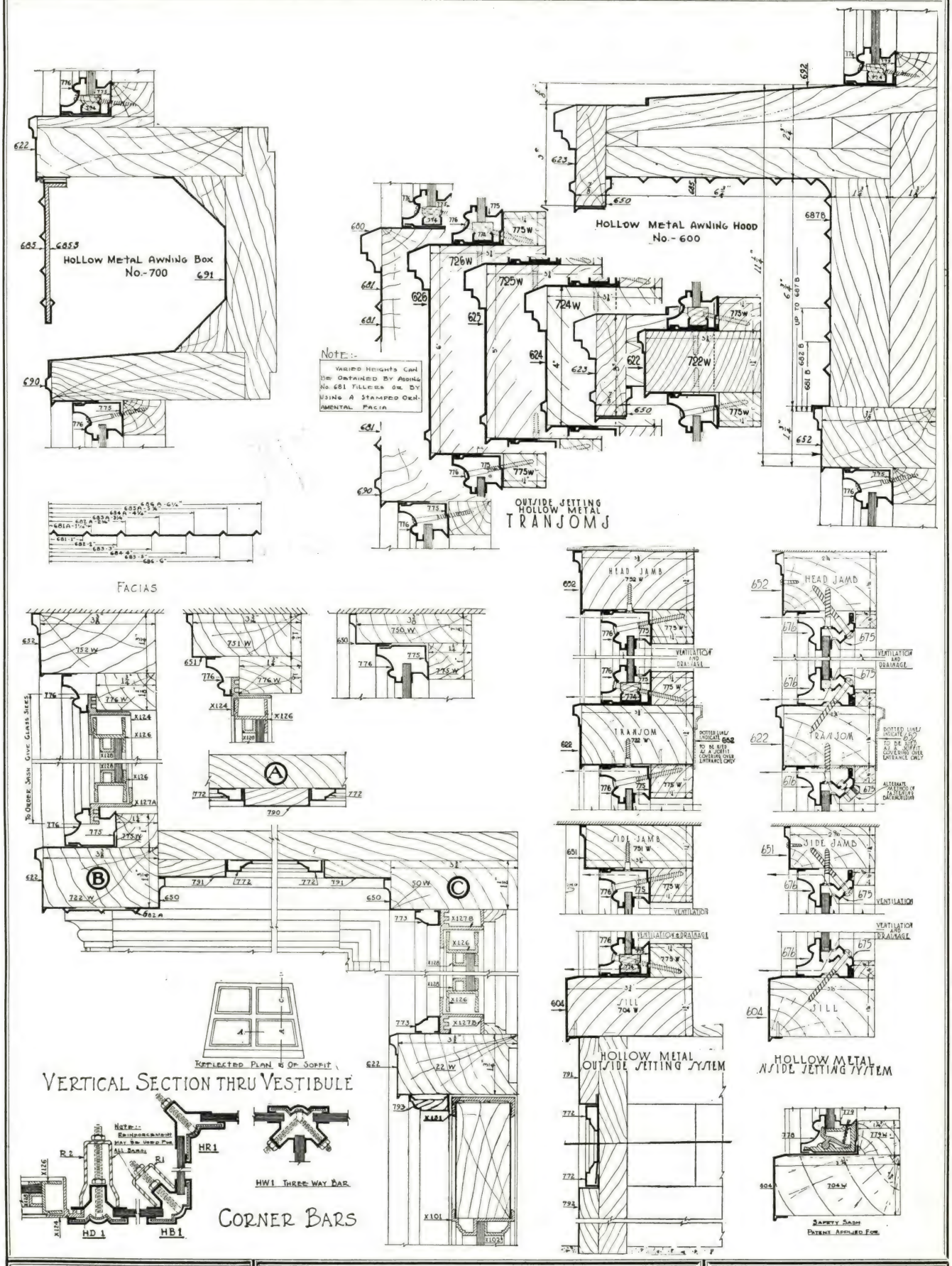
Ordering

Orders for mouldings should state the stock numbers of the sections which are shown on the scale details herewith. If the order is for extruded bronze the finish desired should be stated. Hollow metal mouldings will be specially finished only if so ordered.



Patent Applied For

CAPITOL BRONZE CORPORATION	DETAILS OF EXTRUDED BRONZE STORE FRONT MOULDINGS	SCALE—3 in. = 1 ft.



CAPITOL BRONZE CORPORATION	DETAILS OF HOLLOW METAL MOULDINGS IN COPPER, BRONZE AND ALUMINUM	SCALE—3 in. = 1 ft.

DAVIS EXTRUDED SASH CO.

SUBSIDIARY UNIT SASH & SALES COMPANY

Extruded, Cast Bronze and Aluminum Store Front Construction

(Patented)

2434 "N" Street
LINCOLN, NEB.

Products

STORE FRONTS:

Drawn or rolled Copper, Aluminum and Bronze.
Extruded Aluminum and Bronze.
Cast Aluminum and Bronze.
Custom Built to Architect's Specifications.

Also Miscellaneous Architectural Bronze and Aluminum Extruded Shapes of all descriptions.

Cast Aluminum and Bronze Spandrels, Tablets, etc.

Cast, Extruded and Kalamein Doors and Trim.

Service

Details for A.I.A. files and descriptive matter will be furnished upon request.

We maintain a designing and drafting department to assist the architect.

Description

Complete, uniform, patented system of store front construction, embodying two types of sash, several sizes of corners, reverse and division posts, and varied coverings for sills, side and head jambs, muntins, bulkheads, soffits, doors and frames, grilles, showcase doors, ventilators, crestings, enrichments and special items—providing for every modern store front need *"For Better Buildings."*

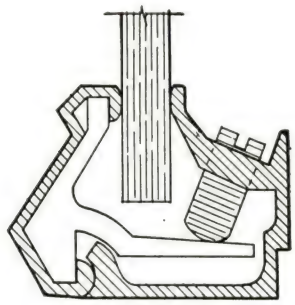
Davis store front mouldings are made from copper, aluminum, white metal and bronze, with or without screws in the face, and comprise a complete line. All in heavy gauge metal.

The Fulcrum Principle—A Special Feature

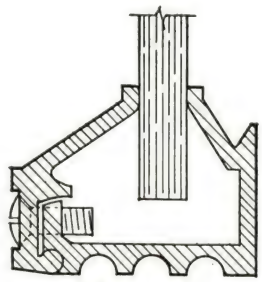
The *patented fulcrum principle,* with screws on the inside or outside, results in maximum glass safety for the largest plates, without the necessity of putty or unsightly compounds. The grip on the glass is always positive and uniform.

A Few Representative Jobs in Which the Davis System Was Furnished

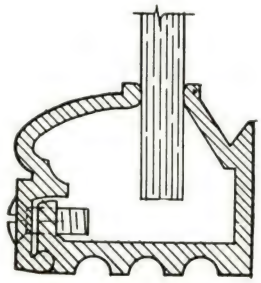
Western Union Building, Jacksonville, Fla.
Stop-and-Shop Stores, Chicago, Ill.
Feibleman Building, New Orleans, La.
Fidelity National Bank, Kansas City, Mo.
Kline's Department Store, Kansas City, Mo.
Barker Estate Building, Omaha, Neb.
Stuart Building, Lincoln, Neb.
Sherry-Netherlands Hotel, New York, N. Y.
American Insurance Union Citadel, Columbus, Ohio
Bank of Commerce Building, Memphis, Tenn.
Kyle Building, Beaumont, Tex.



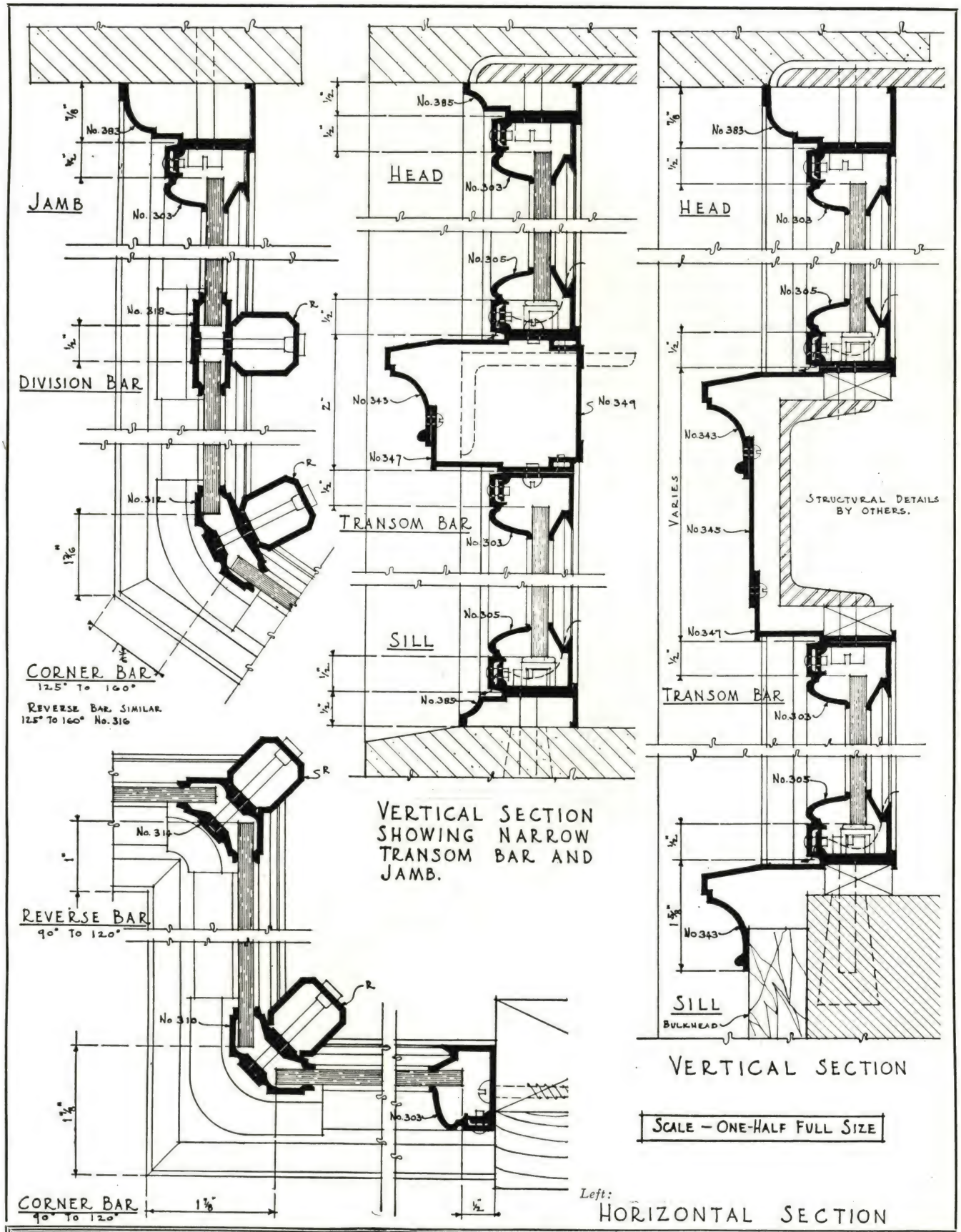
Sash No. 600
(Not drained)
Sash No. 601
(Drained)
Furnished in drawn bronze, aluminum and copper. Also in extruded bronze and aluminum



Sash No. 304
(Not drained)
Sash No. 307
(Drained)
Furnished in extruded aluminum and bronze

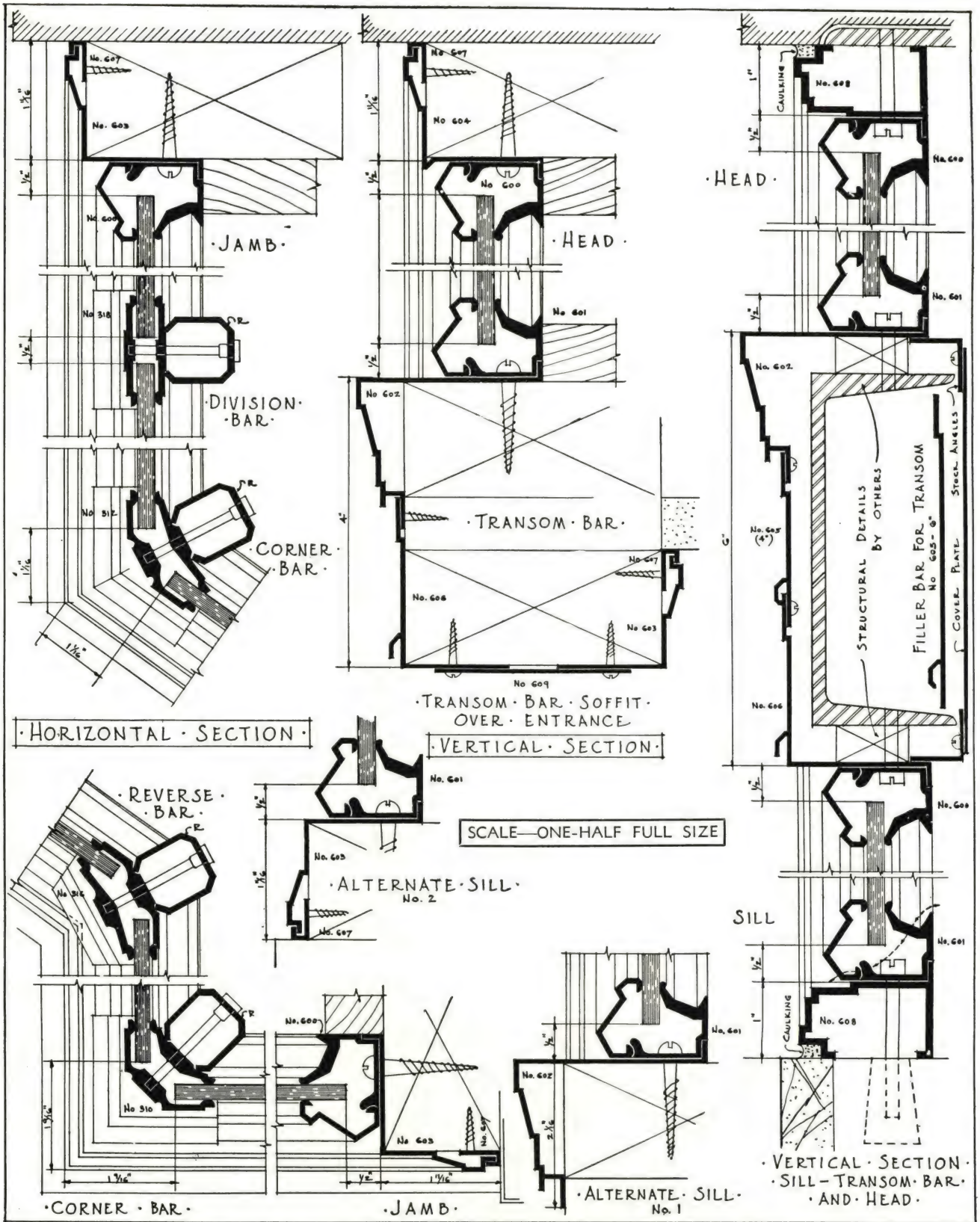


Sash No. 303
(Not drained)
Sash No. 305
(Drained)
Furnished in extruded aluminum and bronze



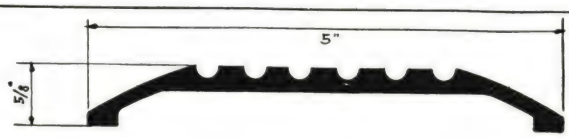
DAVIS EXTRUDED SASH COMPANY
LINCOLN NEB

The DAVIS
PATENTED
Solid Architectural
BRONZE AND ALUMINUM

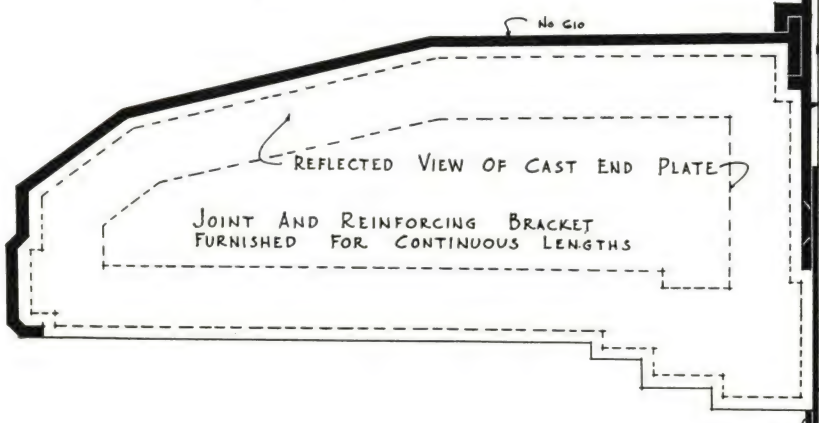


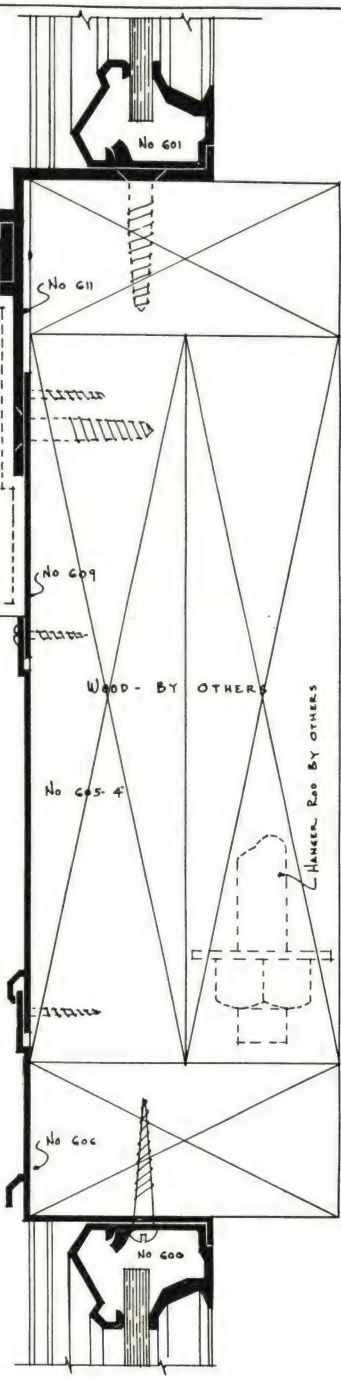
DAVIS EXTRUDED SASH ·COMPANY·
LINCOLN ~ NEB

The DAVIS PATENTED Solid Architectural BRONZE AND ALUMINUM

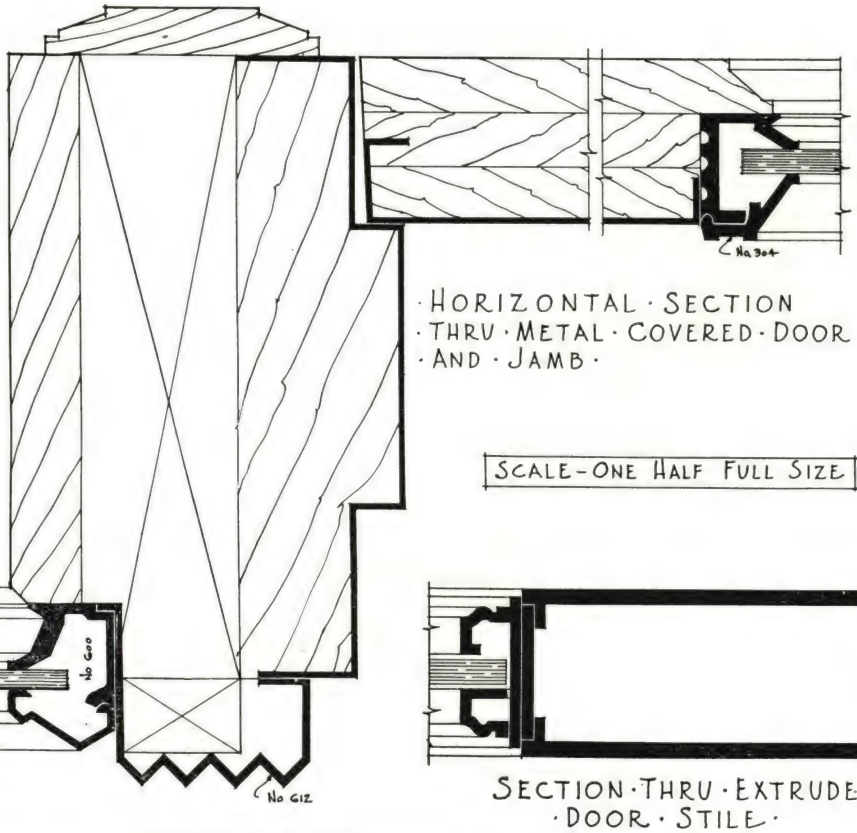


·THRESHOLDS·
4'-5'-6' WIDE





·SECTION·THRU·
·AWNING·BAR·



·HORIZONTAL·SECTION
·THRU·METAL·COVERED·DOOR·
·AND·JAMB·

SCALE-ONE HALF FULL SIZE



SECTION·THRU·EXTRUDED·
·DOOR·STILE·

DAVIS EXTRUDED SASH
·COMPANY·
LINCOLN ~ NEB

The DAVIS
PATENTED
Solid Architectural
BRONZE
AND
ALUMINUM

DETROIT SHOW CASE CO.

Makers of Metal Store Front Construction

OFFICE AND FACTORY
1670 West Fort Street
DETROIT, MICH.

NEW YORK OFFICE, 344-346 East 32nd Street
PHILADELPHIA OFFICE, 316 Commonwealth Building
PACIFIC COAST OFFICE, 450 Skinner Building, SEATTLE, WASH.
DISTRIBUTERS AND DEALERS IN ALL PRINCIPAL CITIES

Desco METAL STORE FRONTS

Products

Desco Metal Store Front Construction.

Also manufacturers of Hollow Metal Show Case Doors, Hollow Metal Mouldings, Extruded Bronze Thresholds, Kickplates, Push Bars, Metal Mirror Frames, Sign Frames, Hollow Metal and Kalamein Mouldings in copper, brass, bronze, german silver and aluminum alloy.

Description

Desco Metal Store Front Construction has been designed to meet the requirements of the most critical architects. The several shapes and members of the construction harmonize along most approved modernistic architectural lines. Heavy gauge cold rolled nonferrous metals only are used in its manufacture. Architects will find Desco complete in every detail, containing everything necessary for the simplest or most elaborate store front job.

Finishes

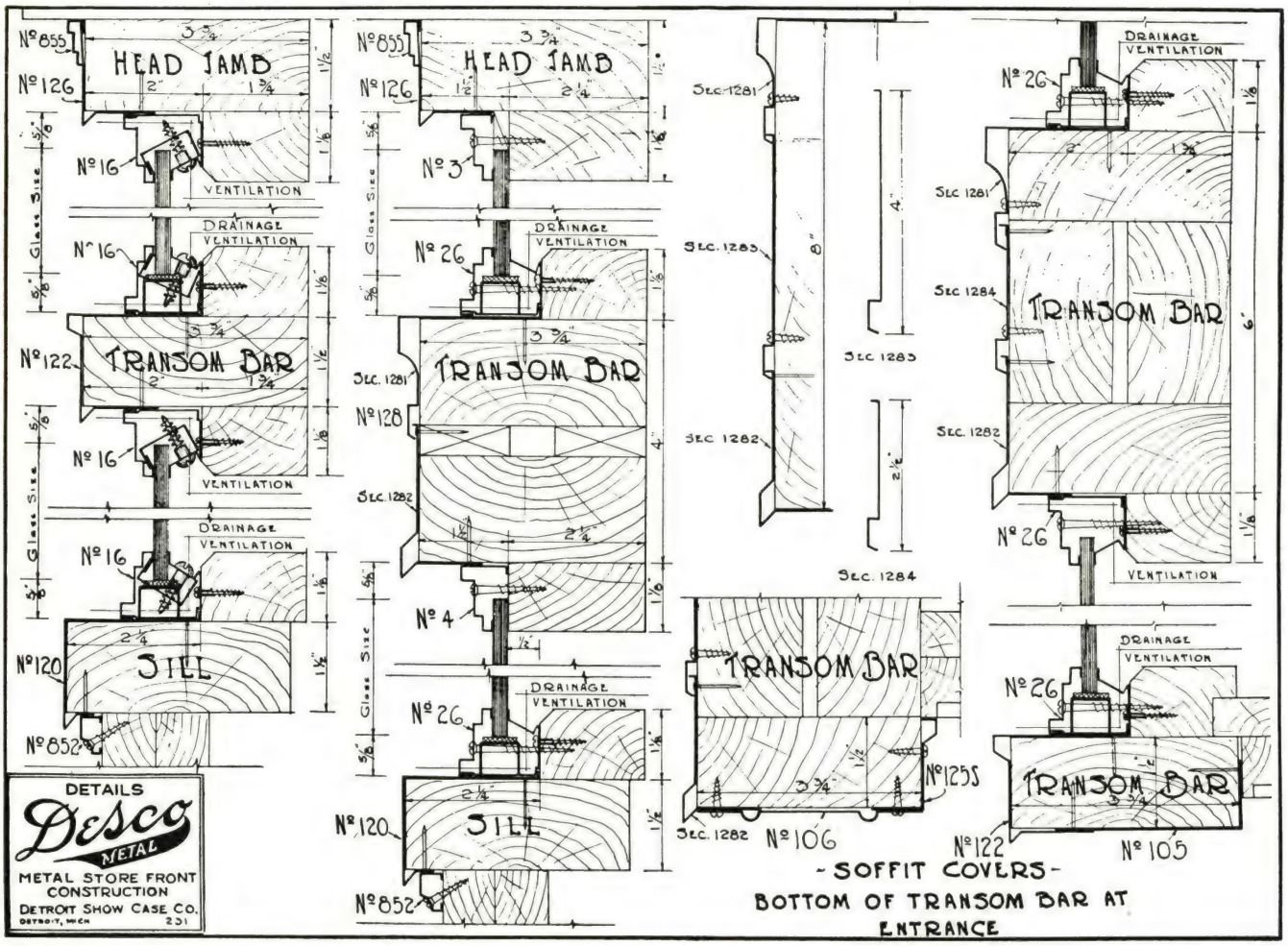
Desco can be furnished in solid bronze, in solid copper or the new white metal known as aluminum alloy in plain finish, satin finish, polished finish or any of the special finishes such as statuary bronze, gunmetal, oxidized, or according to architect's sample.

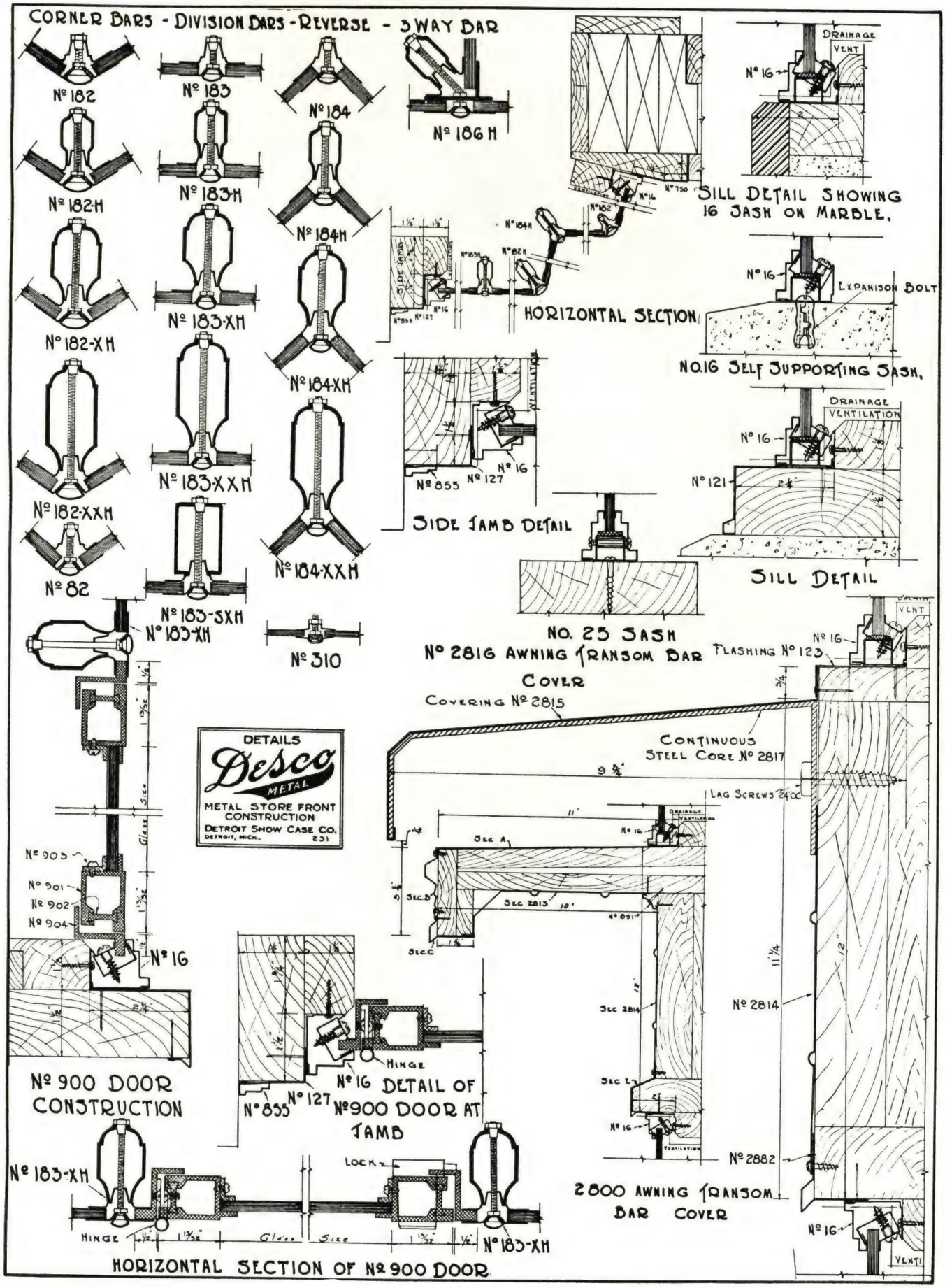
Distribution

Complete stocks of Desco in copper, bronze and aluminum alloy are carried at the Detroit factory and our New York warehouse, and by our distributers in nearly every important city of the United States and Canada.

Architectural Service

Full size details showing Desco in all its various combinations and uses will be mailed free to any architect on request. Thoroughly experienced store front field men are at the disposal of any architect for assistance of any kind.




CORNER BARS - DIVISION BARS - REVERSE - 3 WAY BAR
№ 182
№ 183
№ 184
№ 186 H
№ 182-H
№ 183-H
№ 184-H
№ 182-XH
№ 183-XH
№ 184-XH
№ 182-XXH
№ 183-XXH
№ 184-XXH
№ 82
№ 183-SXH
№ 183-XH
№ 310
DRAINAGE
VENT
№ 16
SILL DETAIL SHOWING 16 SASH ON MARBLE.
HORIZONTAL SECTION
EXPANISON BOLT
NO. 16 SELF SUPPORTING SASH.
№ 855
№ 127
SIDE JAMB DETAIL
VENTILATION
№ 121
SILL DETAIL
NO. 25 SASH
№ 2816 AWNING TRANSOM BAR COVER
FLASHING № 123
COVERING № 2815
CONTINUOUS STEEL CORE № 2817
LAG SCREWS 24 OC
DETAILS
Desco
METAL
METAL STORE FRONT CONSTRUCTION
DETROIT SHOW CASE CO.
DETROIT, MICH. 231
№ 903
№ 901
№ 902
№ 904
№ 16
№ 900 DOOR CONSTRUCTION
HINGE
№ 16 DETAIL OF № 900 DOOR AT JAMB
№ 855
№ 127
Sec A
Sec B
Sec C
Sec 2813
Sec 2814
№ 2814
№ 2882
2800 AWNING TRANSOM BAR COVER
LOCK
HINGE
Glass
Size
№ 183-XH
HORIZONTAL SECTION OF № 900 DOOR

THE HIMMEL BROTHERS CO.

Extruded and Rolled Solid Metal Store Front Construction

200 Commerce Street, NEW HAVEN, CONN.

DISTRIBUTED BY GLAZIERS THROUGHOUT THE COUNTRY

Copyright 1931 by The Himmel Brothers Co.

Products Index

ARCHITECTURAL EXTRUDED BRONZE STORE FRONT CONSTRUCTION, Plates 400-1; 400-2.

EXTRUDED BRONZE STANDARD MOULDINGS, Plate 400-2.

ROLLED SOLID METAL STORE FRONT CONSTRUCTION, Plates 70-1; 70-2; 60, 70, 80-3; 80-1; 80-2; 60-1.

METAL STORE FRONT CONSTRUCTION · HIMCO · TRADE-MARK

SHOW CASE CONSTRUCTION, Plate 80-3.

SHOW CASE DOOR of COPPER or BRONZE, Hinged or Pivoted, Plate 80-3.

HOLLOW METAL MOULDINGS in Stock Shapes, Plate 60, 70, 80-3.

DOOR SADDLES of Cast Bronze, Plate 400-1.

BRONZE SADDLES, Plate 400-1.

Also Kickplates of Brass or Bronze.

A Complete "Himco" Line in either Extruded or Rolled Solid Metal

We offer to the architect a complete glass setting construction either in architectural extruded sections for the highest quality store fronts, or in rolled solid metals for medium priced work.

We do not erect these constructions but the sections are stocked by reputable glaziers throughout the country and are generally erected through the glaziers, plate glass manufacturers, or setters.

Show Case Doors—These are manufactured to detail as shown on drawing. Show case doors may be made either in rolled solid chrome-nickel or bronze or extruded "Alumcro" (aluminum alloy) in hollow metal type of construction. Copper is only made on special order. The door may be fitted in a number of ways, in the vertical intermediate bar, at the regular joint sections, etc., of store front constructions. The door is made with a cylinder lock and can be hinged or pivoted.

Transoms—These can be provided in a hinged or pivoted type. The construction is similar to the show case doors.

The Essential Elements for Satisfactory Store Front Construction

The principal factor in satisfactory glass setting construction is in holding the glass in a cushion-like grip which counteracts shocks from wind or vibration and yet provides for expansion and contraction.

The setting member must be so arranged that it is possible to set and remove glass in a minimum amount of time in case of accident as well as in first erection. It must be a simple, quickly erected construction with a maximum amount of glass protection, with reduced labor charges.

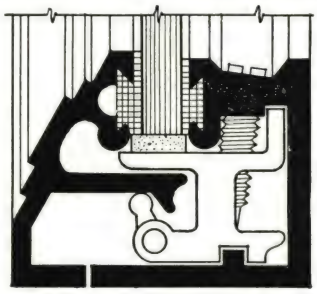
Modern Metals for Glass Settings

"Himco" Glass Settings are made in the following types of non-ferous metals:

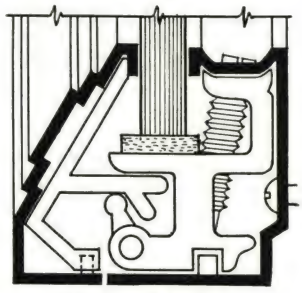
Extruded Metals—"Alumcro" (aluminum alloy) and bronze.

Rolled Solid Metals—Stainless Chrome-Nickel (chromium 18%, nickel 8%); "Alumcro" (aluminum alloy); bronze; also copper on special order.

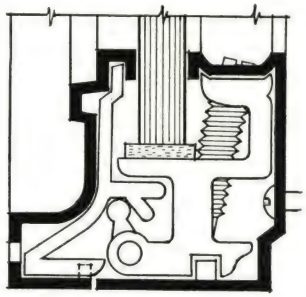
The metals in which each glass setting is made is given in the description of each type of glass setting.



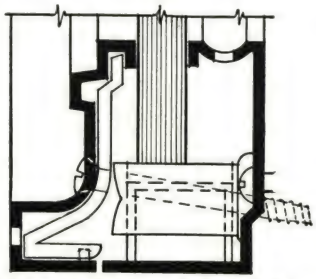
No. 400 Architectural Extruded Bronze Setting



No. 70 Setting, Rolled Solid Metal



No. 80 Setting, Rolled Solid Metal



No. 60 Setting, Rolled Solid Copper

The No. 400 Store Front Construction of Architectural Extruded Sections with the Cushion Glass Grip (Patented)

For the very finest type of modern store fronts. Glass settings can be supplied separately for cast bronze or aluminum alloy by others. The positive screw flange control (patented) eliminates all exposed screws and the rubber cushions or gaskets prevent glass breakage.

Rolled Solid Metal Glass Settings

These settings are equally as efficient as the extruded sections, in regard to glass protection but cost considerably less.

The No. 70 Glass Setting (Patented)—This is our newest modern design based on the No. 400 setting, but in rolled solid metals and having the same type of positive screw flange control, eliminating all exposed screws.

The No. 80 Glass Setting (Patented)—This construction has a screw flange control similar to No. 70 and does not have exposed screws. The design is similar to the No. 60 in face section.

The No. 60 Glass Setting (Patented)—The setting screws pass through a metal tube from the front to the back member assuring freedom from contact between the glass and the screw.

Finishes

The standard finish for bronze is polished natural finish. Special finishes such as statuary bronze can also be supplied.

"Alumcro" and Chrome-Nickel are supplied in natural polished finish. Copper supplied on order in natural polished, statuary copper and oxidized copper.

Satin finish supplied on all metals.

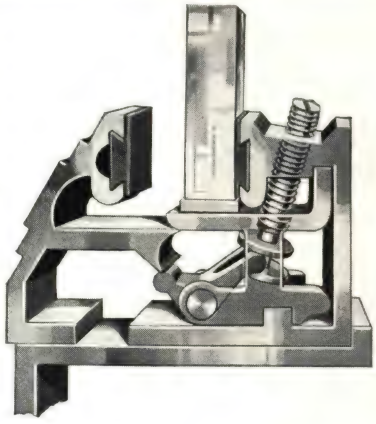
"HIMCO" NO. 400 STORE FRONT CONSTRUCTION

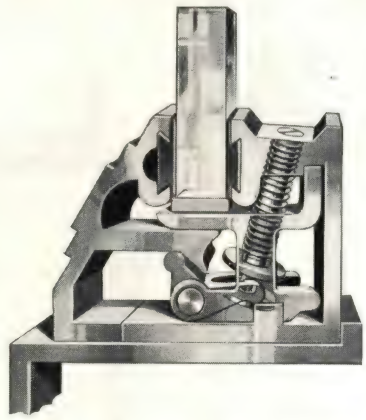
PATENTED

ARCHITECTURAL EXTRUDED "ALUMCRO" (Aluminum Alloy) AND BRONZE

A New Modern Improved "Himco" Invisible Screw Cushion Type, Extruded Setting (Patented)

The illustrations below show how radical is the new method of setting glass. Composed entirely of extruded shapes the new "Himco" No. 400 sections offer an entirely new feature in rigid store front constructions. In the old No. 400 setting the glass was held in a steady but velvet like grip by means of the rubber cushions, yet allowing the glass to expand and contract, and by the concealed adjusting screw. The new section is an even greater improvement over the old both in design as well as in the method of securing the glass by the new positive setting screw. The cushions are of the finest rubber.



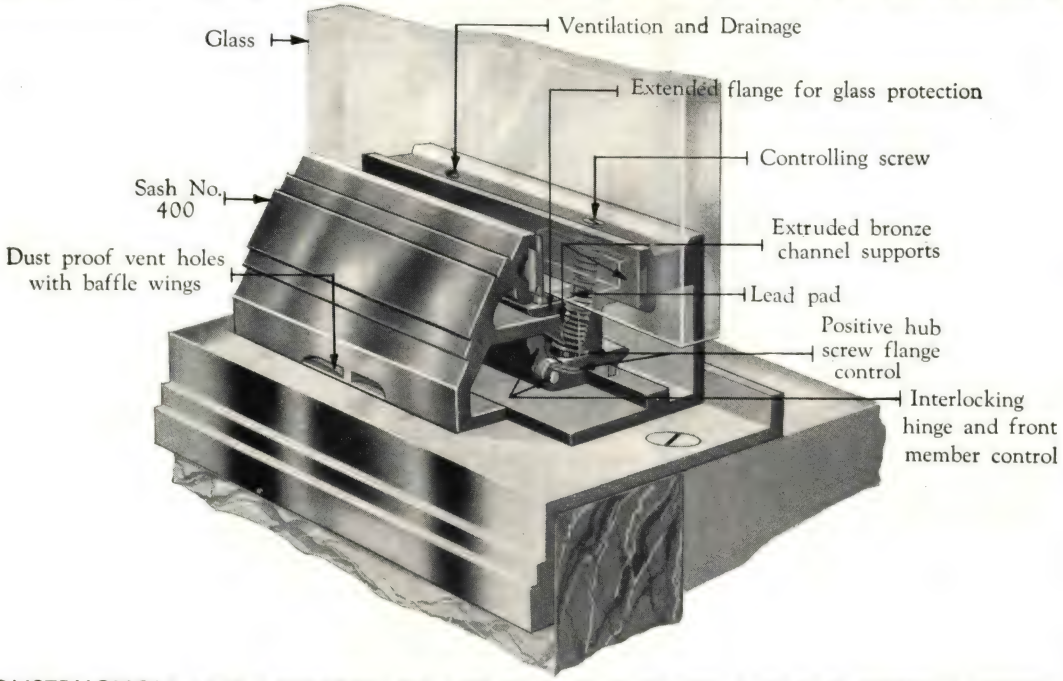


No Screws Show on the Face of the Setting

The setting consists of only two shapes, the front and back plates. By means of an indirect draw, acting on the interlocking members of extruded metals, glass set in "Himco" No. 400 setting is held more firmly than in the old type and less pressure is exerted on the glass. The setting screws, which cannot work loose, are also more available for setting the glass yet invisible from the exterior of the construction giving the appearance of strictly architectural cast construction.

The two sections at full size below illustrate the method by which the extruded lever arms are operated by means of this set screw. It is impossible for this screw to work loose, on account of vibration from the street, thus reducing tightening supervision necessary for many old types of construction.

FULL SIZE SECTIONS THROUGH GLASS SETTING SHOWING OPERATION OF THE SETTING SCREWS



CONSTRUCTION AND METHODS OF HOLDING THE GLASS AND THE SETTING SCREW

The Any Angle Extruded Corner Construction

The new lock gear type of corner construction allows the use of a universal section for any angles of 5 degrees desired. By locking the two center members together the wing pieces of the corner are made absolutely rigid. The only part which changes is the back spring grip. This is shipped to fit the correct angle desired.

Extruded Metals

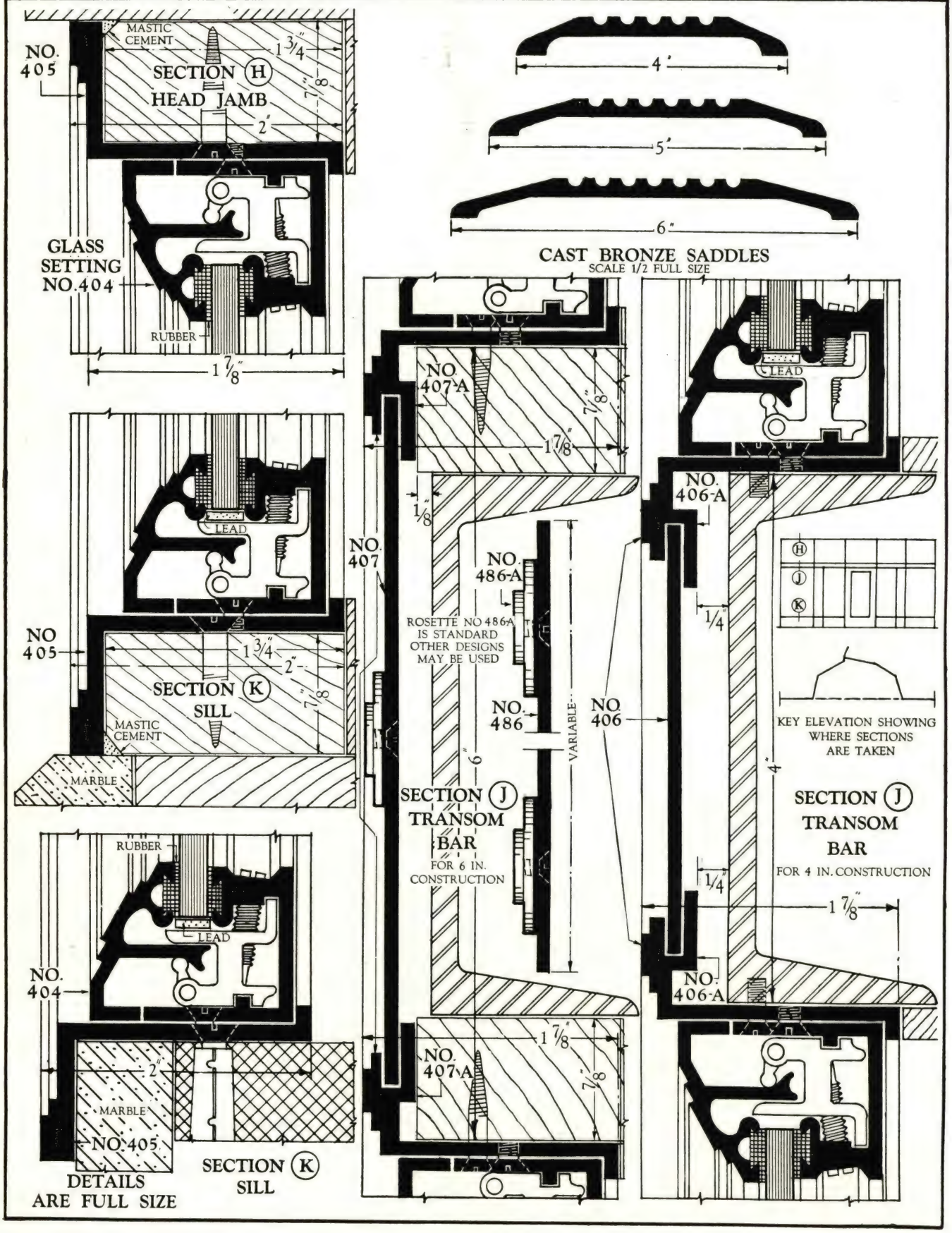
"Himco" No. 400 construction is made either in "Alumcro" (aluminum alloy) or in bronze. It is impossible to make this section in extruded Stainless Chrome-Nickel (chromium 18%—nickel 8%) or genuine Stainless Steel. If a white metal is desired we suggest using "Alumcro" made under our own direction which will stay bright and take a high polish.

In Specifying—We suggest that our glass settings be included for use with all cast bronze stone front construction, for the protection and easy accessibility of installing the glass, whether the work is done by an ornamental bronze contractor or the entire front is of our section. These sections have been designed and made by experts specializing in the protection of plate glass in window constructions for many years. We will be only too glad to advise with any architect or bronze contractor as to the best methods of using the sections with their types of special construction. Many times on account of incorrect detailing of the show windows, it is very hard to install plate glass at the building. This causes high labor charges and disatisfaction and misunderstandings arising between the owner and the architect and contractor.

"HIMCO" NO. 400 STORE FRONT CONSTRUCTION

EXTRUDED, ARCHITECTURAL SECTIONS OF "ALUMCRO" AND BRONZE
(ALUMINUM ALLOY)

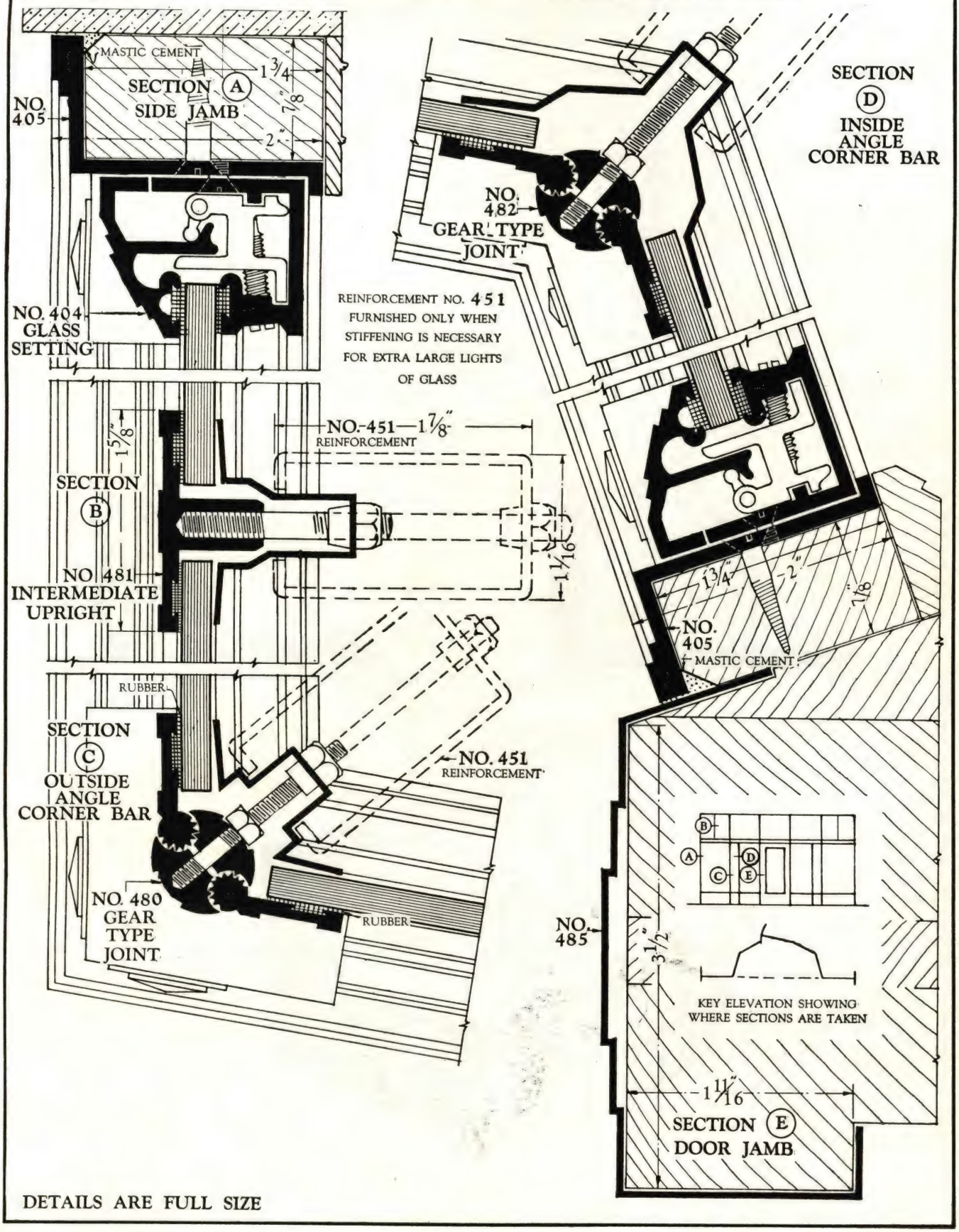
400/1



"HIMCO" NO. 400 STORE FRONT CONSTRUCTION

EXTRUDED, ARCHITECTURAL SECTIONS OF "ALUMCRO" AND BRONZE
(ALUMINUM ALLOY)

400/2



DETAILS ARE FULL SIZE

"HIMCO" NO. 70 STORE FRONT CONSTRUCTION

PATENTED

THE NEW, INEXPENSIVE MODERN GLASS SETTING WITHOUT EXPOSED SCREWS

Made in Rolled Solid "Alumcro" (aluminum alloy) and Bronze. Made in Copper only on Special Order

A New Design of Modern Trend

The new "Himco" No. 70 has been designed along the lines desired in the most modern types of buildings. An effort has been made to reduce the depth of the entire construction to the least possible dimension. Flat surfaces, rather than projecting mouldings, allow the glass to be set almost on the building line, when this condition is desired. The smooth plain faces without visible fastenings also gives the effect of an extruded or cast construction.

A New Type Positive Setting Without Exposed Screws

"Himco" No. 70 glass setting is similar in principle to the "Himco" No. 400 setting—in that all screws on the face of the construction are eliminated. This new setting is absolutely positive in action and the screw will not work loose by street vibrations.

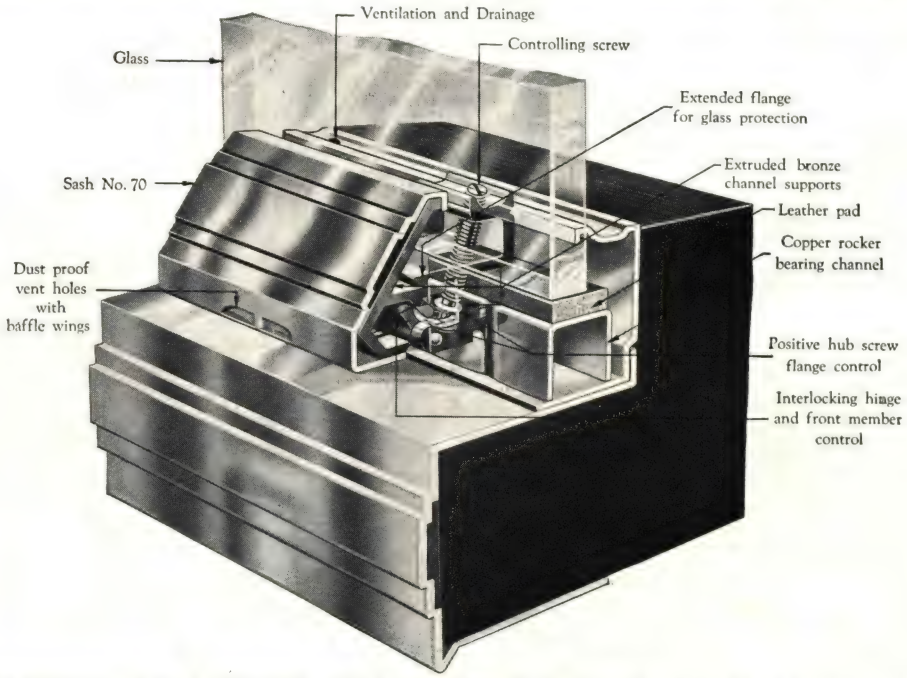
By means of an indirect draw acting with a lever on interlocking members of extruded bronze, glass is held more firmly than in the exposed screw type sash, though less pressure is exerted on the glass. This permits the window to give to vibration and atmospheric changes, thus reducing the danger of breakage from exterior causes. The glass is further protected by the use of leather cushions on a stationary extended flange. This flange, part of the solid controlling base, safeguards the glass from contact with moving parts.

Displays Remain Clean Longer

As the new sash is set squarely on the sill no matter what thickness of glass used, it reduces the possibility of infiltration of dust to the inside. The baffle wings behind the exterior vents also help to divert dust yet allow ventilation. They eliminate dust slides.



FULL SIZE SECTIONS THROUGH GLASS SETTING SHOWING OPERATION OF THE SETTING SCREW

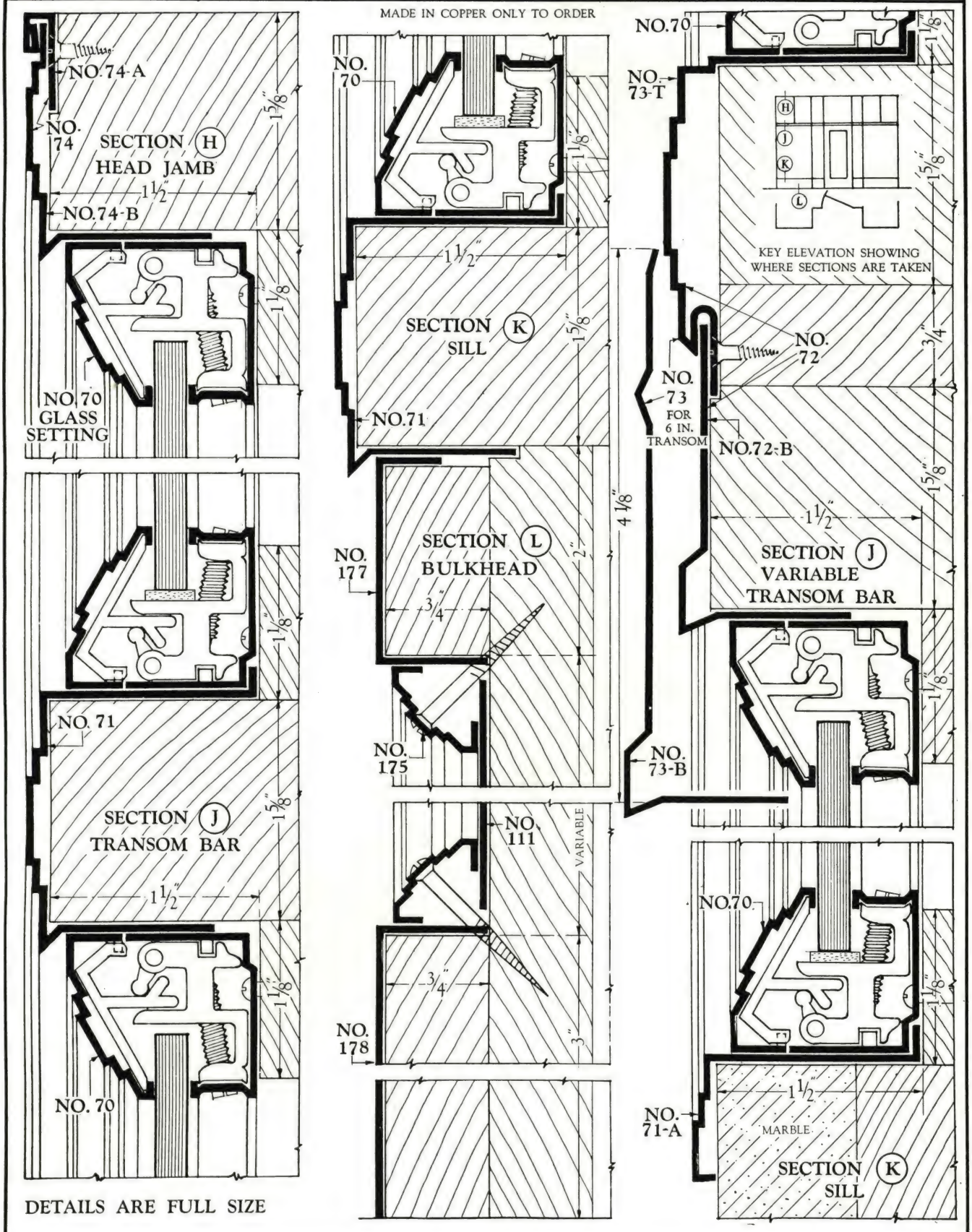


CONSTRUCTION AND METHODS OF HOLDING THE GLASS AND THE SETTING SCREW

"HIMCO" NO. 70 STORE FRONT CONSTRUCTION

ROLLED, SOLID, "ALUMCRO" AND BRONZE
(ALUMINUM ALLOY)

70
1



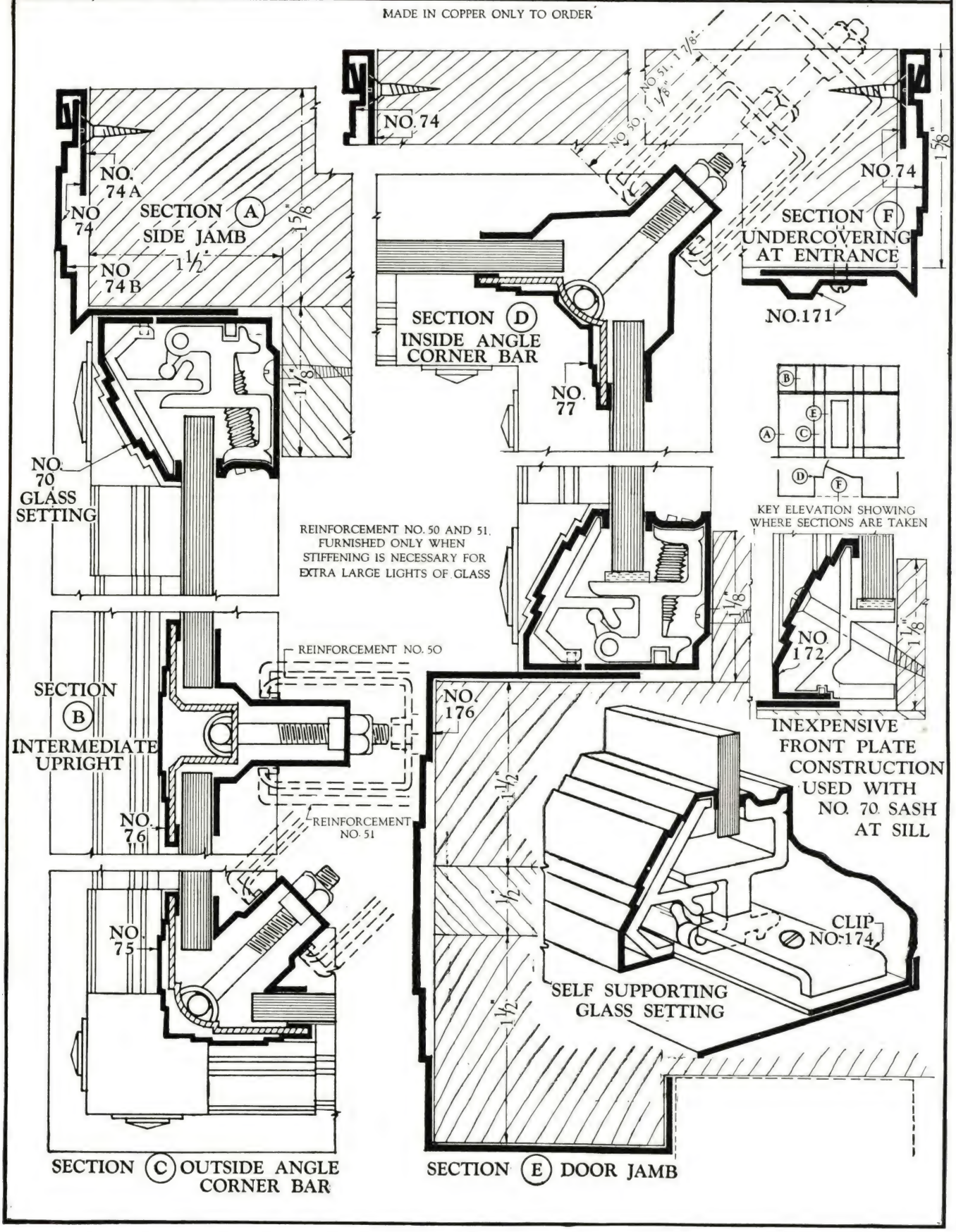
DETAILS ARE FULL SIZE

"HIMCO" NO. 70 STORE FRONT CONSTRUCTION

ROLLED, SOLID, "ALUMCRO" AND BRONZE
(ALUMINUM ALLOY)

70/2

MADE IN COPPER ONLY TO ORDER



"HIMCO" NO. 80 STORE FRONT CONSTRUCTION

PATENTED

ROLLED SOLID STAINLESS CHROME-NICKEL (Chromium 18%, Nickel 8%), "ALUMCRO" (Aluminum Alloy) AND BRONZE

Copper Made Only on Special Order

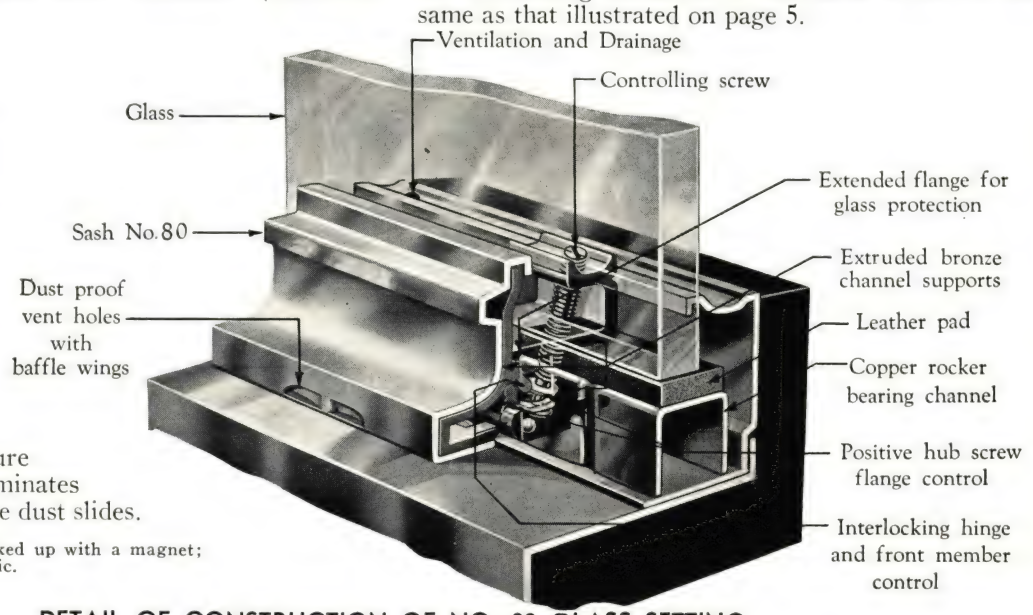
The particular advantage of this section is that it can be obtained in Rolled Solid Stainless Chrome-Nickel (chromium 18%—nickel 8%).* On account of the hardness and non-corrosive character of this metal, the slight extra cost more than offsets the reduced cost of upkeep. The metal will withstand the corrosive action of acids and smoke. Its surface is impervious to atmospheric conditions and will always retain its high polish and brilliance. This section is also produced in rolled solid "Alumcro" (aluminum alloy), and bronze.

Ventilation and Condensation—There is a direct system of ventilation on all sides of the glass setting. The front vent holes indicated on the drawings have dust-proof baffle wings which prevent direct drafts and dust from entering show windows due to wind pressure or storms. This eliminates the use of troublesome dust slides.

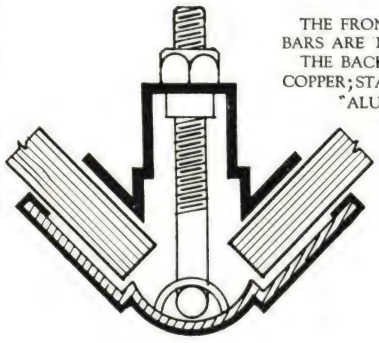
* This metal cannot be picked up with a magnet; it is therefore non-magnetic.

This glass setting is similar in construction to The No. 70 setting except that the design of the profile is different. It is a vast improvement over our No. 60 setting, the details of which are also shown on page 12. The new No. 80 has no screws on the face of the setting. The setting is absolutely positive in action and the screw will not work loose by vibration from the street.

The action of the indirect draw, acting with a lever, on interlocking members of extruded bronze is the same as that illustrated on page 5.

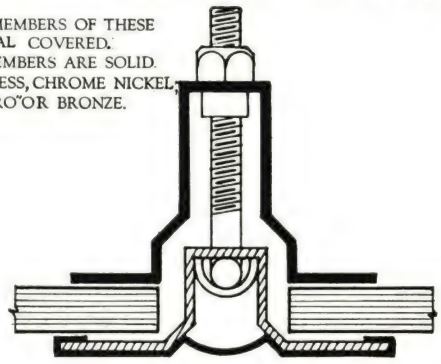


DETAIL OF CONSTRUCTION OF NO. 80 GLASS SETTING



CORNER BAR NO. 41-CB

THE FRONT MEMBERS OF THESE BARS ARE METAL COVERED. THE BACK MEMBERS ARE SOLID COPPER; STAINLESS, CHROME NICKEL, "ALUMCRO" OR BRONZE.



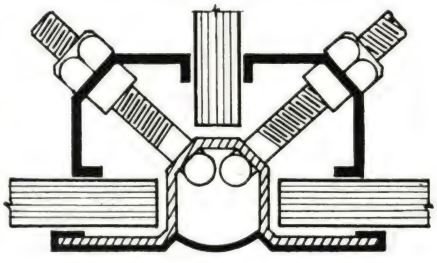
DIVISION BAR NO. 45-CB



REVERSE BAR NO. 42-CB

Corner Bars—These are made to fit any angle of glass setting desired. The patented method of bolting together the outer and inner sections, eliminates the use of clips, one of the commonest causes of glass breakage.

The bar constructions not only permit glass of varying thicknesses to be joined but provide equal pressure on both pieces of glass.



3-WAY BAR NO. 48-CB

Construction of Corner—The corners are formed up of rolled steel sections to give rigidity and strength and are bronze plated. The sections exposed to the weather are covered with rolled copper, bronze, Stainless Chrome-Nickel or "Alumcro."

Use of Corner Bars—The rolled steel corner bars are used interchangeably with either the No. 60, 70 or 80 type of setting.

FULL SIZE DETAILS OF CORNER AND DIVISION BARS

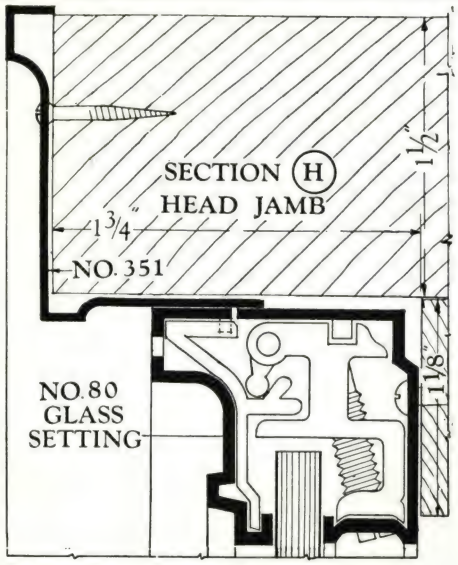
"HIMCO" NO. 80 STORE FRONT CONSTRUCTION

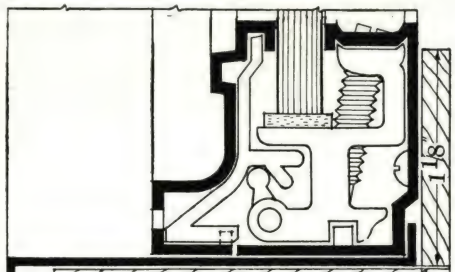
ROLLED, SOLID, STAINLESS, CHROME-NICKEL, "ALUMCRO" (ALUMINUM ALLOY) AND BRONZE

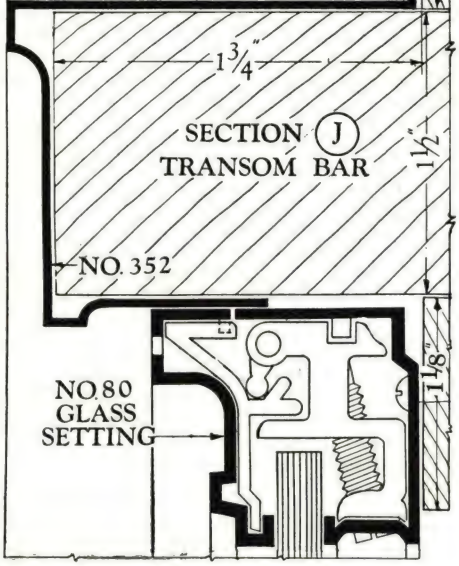
(CHROMIUM 18%) (NICKEL 8%)

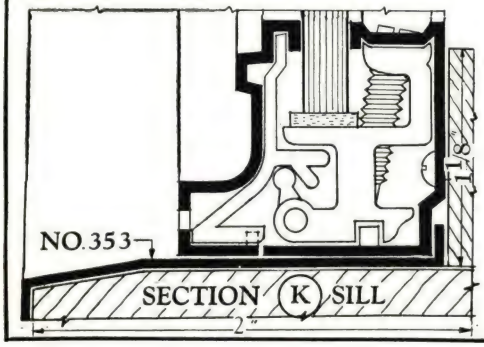
80/1

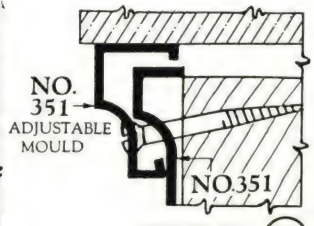
MADE IN COPPER ONLY TO ORDER



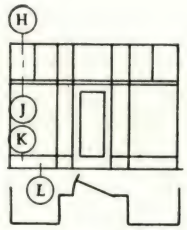




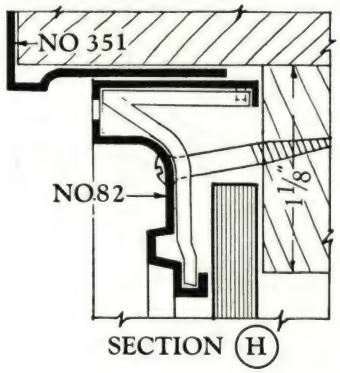




SHOWING USE OF ADJUSTABLE MOULD NO. 351

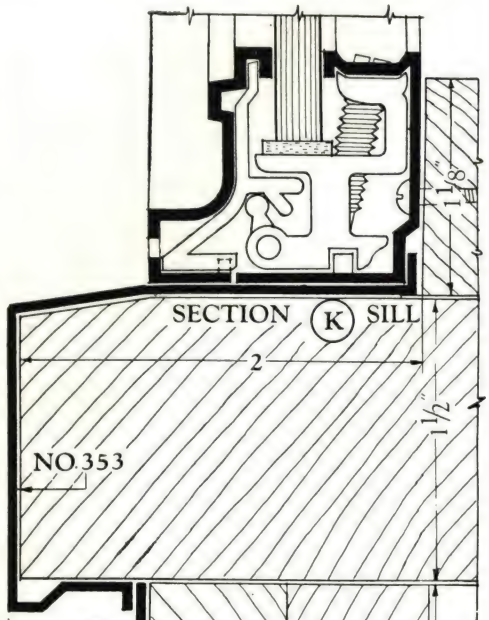


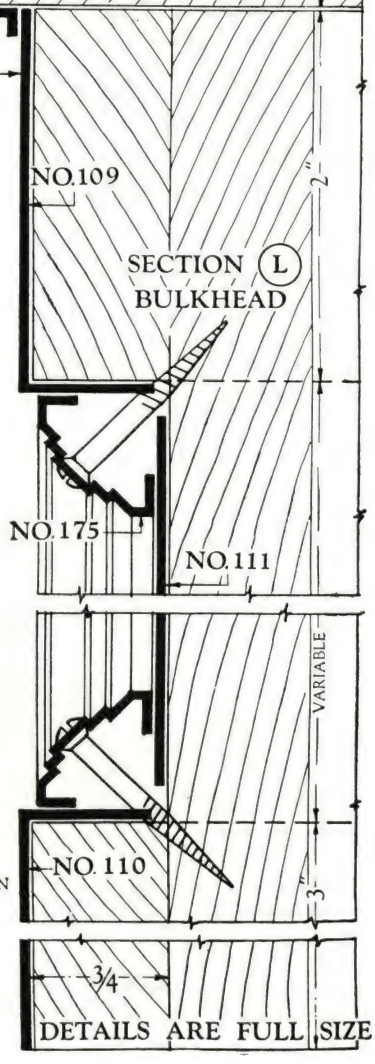
KEY ELEVATION SHOWING WHERE SECTIONS ARE TAKEN



INEXPENSIVE FRONT PLATE CONSTRUCTION USED WITH NO. 80 SASH

THE DETAIL ABOVE SHOWS NO. 82 FRONT PLATE, WHEN USED WITH NO 80. SASH AT SILL PROVIDES AN INEXPENSIVE STORE FRONT CONSTRUCTION, IT DOES NOT, HOWEVER, AFFORD VENTILATION. FOR MAXIMUM GLASS PROTECTION USE NO. 80 SETTING.



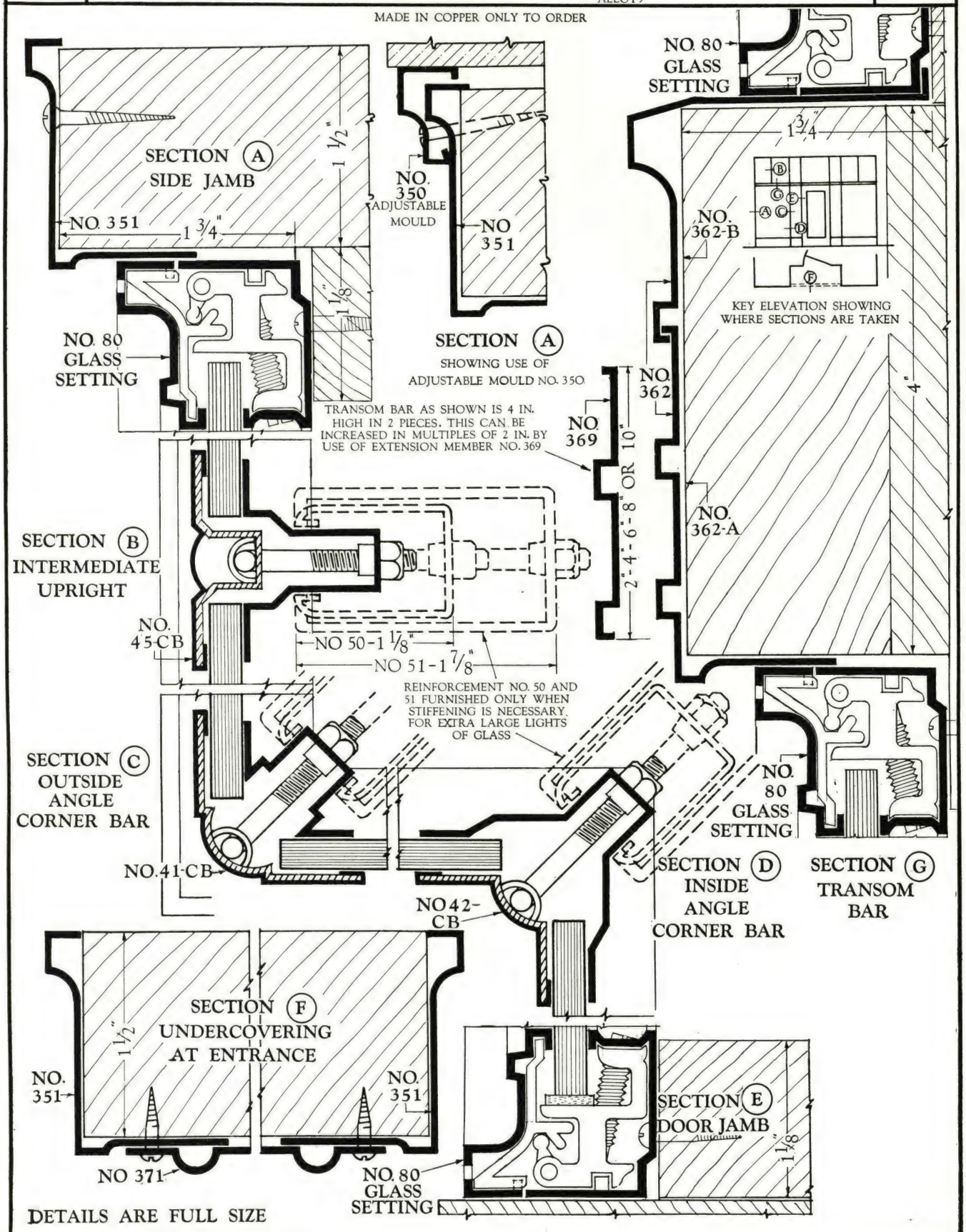


"HIMCO" NO. 80 STORE FRONT CONSTRUCTION

ROLLED, SOLID, STAINLESS, CHROME-NICKEL, "ALUMCRO" AND BRONZE
(CHROMIUM 18%) (NICKEL 8%) (ALUMINUM ALLOY)

80/2

MADE IN COPPER ONLY TO ORDER



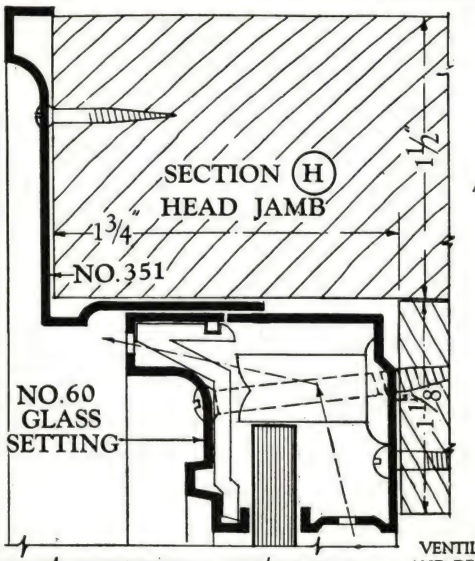
DETAILS ARE FULL SIZE

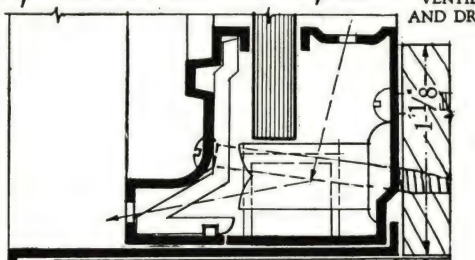
"HIMCO" NO. 60 STORE FRONT CONSTRUCTION

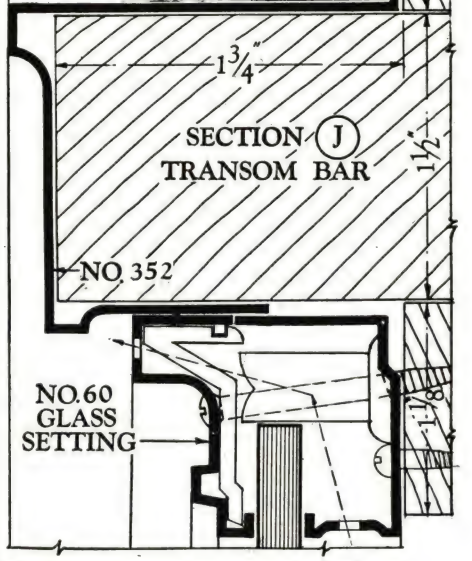
ROLLED, SOLID, STAINLESS, CHROME-NICKEL, "ALUMCRO" AND BRONZE
(CHROMIUM 18%) (NICKEL 8%) (ALUMINUM ALLOY)

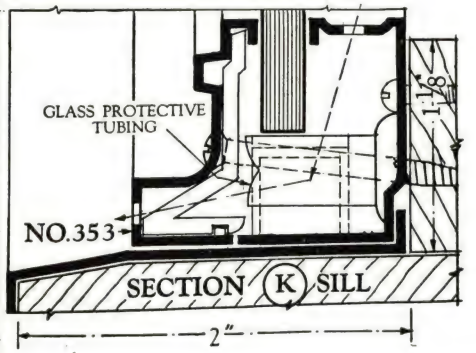
60/1

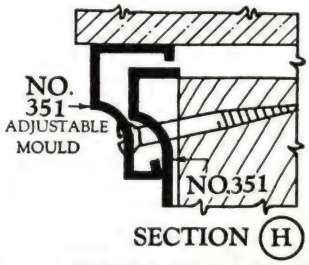
MADE IN COPPER ONLY TO ORDER



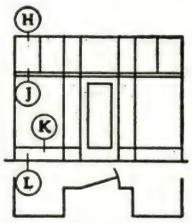




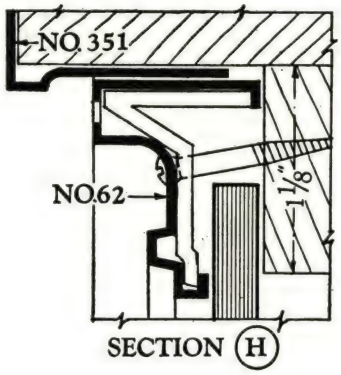




SHOWING USE OF ADJUSTABLE MOULD NO.351

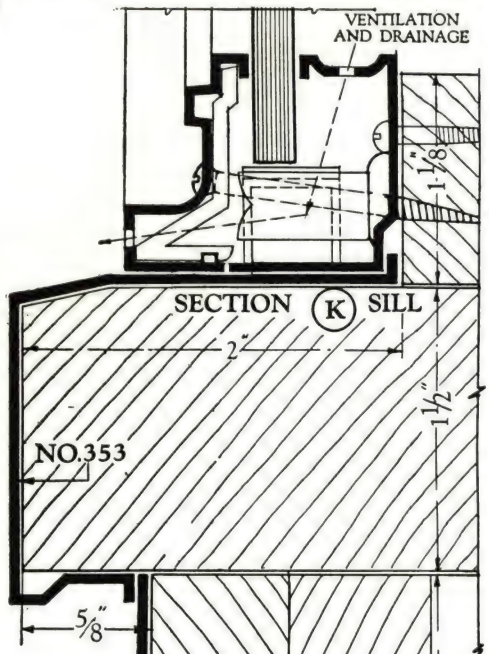


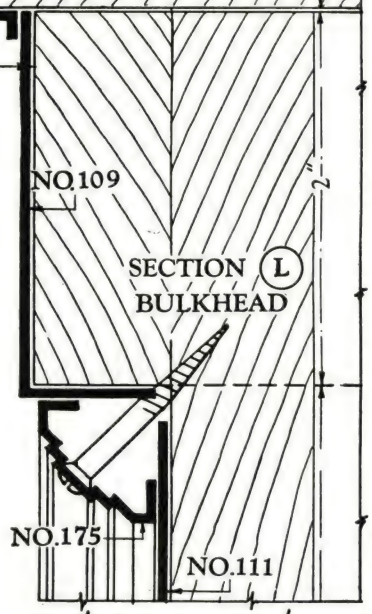
KEY ELEVATION SHOWING WHERE SECTIONS ARE TAKEN

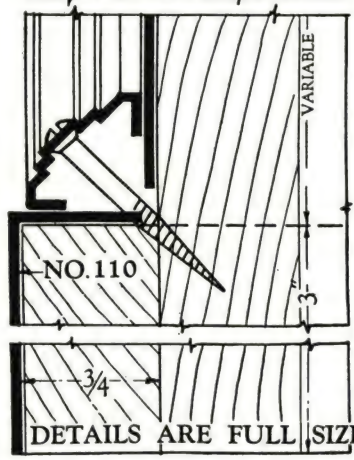


INEXPENSIVE FRONT PLATE CONSTRUCTION USED WITH NO. 60 SASH

THE DETAIL ABOVE SHOWS NO.62 FRONT PLATE, WHEN USED WITH NO 60 SASH AT SILL PROVIDES AN INEXPENSIVE STORE FRONT CONSTRUCTION, IT DOES NOT, HOWEVER, AFFORD VENTILATION. FOR MAXIMUM GLASS PROTECTION USE NO.60 SETTING.





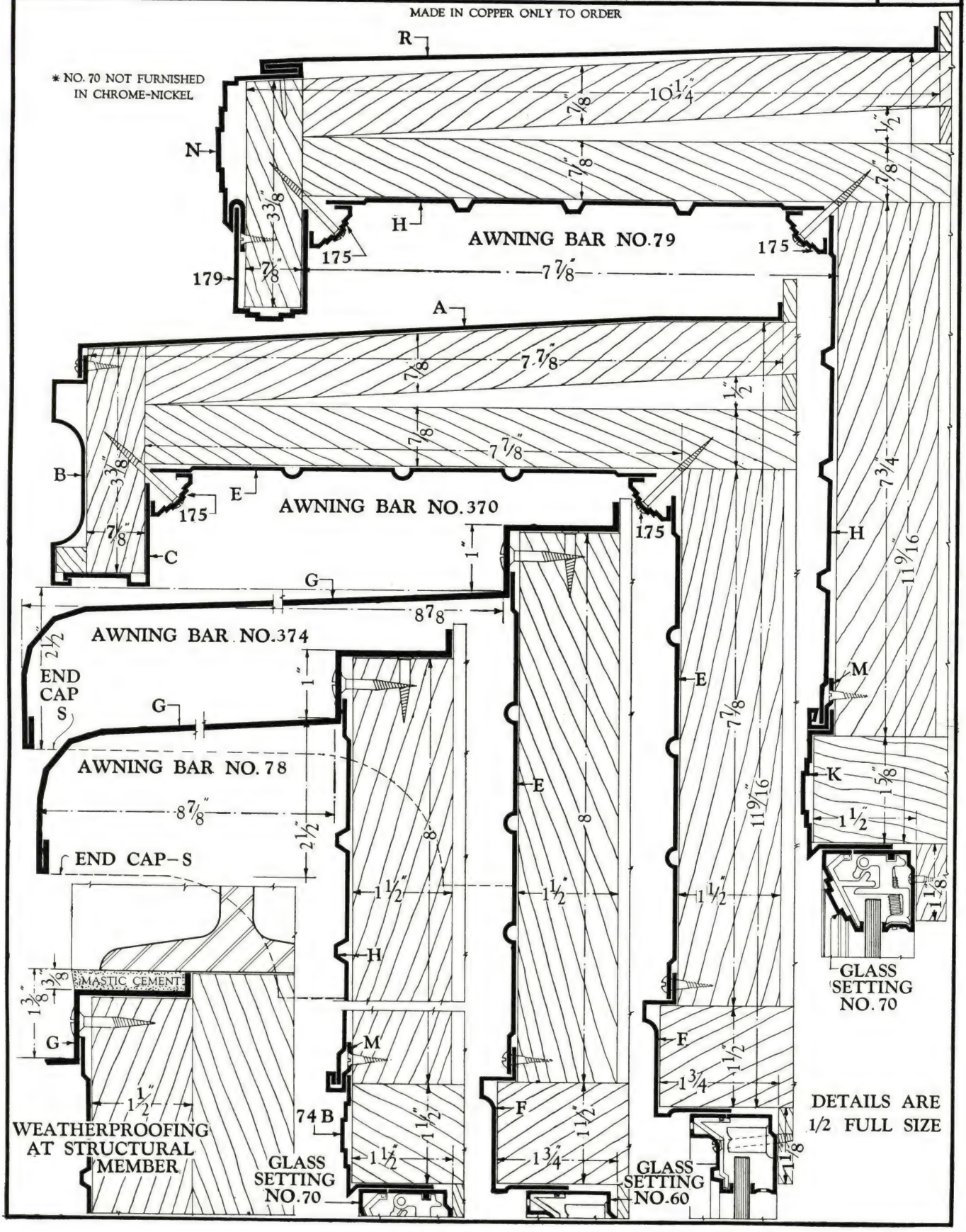


"HIMCO" NO 60, 70 * 80, STORE FRONT CONSTRUCTION

ROLLED, SOLID, STAINLESS, CHROME-NICKEL, "ALUMCRO" AND BRONZE
(CHROMIUM 18%) (NICKEL 8%) (ALUMINUM ALLOY)

60-70-80 / 3

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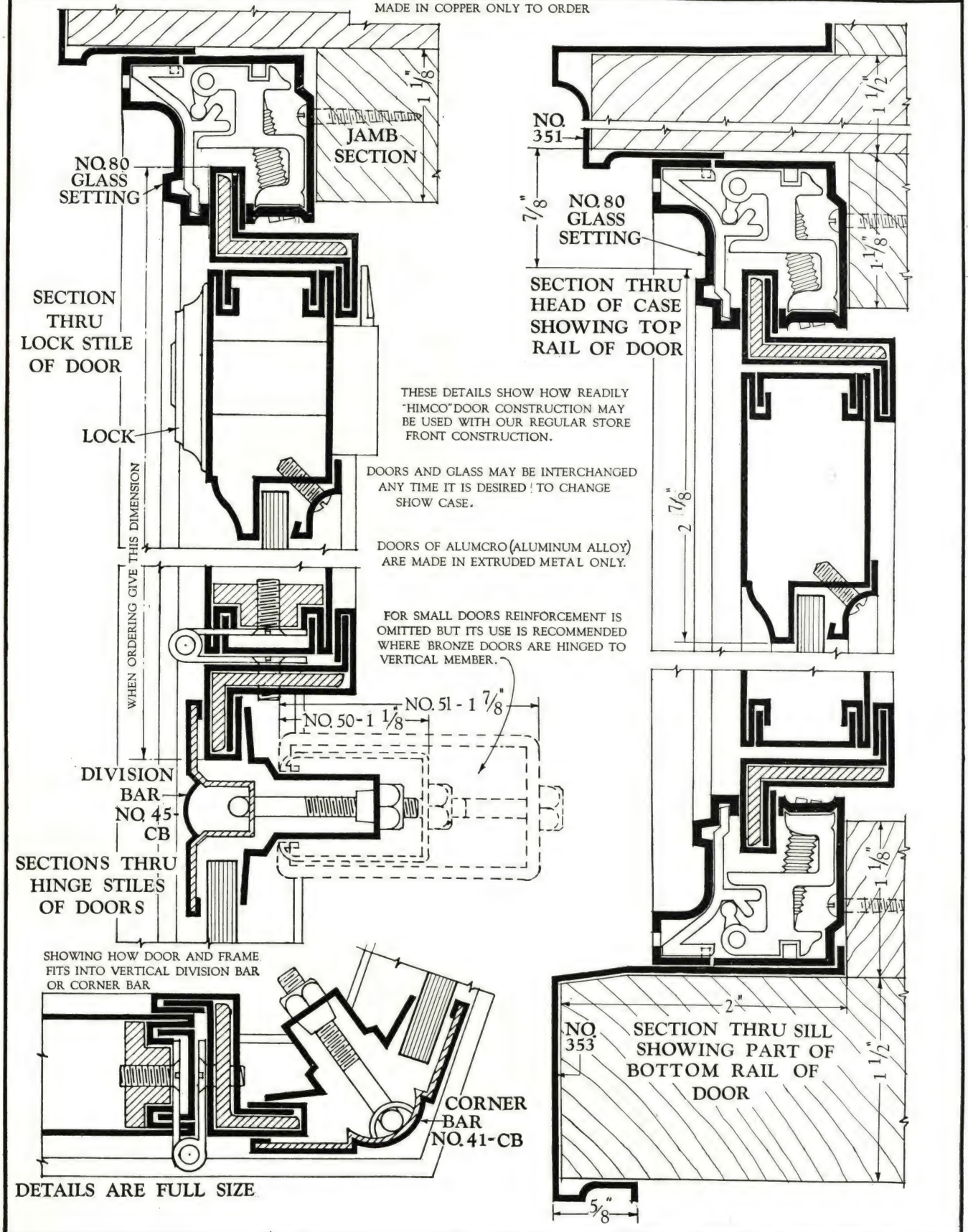


"HIMCO" SHOW CASE CONSTRUCTION

ROLLED, SOLID, STAINLESS CHROME-NICKEL, "ALUMCRO" AND BRONZE
(CHROMIUM 18%) (NICKEL 8%) (ALUMINUM ALLOY)

80/3

MADE IN COPPER ONLY TO ORDER



STORE FRONTS ~ WINDOWS
DOORS ~ ARCHITECTURAL BRONZE



THE

Kawneer

COMPANY

NILES, MICHIGAN

FACTORIES

CHICAGO · BERKELEY

NILES · CHICAGO HEIGHTS

THE Kawneer COMPANY

MAIN OFFICES, NILES, MICHIGAN

Cast Bronze Division
Coleman Bronze Company, Chicago

Kawneer West Coast Division
Kawneer Mfg. Company, Berkeley

BRANCH OFFICES

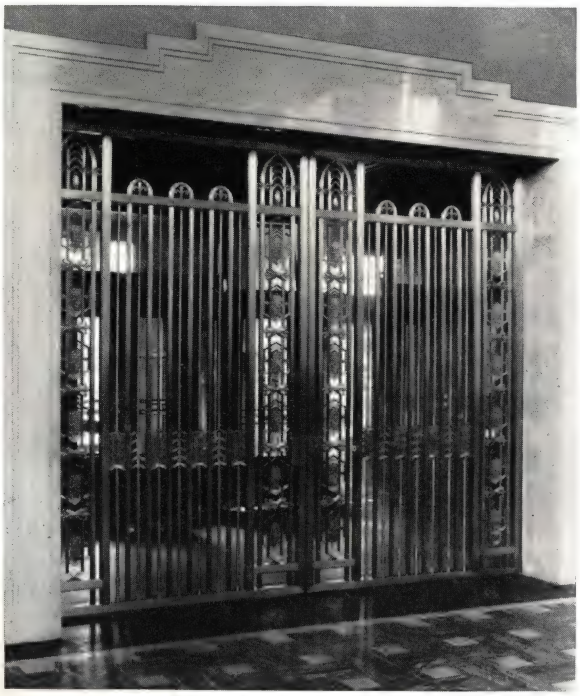
ATLANTA, GA.	CHICAGO, ILL.	DETROIT, MICH.	NILES, MICH.	PHILADELPHIA, PA.
BUFFALO, N. Y.	CLEVELAND, OHIO	KANSAS CITY, MO.	NEW ORLEANS, LA.	PITTSBURGH, PA.
CHARLOTTE, N. C.	CINCINNATI, OHIO	MILWAUKEE, WIS.	NEW YORK, N. Y.	ST. LOUIS, MO.

Distributors are located in the principal cities of The United States and Canada

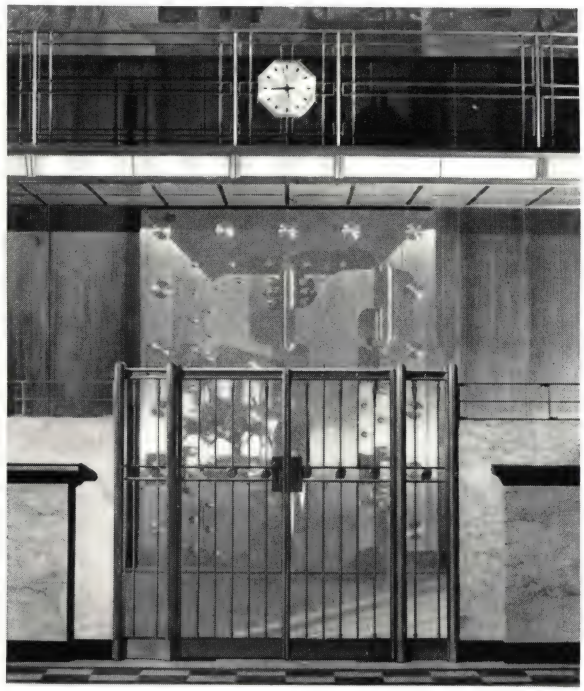
SEE OUR PERMANENT EXHIBIT AT THE ARCHITECTS' SAMPLE CORPORATION, NEW YORK, N. Y.

PRODUCTS

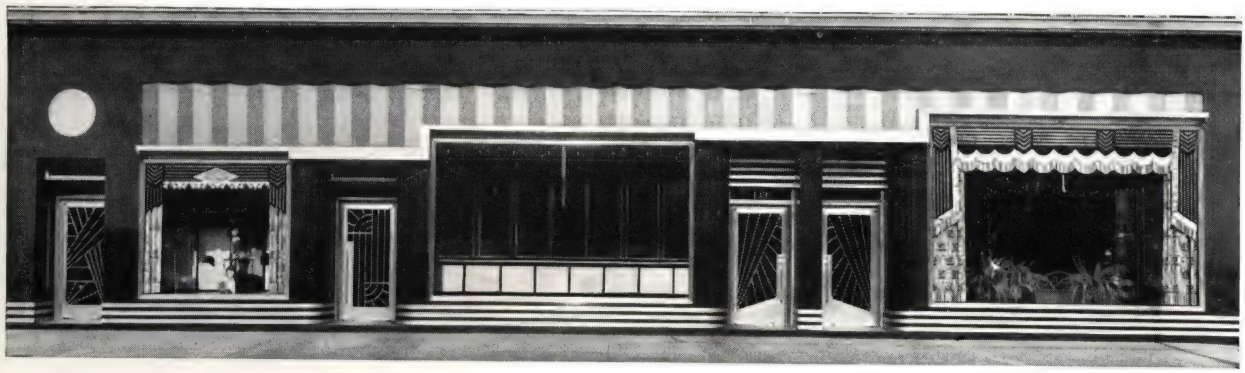
RUSTLESS METAL STORE FRONTS, SEALAIR WINDOWS, DOORS, ARCHITECTURAL CASTINGS.



STANDARD NATIONAL BANK OF CHICAGO, ILLINOIS



CENTRAL NATIONAL TOWER, BATTLE CREEK, MICHIGAN

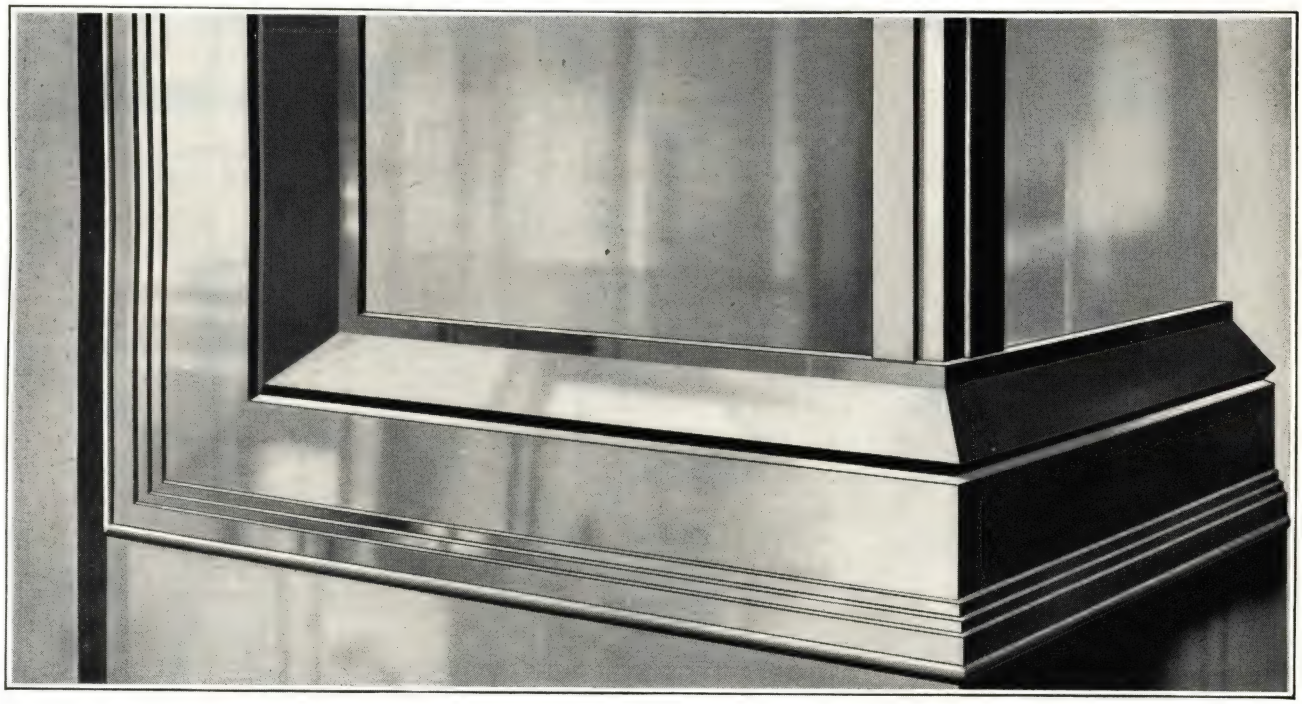


ALUMINUM ALLOY STORE FRONT, SOUTH BEND NEWS-TIMES, SOUTH BEND, INDIANA

KAWNEER STORE FRONTS

Patented and Patents Applied for

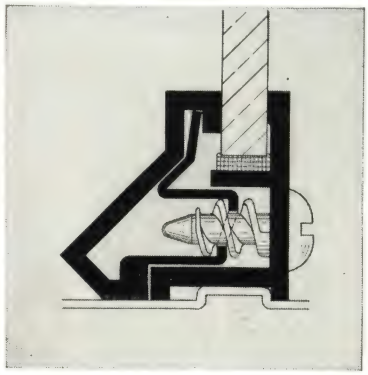
"B" CONSTRUCTION



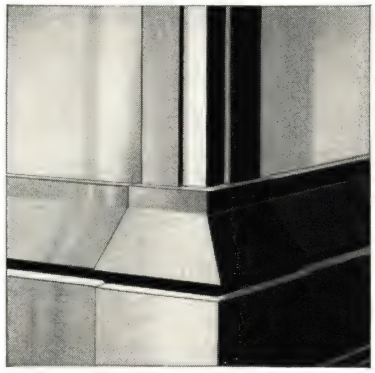
ASSEMBLED UNITS OF "B" CONSTRUCTION

The modern character and strength of Kawneer "B" Construction are evidenced by the accompanying illustrations. Mechanically it is simple and practical. Only one type of screw is used for uniting front and rear members of sash and bars. Possessing considerable strength and size, this screw can be readily adjusted and handled with ease, thus facilitating the process of installation. Another desirable advantage indicated on the following details is the absence of screws from the face of all moulding covers. This arrangement beautifies the store front, giving at moderate cost the effect of solid cast sections. Ventilation and drainage provided for if desired. Filler strip may be applied behind sash. See detail, page 5. Full Size Details will be sent upon request.

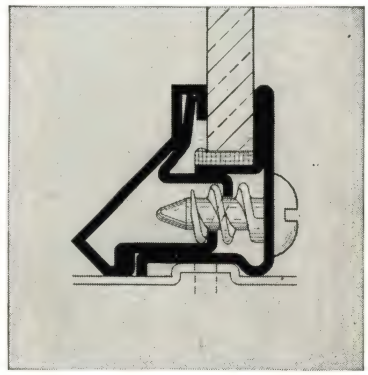
THE Kawneer COMPANY
NILES, MICHIGAN
and subsidiaries
PRODUCTS
RUSTLESS METAL STORE FRONTS, SEALAIR WINDOWS, DOORS, AND ARCHITECTURAL CASTINGS



"B" Construction Extruded Sash
KE B-1



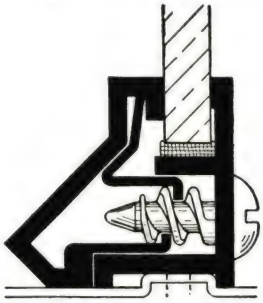
Corner caps furnished when desired



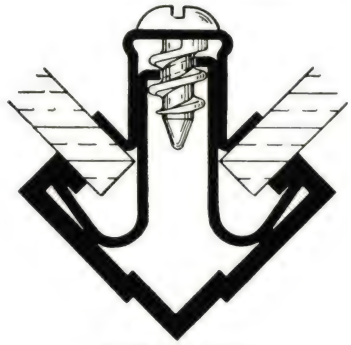
"B" Construction Cold Rolled Sash
B-1

Kawneer Catalogue Copyright 1931 by The Kawneer Company

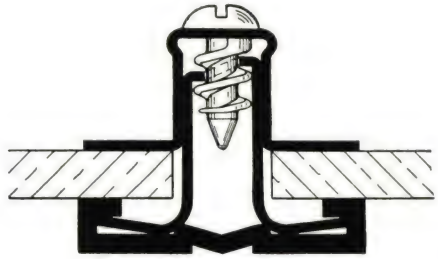
"B" CONSTRUCTION COLD ROLLED AND EXTRUDED BARS



EXTRUDED
SASH KE-B-1



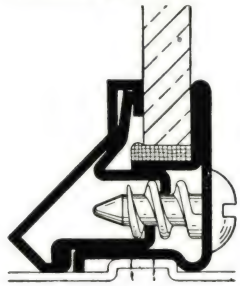
EXTRUDED FACE
CORNER BAR KE-B-2



EXTRUDED FACE
DIVISION BAR KE-B-3



EXTRUDED FACE
REVERSE BAR KE-B-4



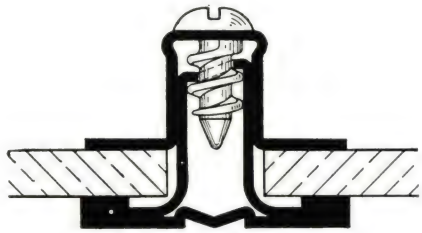
SASH B-1



WIDE ANGLE BAR B-2

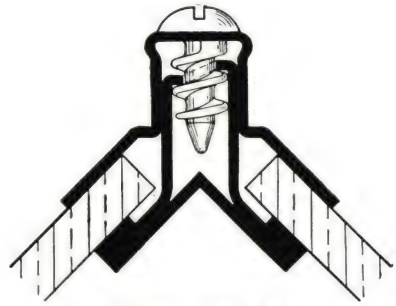


CORNER BAR B-2
FURNISHED IN VARIOUS ANGLES



DIVISION BAR B-3

CROSS SECTIONS SHOWN FULL SIZE

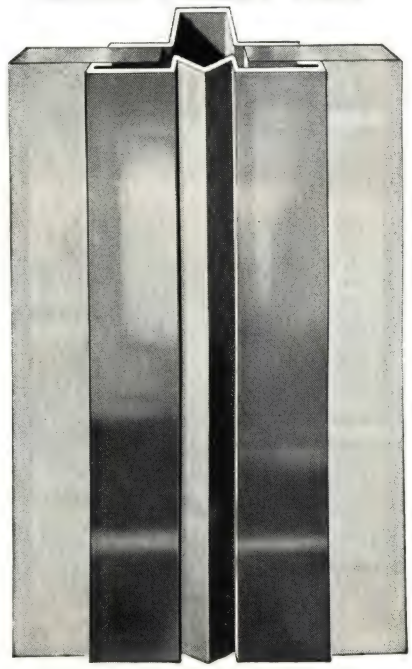


REVERSE BAR B-4
FURNISHED IN VARIOUS ANGLES



The above bars can be equipped with stiffeners or reinforcing members.

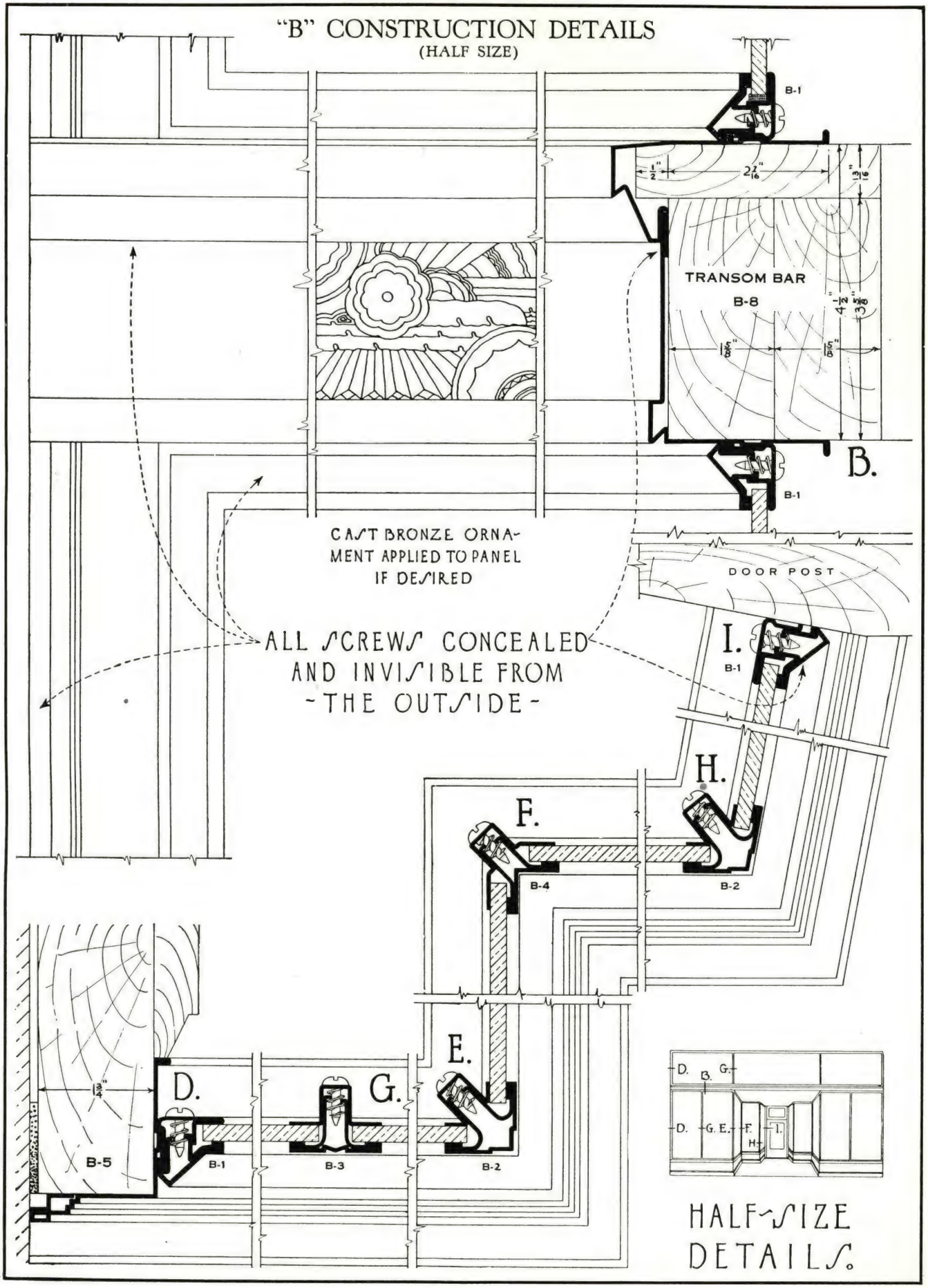
Furnished in any angle desired.



FINISHES

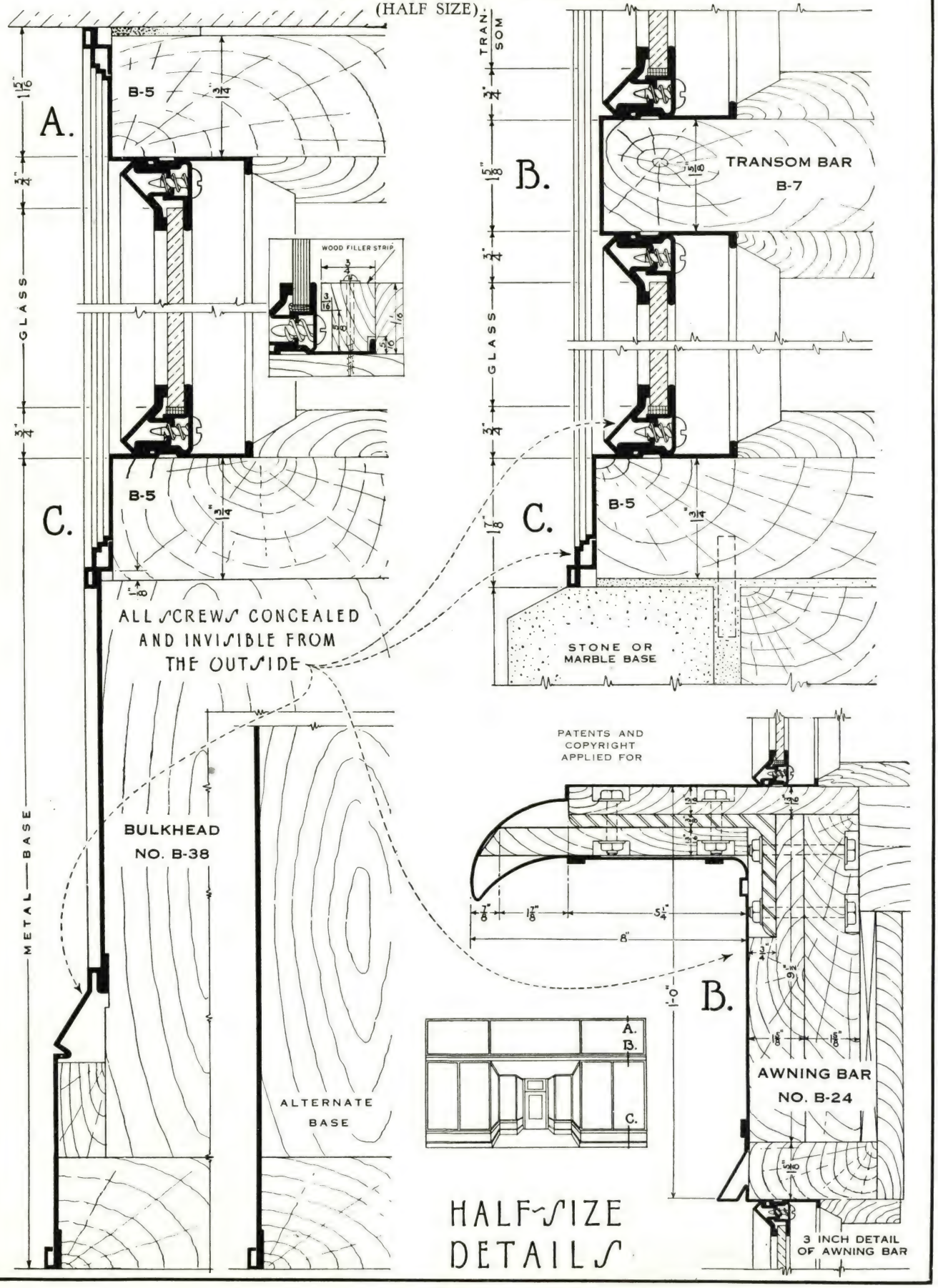
Available for all Kawneer Store Front Construction

8—Polished Bronze
9—Light Statuary Bronze
17—Satin Bronze
18—Aluminum Alloy Polished
19—Aluminum Alloy Satin
20—Unfinished Bronze
21—Dark Statuary Bronze

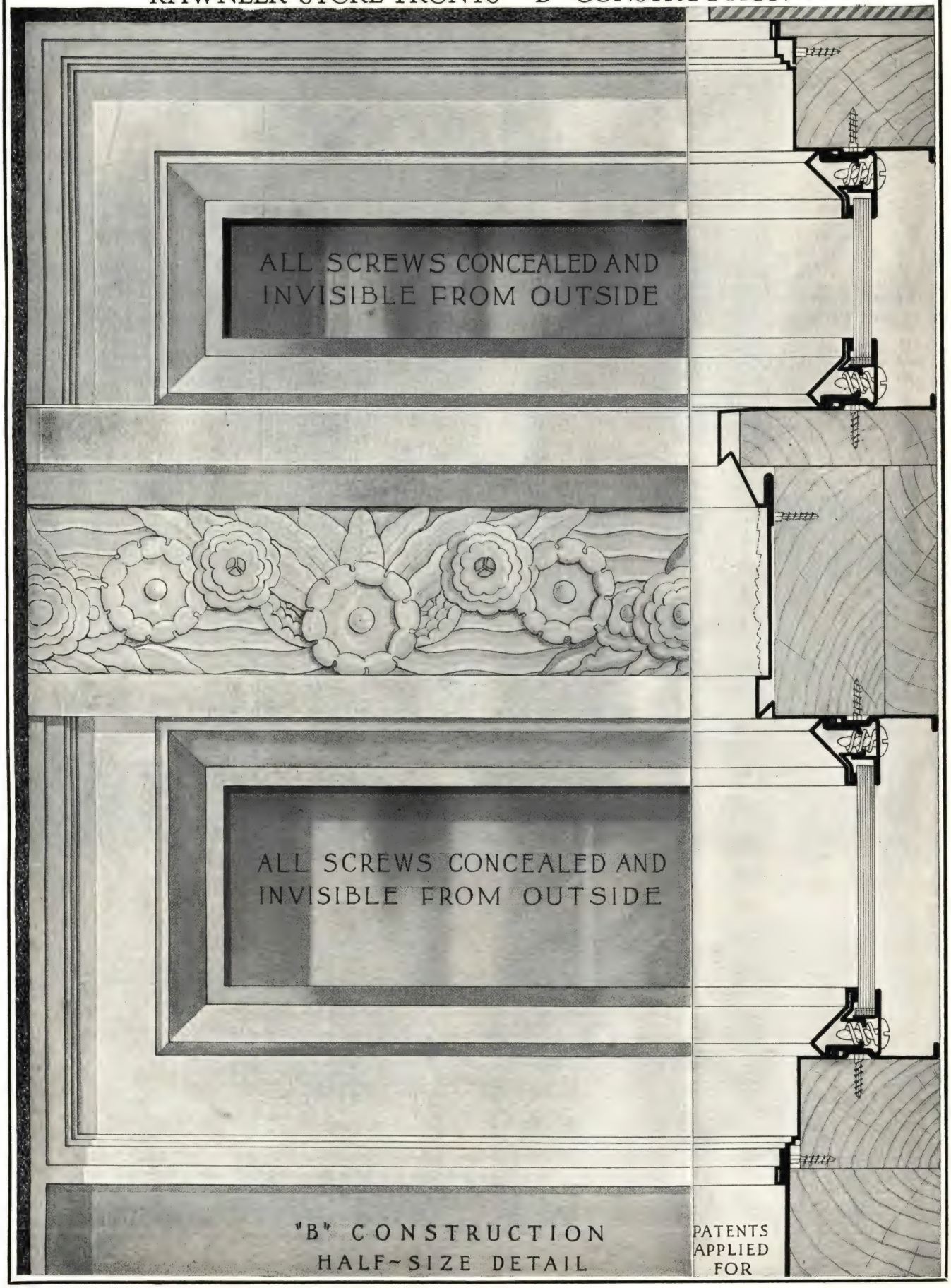

"B" CONSTRUCTION DETAILS
(HALF SIZE)
B-1
TRANSOM BAR
B-8
B.
B-1
CAST BRONZE ORNAMENT APPLIED TO PANEL IF DESIRED
DOOR POST
ALL SCREWS CONCEALED AND INVISIBLE FROM -THE OUTSIDE-
I.
B-1
H.
F.
B-4
B-2
E.
D.
G.
B-5
B-1
B-3
B-2
D. B. G.
D. G. E. F. H. I.
HALF-SIZE DETAILS.

"B" CONSTRUCTION DETAILS

(HALF SIZE)

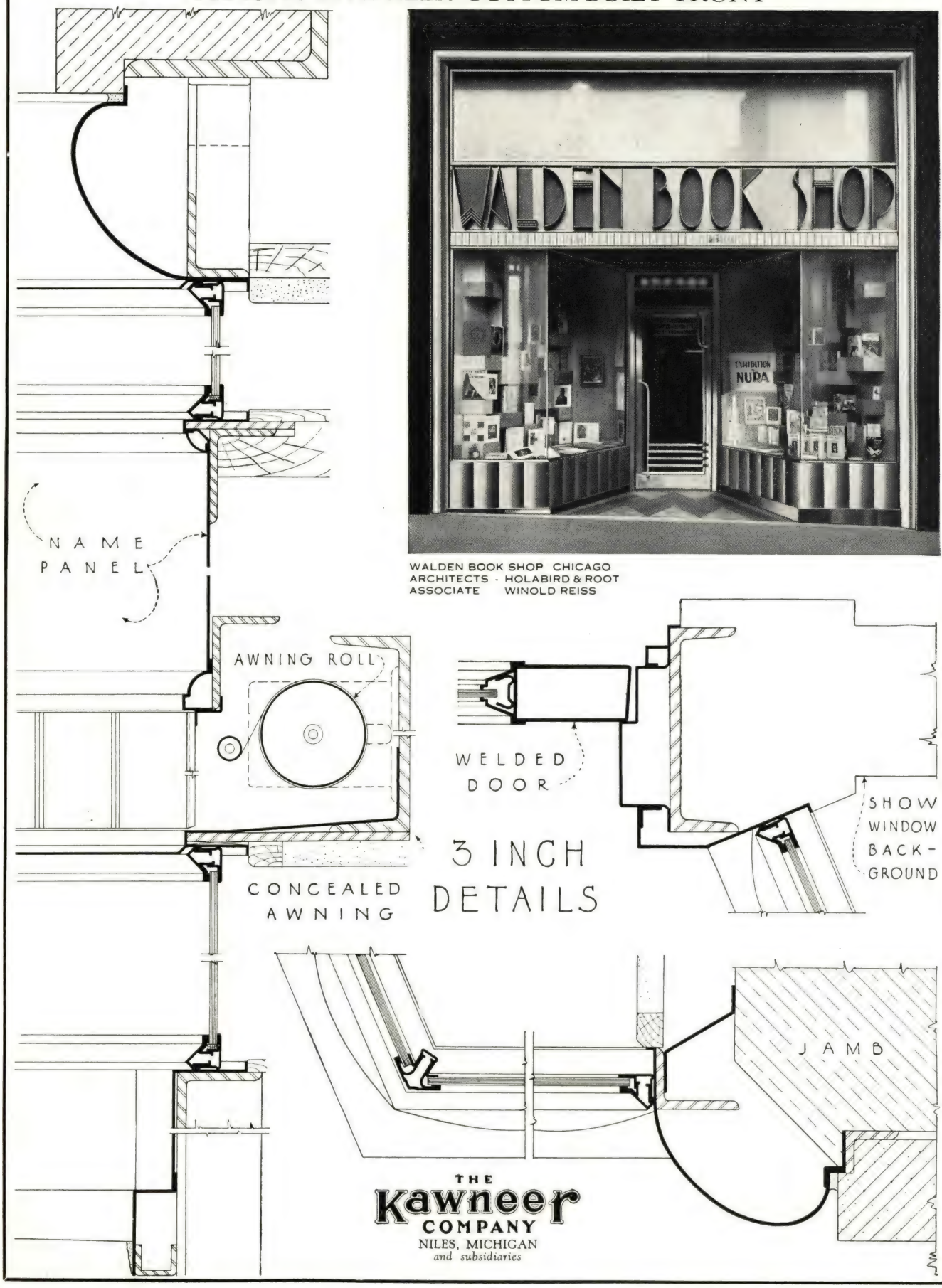


KAWNEER STORE FRONTS—"B" CONSTRUCTION



TYPICAL KAWNEER CUSTOM-BUILT FRONT

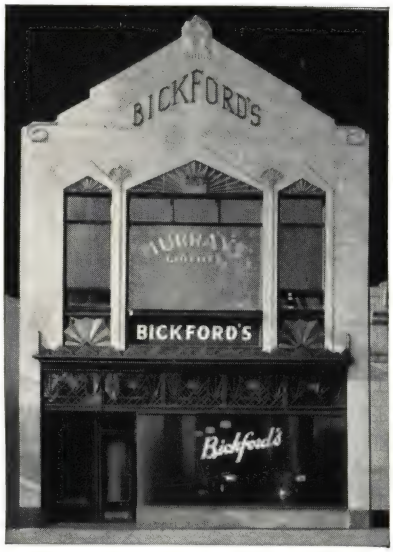
WALDEN BOOK SHOP CHICAGO
ARCHITECTS - HOLABIRD & ROOT
ASSOCIATE WINOLD REISS



THE Kawneer COMPANY
NILES, MICHIGAN
and subsidiaries



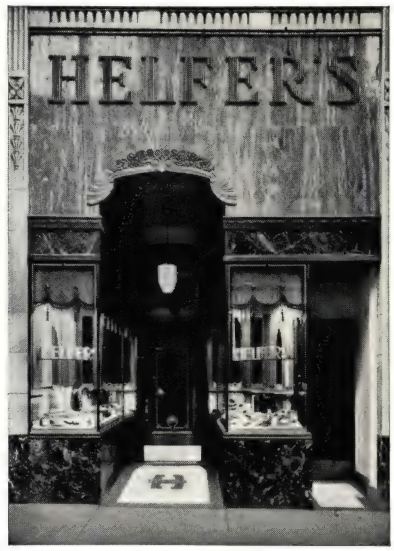
Indiana & Michigan Electric Company, South Bend, Indiana



Bickford's, Flushing, New York



S. & N. Katz, Baltimore, Maryland



Helfer's, Pittsburgh, Pennsylvania



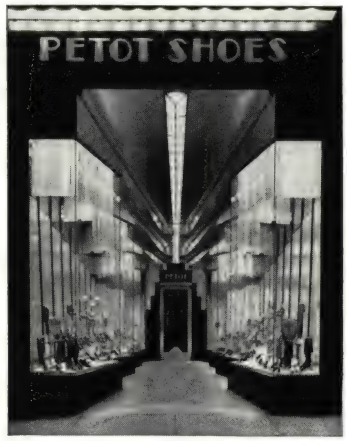
Sander's, Detroit, Michigan



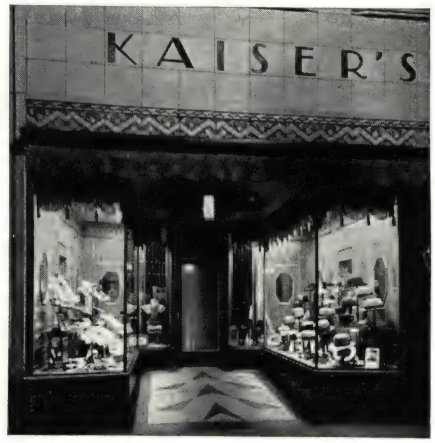
Herpin's, Mobile, Alabama



Café Peacock, South Bend, Indiana



Petot Shoe Store
Cleveland and Cincinnati, Ohio



Kaiser's, Racine, Wisconsin



Dayton's, Milwaukee, Wisconsin



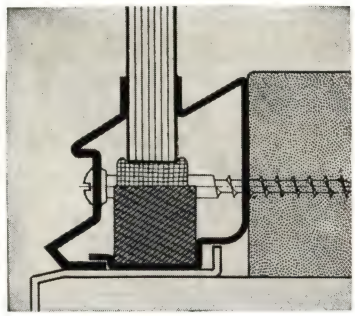
Wisconsin Ice & Coal Company, Milwaukee, Wisconsin



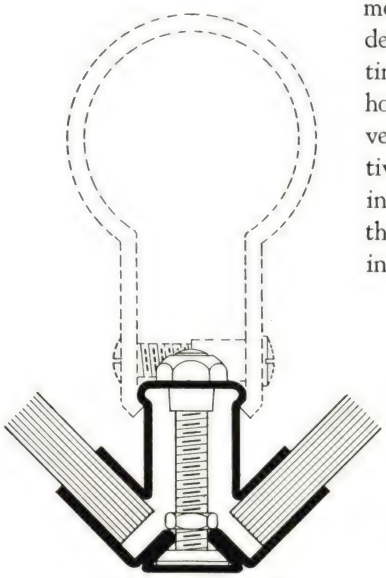
Quigley Building, Chicago, Illinois

NO. 77 SASH AND ACCOMPANYING BARS



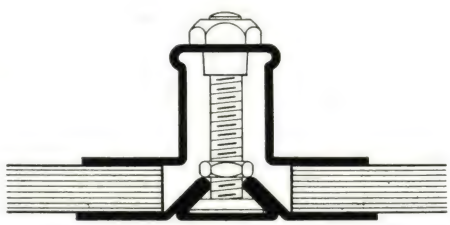


Special Stiffener shown below is No. 3075



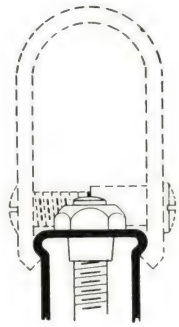
No. 78 Corner Bar

No. 77 Sash is made of solid cold rolled bronze or aluminum alloy, designed to harmonize with any architectural treatment. The detail above shows the manner in which setting block is held in positive position. Vent holes in gutter and face (optional) provide ventilation and drainage. This sash is distinctive and compact in appearance. It is easily installed, as may be noted by the details on the following pages. The bars can be furnished in any practical angle.



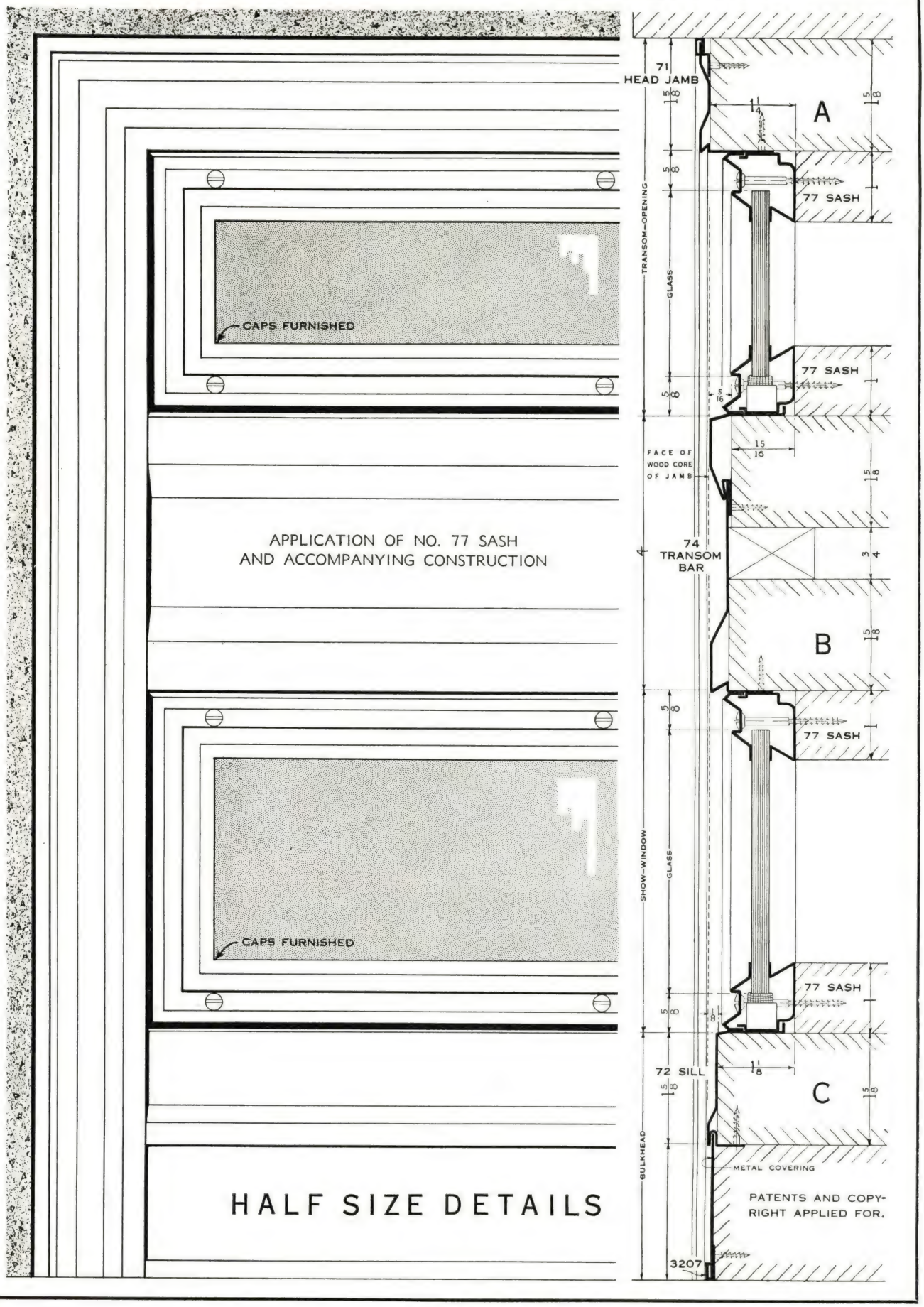
No. 79 Division Bar

Standard Stiffener shown below is No. 3073

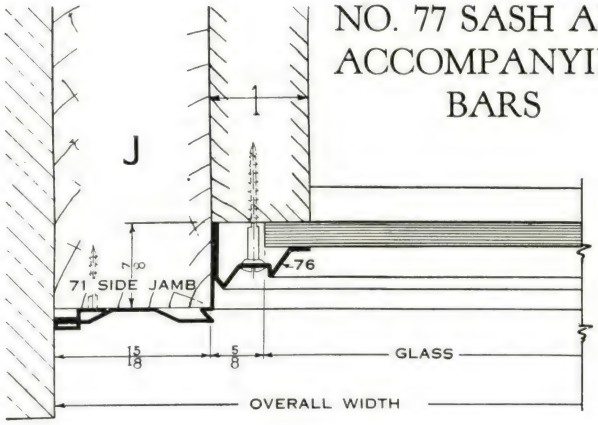


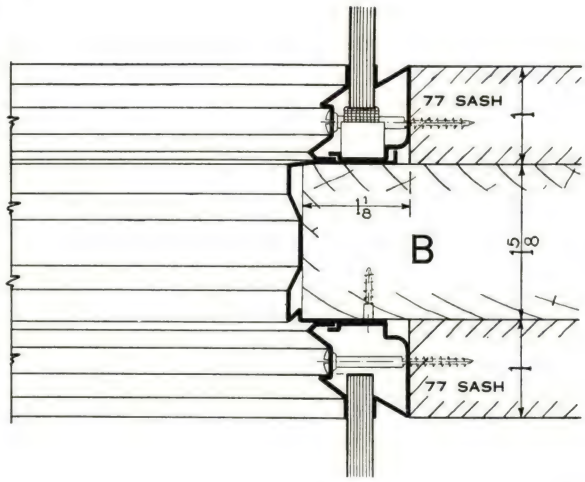


No. 80
Reverse Bar


71
HEAD JAMB
A
77 SASH
TRANSOM-OPENING
GLASS
77 SASH
CAPS FURNISHED
FACE OF
WOOD CORE
OF JAMB
APPLICATION OF NO. 77 SASH
AND ACCOMPANYING CONSTRUCTION
74
TRANSOM
BAR
B
77 SASH
SHOW-WINDOW
GLASS
CAPS FURNISHED
77 SASH
72 SILL
C
BULKHEAD
METAL COVERING
PATENTS AND COPY-
RIGHT APPLIED FOR.
3207
HALF SIZE DETAILS

NO. 77 SASH AND ACCOMPANYING BARS



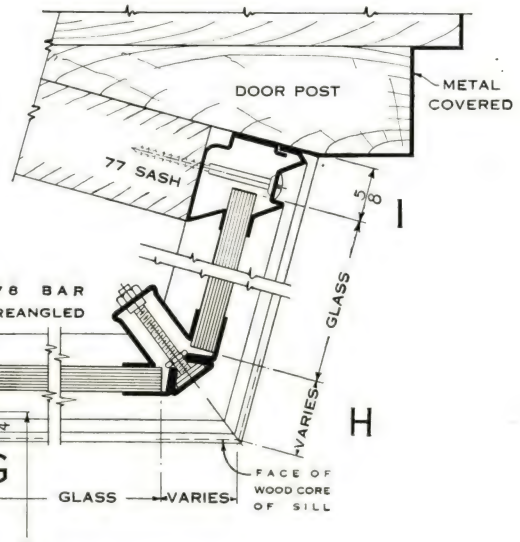


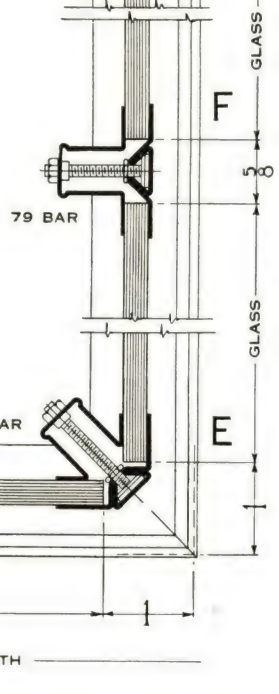
ALTERNATE TRANSOM BAR 73

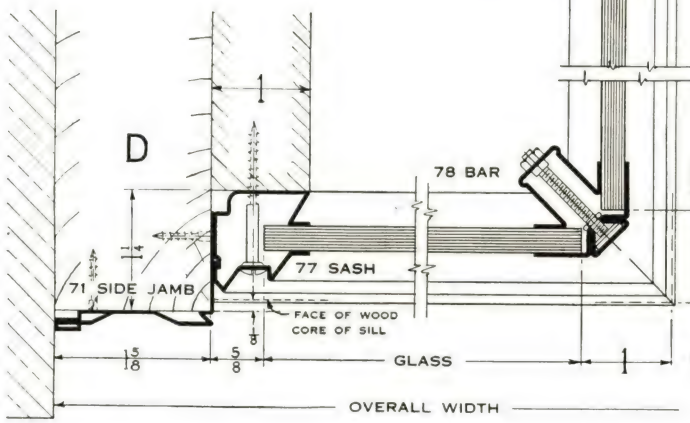
EASILY INSTALLED

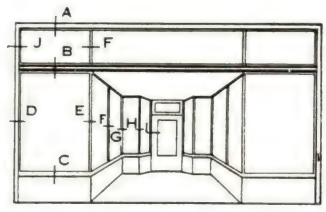
No. 77 Sash and accompanying construction are easily installed due to the simplicity of their mechanical design. Wherever practical the metal coverings have been designed to fit wood cores of standard sizes, thereby eliminating a large amount of special work. This store front material can be furnished in bronze or aluminum alloy. Full size details sent on request.

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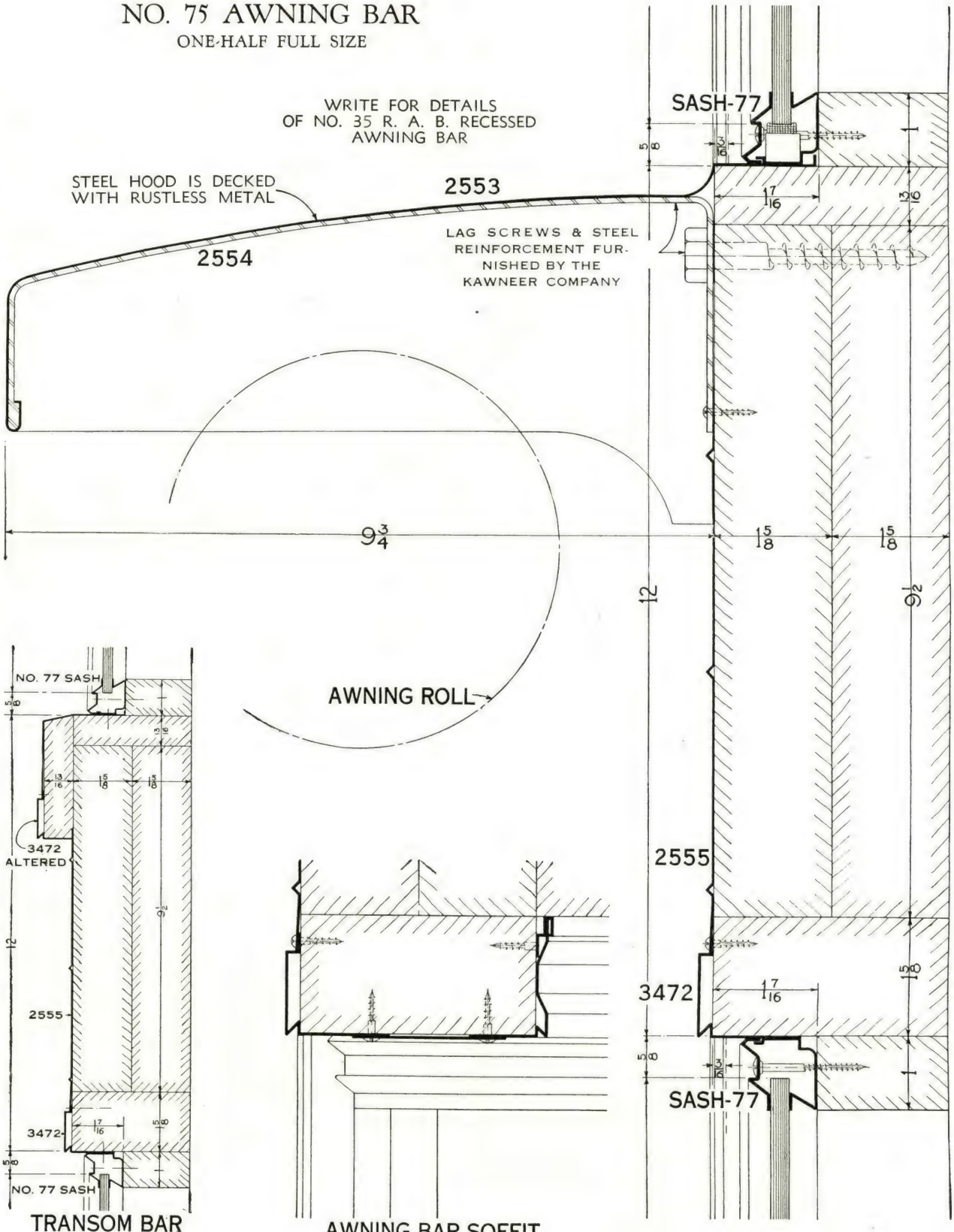




HALF SIZE DETAILS

NO. 75 AWNING BAR

ONE-HALF FULL SIZE



TRANSOM BAR NO. 75-C

ONE QUARTER SIZE

Used in conjunction with No. 75 bar when hood is not required.

AWNING BAR SOFFIT OVER ENTRANCE

A bar that provides shelter for the awning by means of a continuous steel hood decked with rustless metal, with an abundance of space for awning roll. The steel is painted at factory.

KAWNEER SEALAIR WINDOWS

Patented and Patents Applied for



Combination of In-swinging and Out-swinging Sash





In-swinging Sash

IN-SWINGING, OUT-SWINGING OR A COMBINATION OF BOTH

SPECIFICATIONS

MATERIALS—All extruded shapes of Bronze, Aluminum or Nickel Silver shall be formed by reliable manufacturers of extruded products. The metal used is to be of standard commercial alloys, and the best that can be obtained for the purpose intended.

The contractor shall submit with his estimate a drawing or detail showing the minimum size of members for each size opening.

WORKMANSHIP—All members shall be solid, extruded one piece sections, with all faces, edges and arrises true and in perfect alignment with each other. The sections of frames and sash shall be designed to give the same masonry lines, sight lines and glass in the same plane, in all types of openings. Frames shall be coped or mitered and welded. All welding shall be solid and continuous along the entire line of contact. All welded joints exposed to view after installation shall be drawfiled or ground smooth, leaving the joined sections flush with each other.

All welds on Aluminum Windows shall be treated and coated to avoid corrosion.

WEATHERING—All windows shall be Weatherproof, Dustproof and Rattleproof. Hinges shall be designed and arranged so as to provide a continuous three point contact, two resilient and one metal to metal.

The resilient contacts shall be made by using a treated felt strip, formed to fit and pressed and locked into a groove which is slightly larger at the back than at the front.

The metal to metal contact shall be fitted to provide a continuous contact throughout the entire length of the member.

When sash are closed the infiltration of air shall be negligible.

A metal drip bar shall be attached on the outside of the lower rail of all center in-swinging sash that are top or side hung.

Weep holes shall be provided in the horizontal bars between each sash and at the sill of the windows for drainage.

A weather baffle shall be provided between rail and lower part of bottom hung sash.

GLAZING—(Glazing will be done as specified under another branch of the work.)

(All glass shall be back puttied after setting to avoid rattling and to provide a watertight joint between the metal and glass.)

All Sash shall be designed to allow glazing from the inside of the building. Glass shall be secured in place with glazing strips of the same material as the window, mitered at the corners and fastened with machine screws of the same material as the strip.

SCREENS—The screens will be furnished as specified under another branch of the work, but the window contractor shall provide lugs or clips welded to the outside face of the frame for the support of the screens. The projection and nature of these attachments will be furnished according to the screen manufacturer's drawings.

INSTALLATION—All windows shall be installed by the manufacturer, or under his supervision, after the walls are built. Structural steel angle anchors shall be provided on heads and jambs of frames and riveted to the frames. These anchors shall be in continuous lengths or in short sections to fit the various conditions and shall be anchored to the masonry with machine bolts operating in an expansion sleeve of lead. Between the steel anchor and the metal frame, the manufacturer shall provide a heavy coat of bitumen paint.

HARDWARE—All hardware shall be of high grade and shall be of the same material as the window or as otherwise specified. All swinging sash shall be provided with ample hinges of sufficient strength to support sash. All hinges shall be made of extruded sections and hardened steel pins. Provide at the top of top sash a spring for pole operation. Inswinging top sash shall have a chain stop attached to outside of frame and sash. Provide one pole 5 feet long with cast metal hook for each 5 windows. Center sash top hinged shall have hinges of same size and centering as the sash above. They shall have a cast metal handle and the jambs shall be provided with friction arm stays.

When center sash are hinged on the side, hinges of sufficient strength and size shall be provided according to size of sash.

These sash shall have standard type, cast casement latch, one for all sash under 5 feet in height, a two throw latch for sash 5 to 7 feet in height and a three throw latch for all sash above seven feet high.

A friction stay shall be provided at the bottom and top.

Bottom sash shall be provided with a cast latch and with hinges of same size and spacing as specified for top sash bottom hinged.

FINISH—All frames and sash shall have a fine sand finish which shall be protected with a coating of Kre.

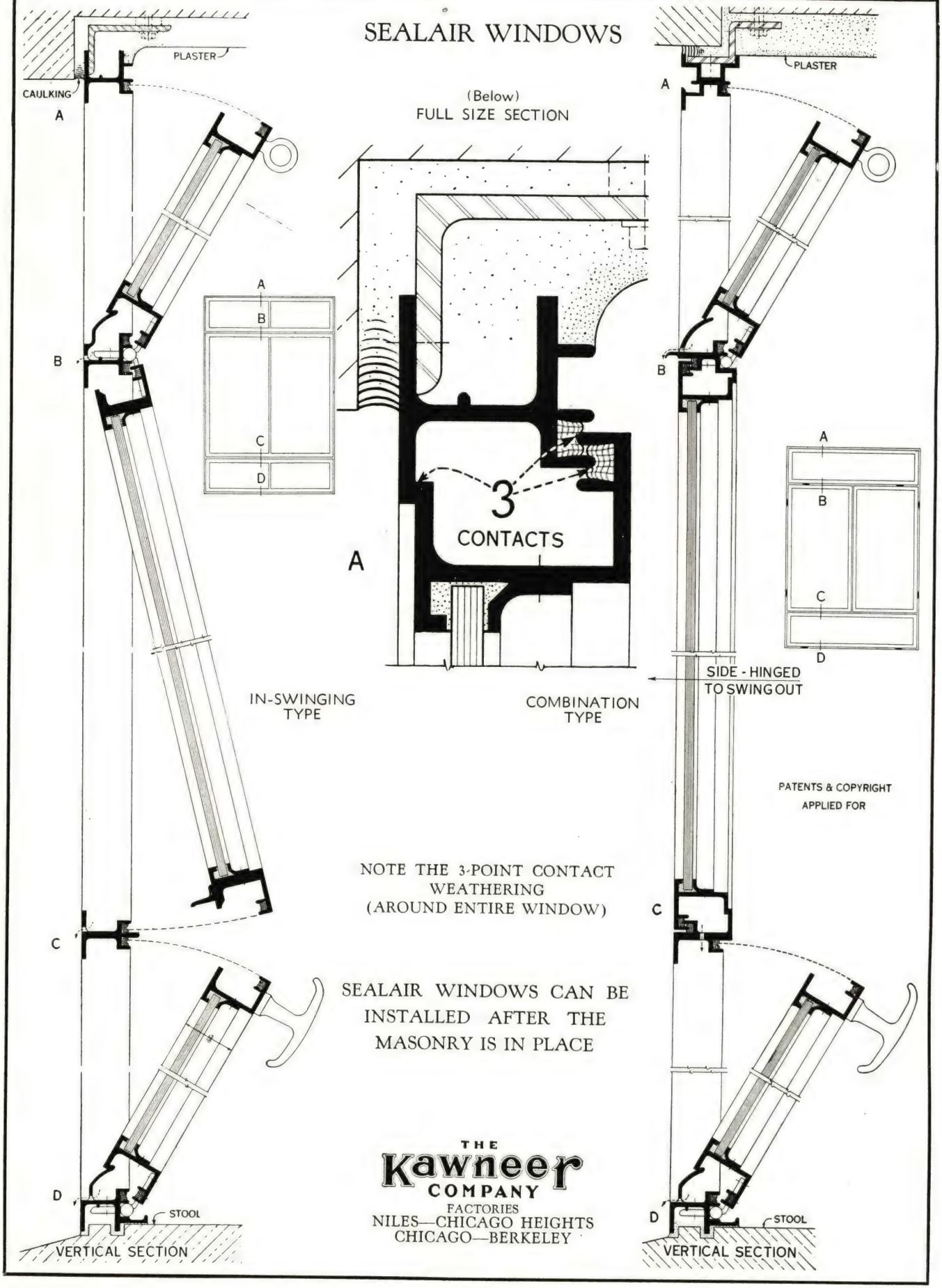
THE Kawneer COMPANY
NILES, MICHIGAN
and subsidiaries

Guarantee

All material and workmanship will be guaranteed by the manufacturer against all defects for a period of twelve months after the completion of the installation.

Any defects occurring within this time shall be promptly remedied upon notice from the Architect or Owner.

SEALAIR WINDOWS

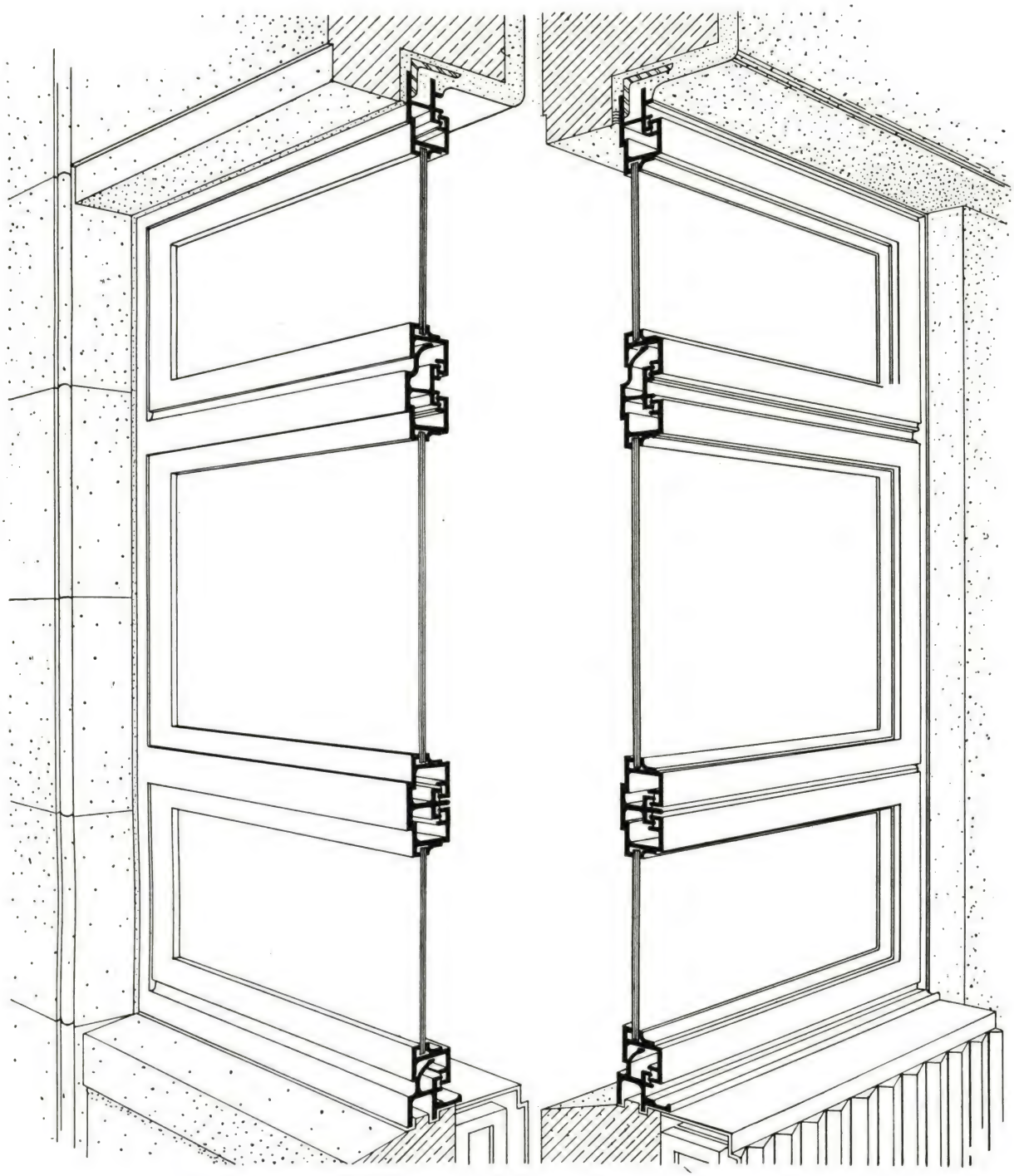


NOTE THE 3-POINT CONTACT
WEATHERING
(AROUND ENTIRE WINDOW)

SEALAIR WINDOWS CAN BE
INSTALLED AFTER THE
MASONRY IS IN PLACE

THE
Kawneer
COMPANY
FACTORIES
NILES—CHICAGO HEIGHTS
CHICAGO—BERKELEY

SEALAIR WINDOWS



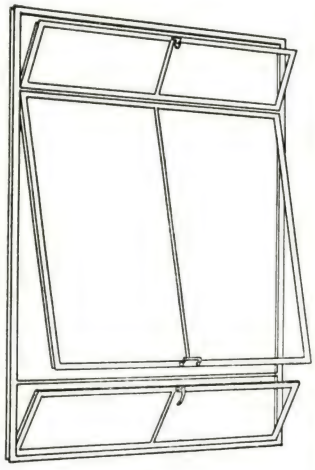
EXTERIOR VIEW

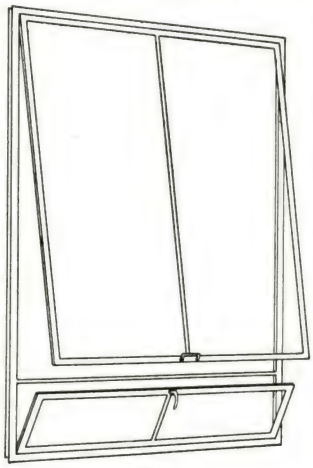
INTERIOR VIEW

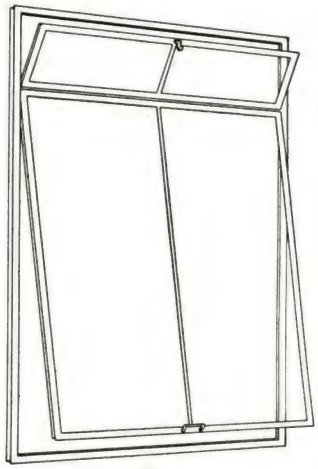
Note the plain surfaces and clean-cut lines of the Sealair Window when viewed both from the exterior and interior. Built of solid extruded sections strongly welded at all corners, these windows combine rugged strength with graceful appearance.

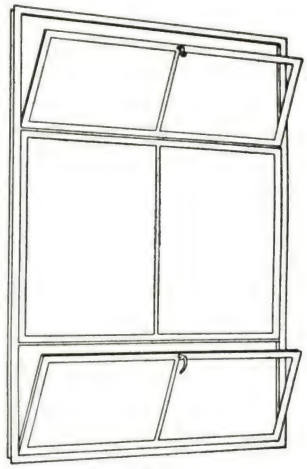
On the next page are shown twelve standard types of both in-swinging and combination in-swinging and out-swinging models, which may be designed to conform with the architect's requirements.

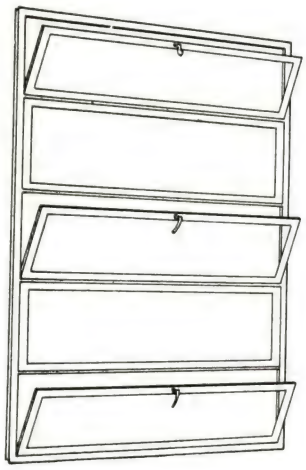
IN-SWINGING SASH


1

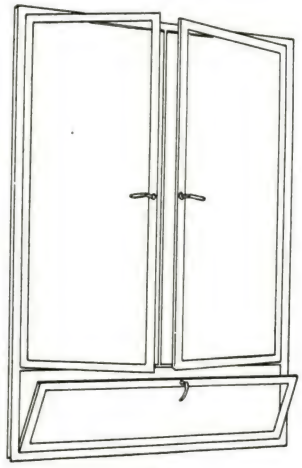

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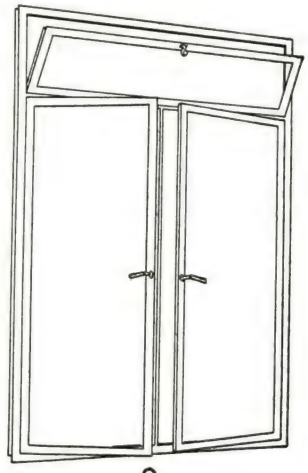

3


4

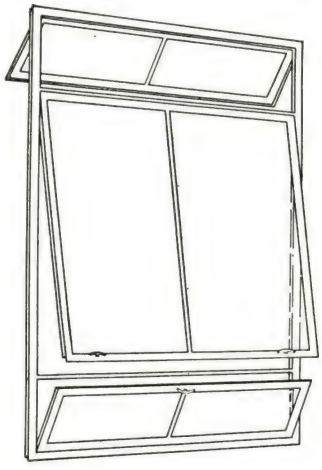

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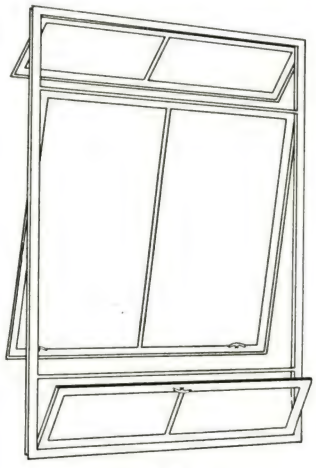

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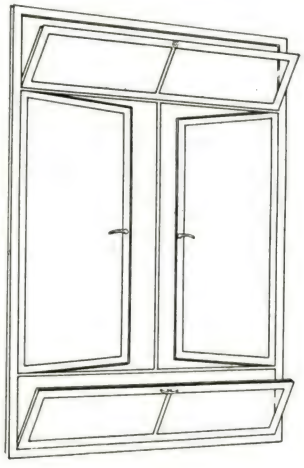

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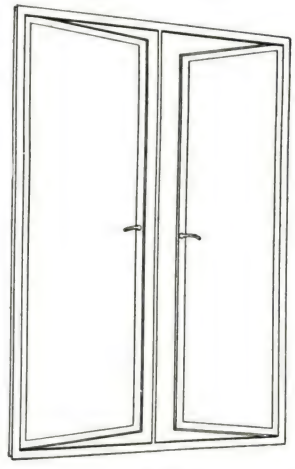

8

BELOW: COMBINATIONS OF IN-SWINGING AND OUT-SWINGING SASH


9


10


11


12

STANDARD TYPES
IN-SWINGING, OUT-SWINGING AND COMBINATIONS OF BOTH

THE Kawneer COMPANY
NILES, MICHIGAN
and subsidiaries

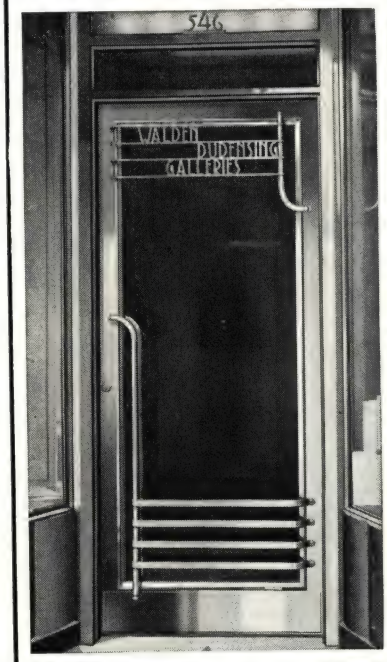
ALL SEALAIR WINDOWS HAVE CONTINUOUS 3-POINT CONTACT WEATHERING

KAWNEER METAL DOORS

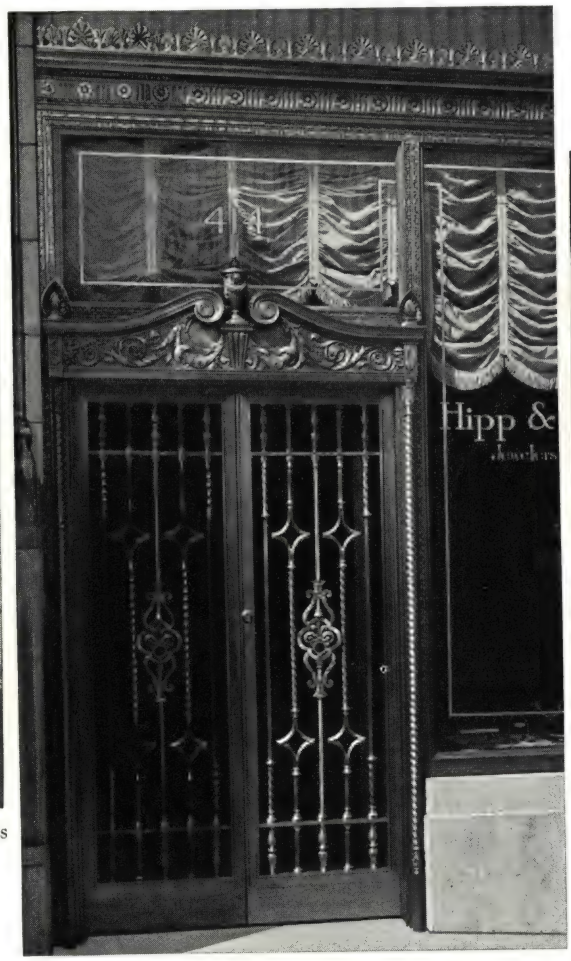


Detroit & Pontiac Investment Company, Pontiac, Michigan

FURNISHED IN BRONZE
OR ALUMINUM ALLOY



Walden Book Shop, Chicago, Illinois

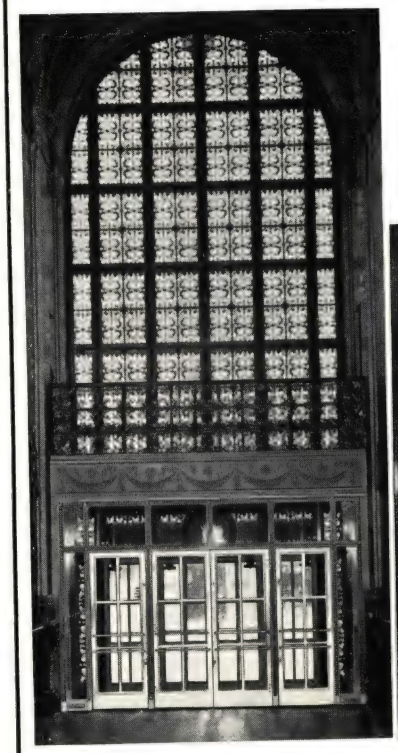


Hipp & Coburn Company, Chicago, Illinois



O'Neill Linen Shop, Chicago, Illinois

REPRESENTATIVE INSTALLATIONS



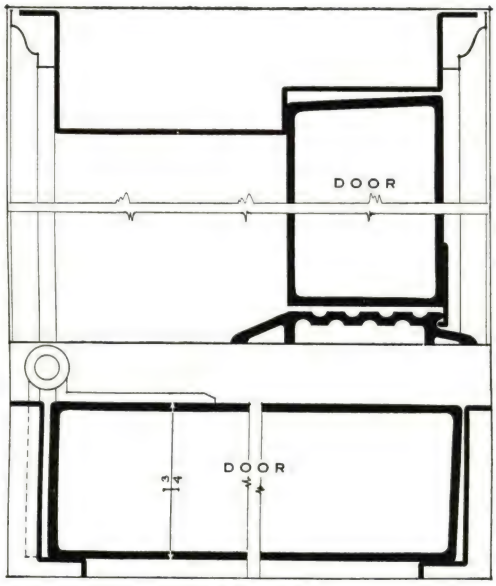
American Trust & Banking Company, Chattanooga, Tennessee

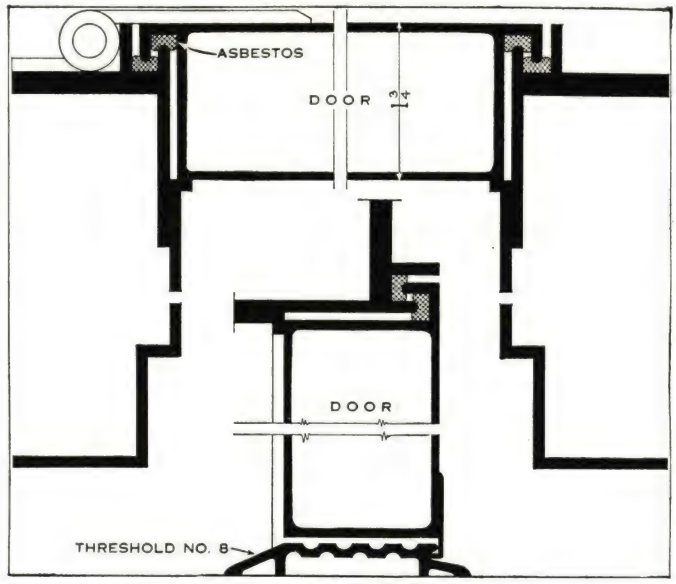


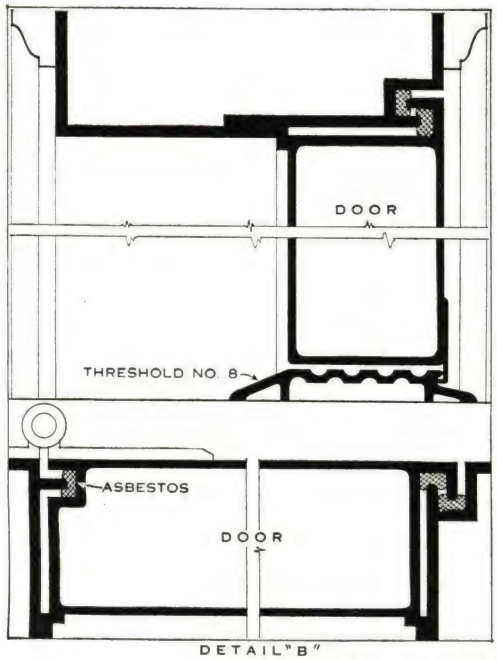
State Bank Building, Chicago, Illinois



State Bank Building, Elevator Doors, Chicago, Illinois



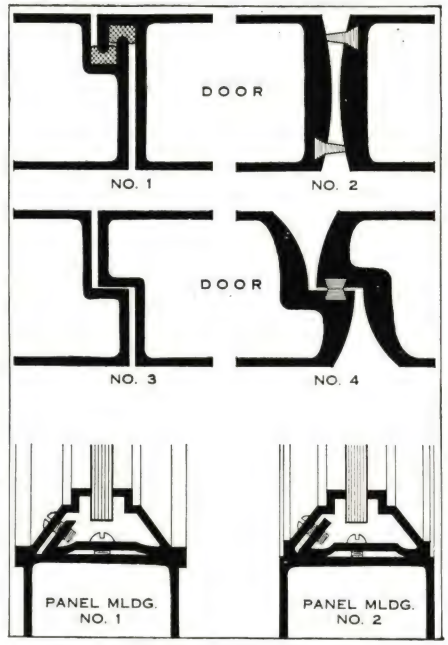






BUILT IN ANY PRACTICAL STYLE OR SIZE - FLUSH OR PANELED.

THE ASBESTOS CUSHION MAKES THE DOOR NOISELESS AND WEATHERPROOF. SUITABLE FOR INTERIOR AND EXTERIOR USE.



METAL DOOR DETAILS - HALF SIZE

KAWNEER WELDED BRONZE DOORS

The rails and stiles of this door consist of heavy tubular members, the joints of which are strongly welded. Panel mouldings are modern in character and secured in a manner to expedite glazing. Kick plates are made flush or sunken and in flat stock or cast panels. With necessary hardware furnished and applied the complete ensemble presents a unit appropriate for use in the finest commercial buildings.

Kawneer doors are built to comply with architects' sizes and designs.

SPECIFICATIONS

MATERIALS—The metals used in the manufacture of these doors can be Bronze or Aluminum of standard commercial alloys, and the best that can be obtained for the purpose intended.

WORKMANSHIP—Frames shall be coped or mitered and welded. All welding shall be solid and continuous along the entire line of contact. All exposed welded joints shall be drawfiled or ground smooth, leaving the joined sections flush with each other.

GAUGES—Stiles and Rails—14 gauge. Panel mouldings 13 gauge. Jambs 13 gauge U. S. Standard.

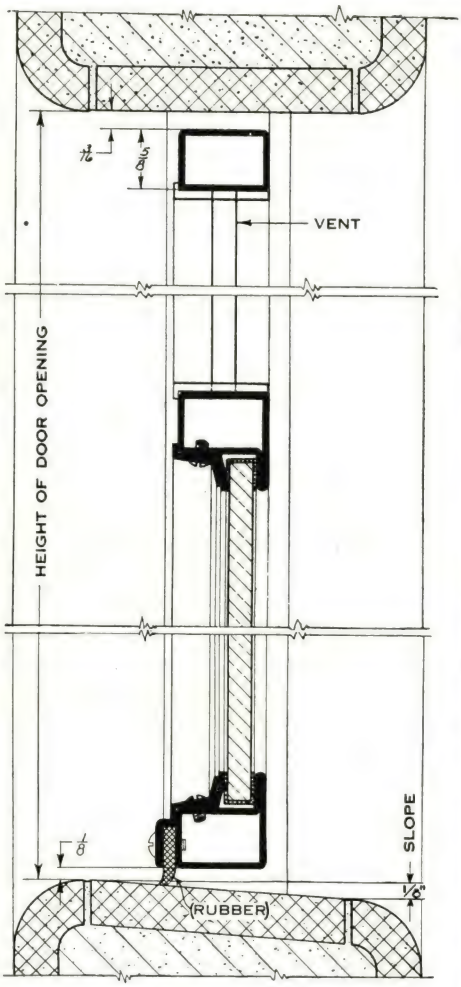
THRESHOLDS—If thresholds are desired they can be furnished in extruded or cold rolled bronze.

HARDWARE—Hardware can be furnished by THE KAWNEER COMPANY or by the customer. In either case, it will be applied at the factory.

FINISH—All doors shall have a fine sand finish which shall be protected with a coating of Kre.

GUARANTEE—All material and workmanship will be guaranteed by the manufacturer against all defects for a period of twelve months after completion of the installation.

KAWNEER SHOWER STALL DOOR



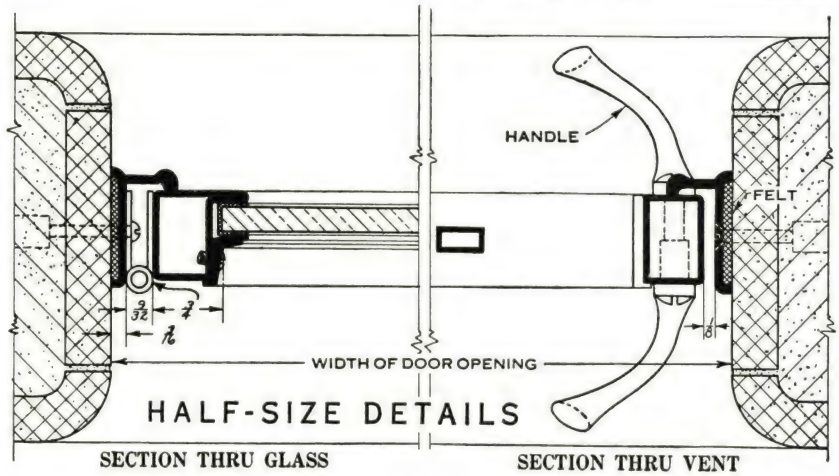
THE Kawneer COMPANY
NILES, MICHIGAN
and subsidiaries

PRODUCTS
RUSTLESS METAL STORE FRONTS, SEALAIR WINDOWS, DOORS, AND ARCHITECTURAL CASTINGS

Although the members of this door are smaller and the lines finer, maximum strength and rigidity are maintained. The corners are firmly welded, preventing any sagging or bending.

NOTE:—No. 10 Flat Head Wood Screws furnished for attaching jambs to tile unless otherwise ordered. Machine Screws and expansion shields furnished if desired.





SPECIFICATIONS

MATERIAL—Solid Bronze Chromium Plated or Solid Nickel-Silver.

FRAME—Special design No. 14 gauge (B & S) seamless tubing.

GLASS MOULDING—Heavy extruded.

JAMBS—New design extruded members with rounded corners. Felt caulking strip ⅛" thick to take up inequalities between jambs and tile.

HINGE—Continuous piano type. (See note below.)

HANDLES—Offset type.

SPLASH SHIELD—Rounded extruded member.

CATCH—Improved double-acting spring catch.

RUBBER STRIP—Held in place by splash shield at bottom of door; has feather edge and can be easily adjusted to height.

GLASS—Polished plate, ribbon mitred, edges bound in ¾" rubber tape.

FINISHES—1. Chromium Plate. (All Chromium Plate doors are first copper-plated, then duplex nickel-plated before undergoing the chromium plating process.)
2. Solid Nickel-Silver, polished.
3. Solid Nickel-Silver, Satin finish.
NOTE:—All doors are welded before plating.

We will be glad to submit sketches for batteries of doors and special bathroom treatments.

STANDARD SIZES
24" x 72" } These are tile opening sizes. We make all neces-
27" x 72" } sary allowances. Standard sizes carried in stock for
27" x 78" } immediate shipment. Special sizes to order.

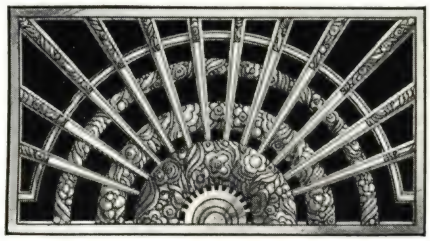
NOTE: When ordering, specify right or left hinge, facing door from outside.

Our estimating department will gladly furnish drawings and estimates for special requirements.

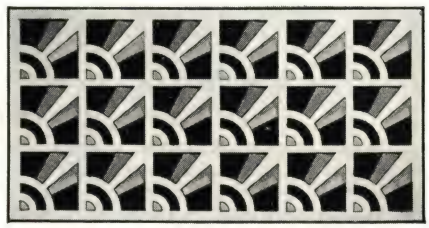
KAWNEER ARCHITECTURAL METAL PRODUCTS

Patented and Patents Applied for

CAST METAL GRILLES

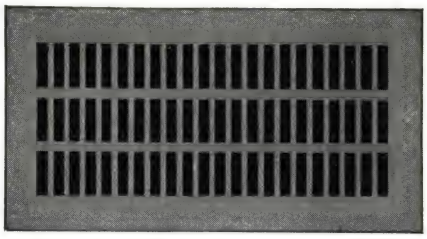


We are equipped to cast grilles of various metals in any design or size to suit special requirements

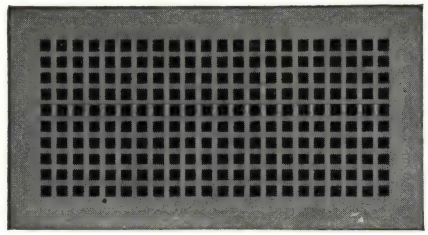


High grade architectural and sculptural cast metal work of all types furnished in accordance with the architect's design

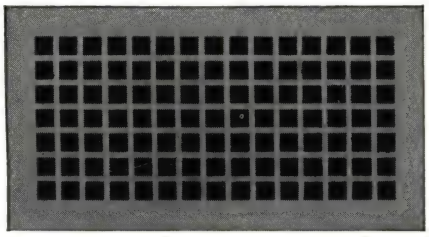
STAMPED METAL GRILLES



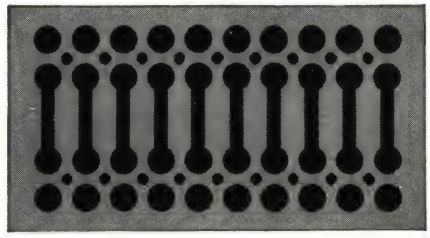
Type 1-G Stock sizes: 11″x5″. 18″x9″. 24″x10″



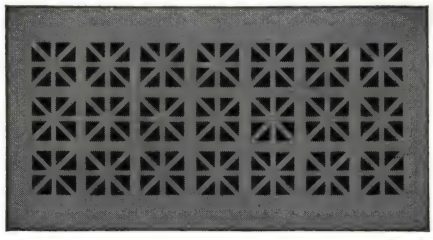
Type 2-G Stock sizes: 11″x5″. 18″x9″. 24″x10″



Type 3-G Stock sizes: 11″x5″. 18″x9″. 24″x10″



Type 4-G Stock sizes: 11″x5″. 18″x9″. 24″x10″



Type 5-G Stock sizes: 11″x5″. 18″x9″. 24″x10″



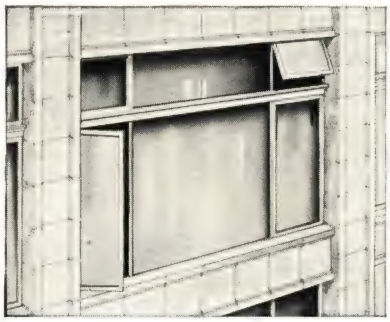
Special Type — Special designs cut to meet architects' requirements. Cost based on time and material

Grilles are furnished in .050 and .109 metal sharply cut from bronze, aluminum alloy or copper. The maximum size in either gauge is 24″x114″.

If the .050 grilles are made in sizes exceeding 24″x24″, reinforcements will be attached to the back to provide ample strength.

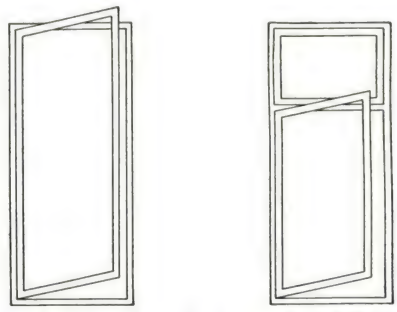
Extra charge will be made for grilles furnished in dimensions other than those shown as stock sizes.

NO. 70 SHOW CASE DOORS; VENTILATORS



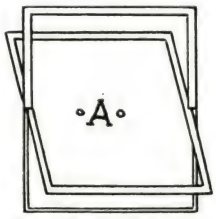
This show case door is furnished in various non-ferrous metals and finishes. It is built along narrow lines in harmony with our store front construction. The mitered corners are strongly welded



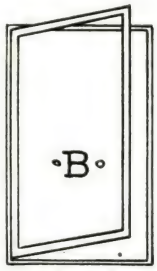


and the weld can be ground or left in its natural state as preferred. The felt weathering member makes the unit dustproof—a very desirable feature. Glazing is easily accomplished. Doors are equipped with necessary hardware.

VENTILATORS



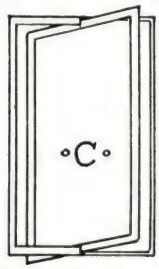
No. 57-A Pivoted at sides to swing in at top. Maximum width, 30″



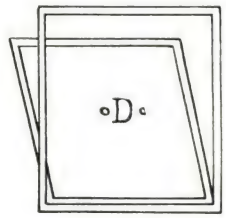
No. 57-B Hinged at sides to swing out. Maximum width, 24″



"H" Hinged at bottom to open in. Maximum width, 24″. (Steel only) Copper, aluminum or bronze spray finish



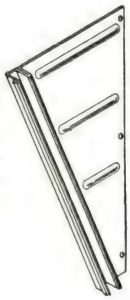
No. 57-C Pivoted at top and bottom. Maximum width, 30″



No. 57-D Hinged at bottom to swing in. Maximum width, 30″

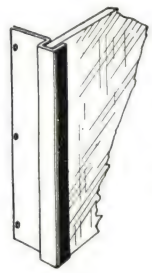
WINDOW VENTILATOR BRACKETS

ANGLE TYPE
Furnished in pairs, in maroon or green baked enamel finish. Shipments include the necessary wood screws. Cost of special finishes on request



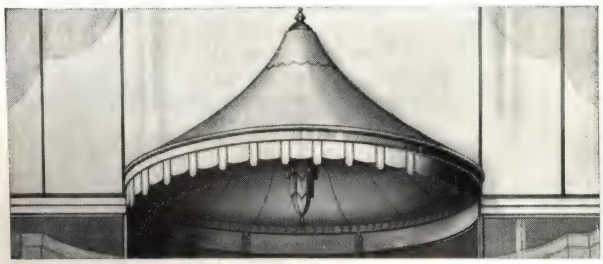


Anyone can apply these ventilator brackets to window jambs. Screw driver and screws are the only accessories needed. Brackets fasten to side jambs as shown above

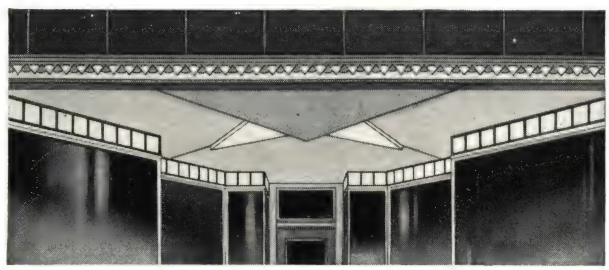


VERTICAL TYPE
Furnished in pairs, in maroon or green baked enamel finish. Shipments include the necessary wood screws. Cost of special finishes on request

METAL MARQUISE

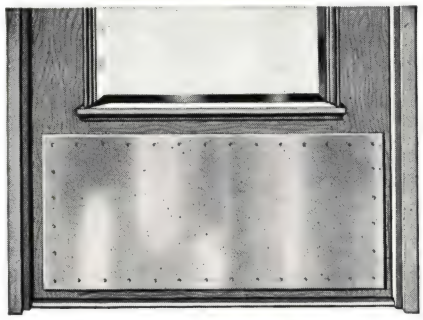


METAL CEILINGS



Custom-built metal marquise and ceilings are completely fabricated in our factories to meet any special requirements

KICK PLATES, THRESHOLDS, PUSH PLATES



KICK PLATES

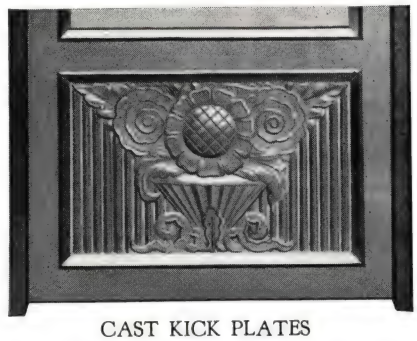
Cut with square edges from .050 bronze, brass, aluminum alloy or copper. Holes drilled and screws furnished.

STANDARD SIZES

(IN INCHES)

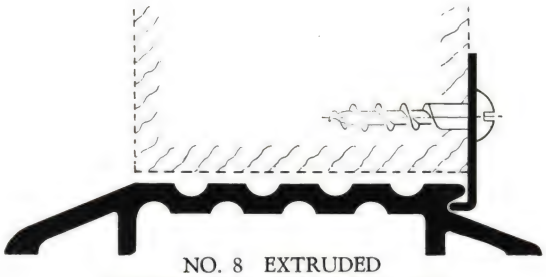
28x10	28x12
28x14	28x16
34x10	34x12
34x14	34x16
40x10	40x12
40x14	40x16

Other sizes furnished if desired.

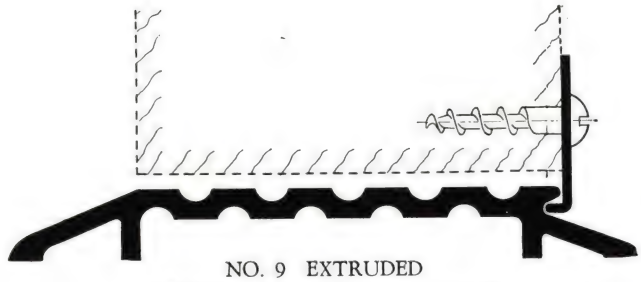


CAST KICK PLATES

Furnished in various cast metals in accordance with the architect's design and requirements.



NO. 8 EXTRUDED
FURNISHED WITH WEATHERING ANGLE



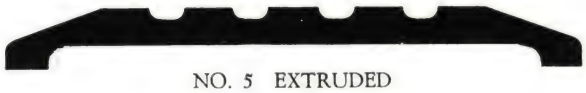
NO. 9 EXTRUDED
FURNISHED WITH WEATHERING ANGLE



NO. 7 EXTRUDED



NO. 6 EXTRUDED



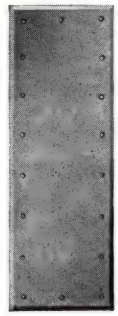
NO. 5 EXTRUDED



NO. 4 EXTRUDED



NO. B COLD ROLLED

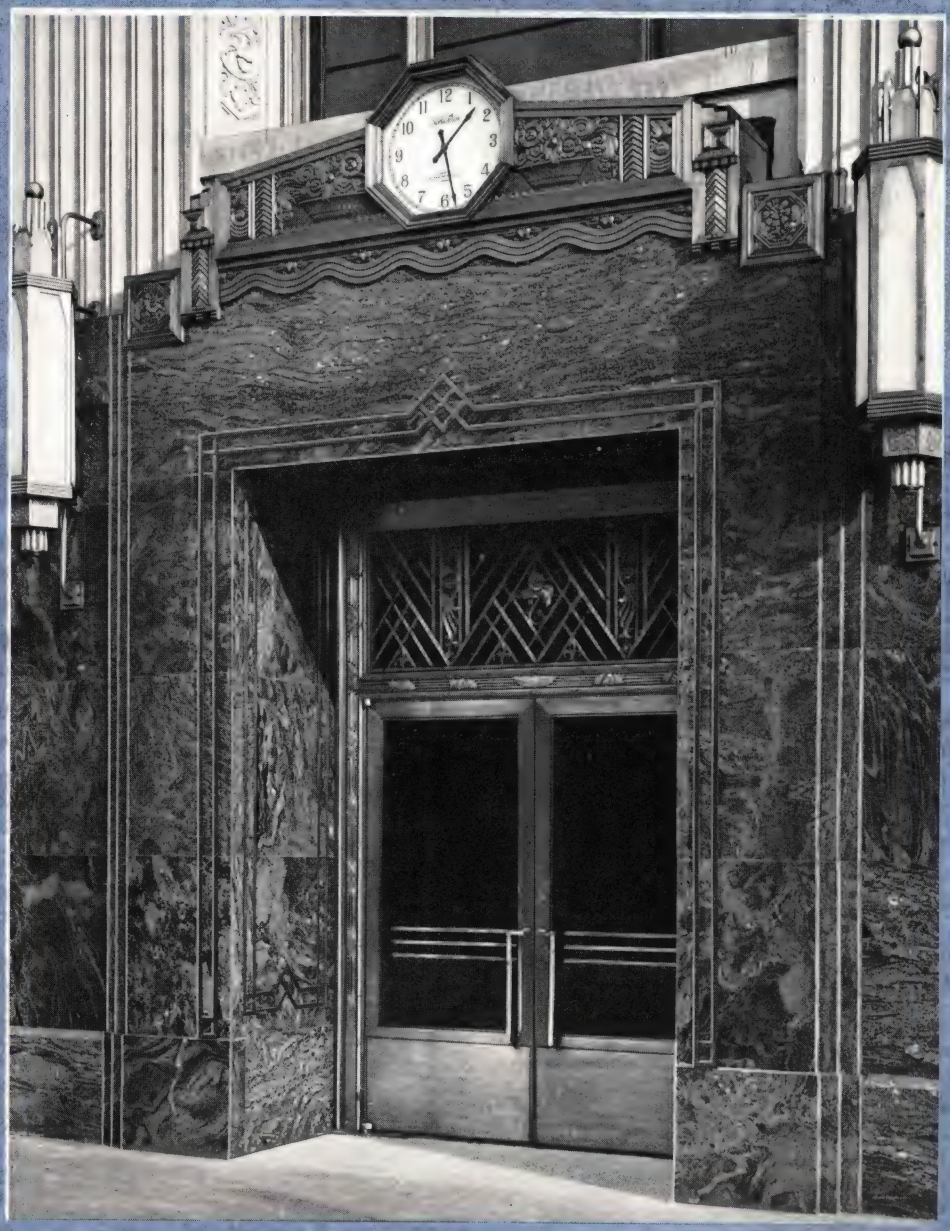


PUSH PLATES

Cut with square edges from .050 bronze, brass, aluminum alloy or copper. Holes drilled and screws furnished. Made in any size.

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STORE FRONTS ~ WINDOWS
DOORS ~ ARCHITECTURAL BRONZE



THE

Kawneer

COMPANY

NILES, MICHIGAN

FACTORIES

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THE MICHAELS ART BRONZE COMPANY

Orna-Metal Craftsmen Since 1870

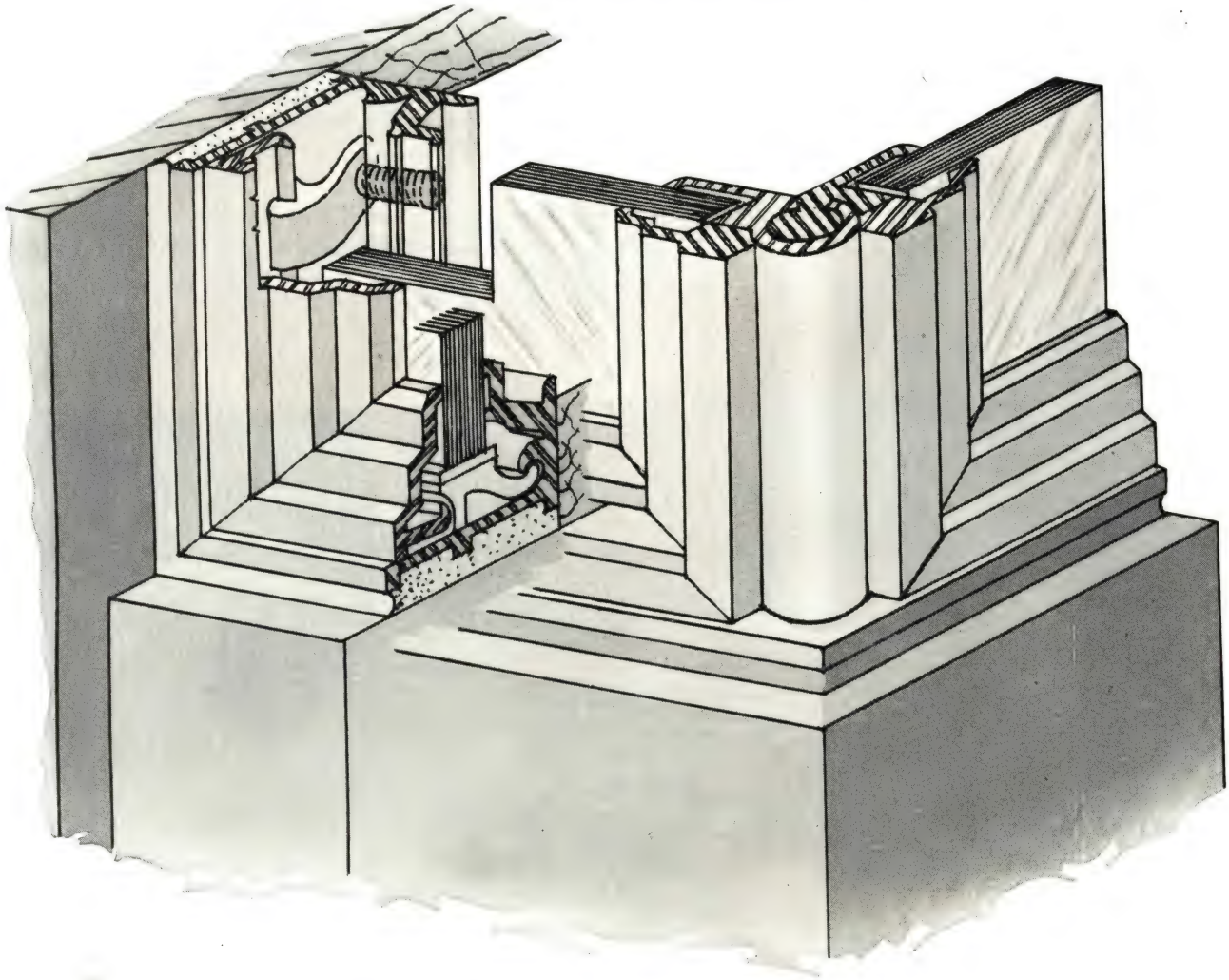
235-241 Court Avenue
COVINGTON, KY.

(Three minutes from the heart of Cincinnati, Ohio)

REPRESENTATIVES IN PRINCIPAL CITIES

For our pages on Ornamental Iron and Bronze, Access Panels and Frames, Weatherstripping, see Manufacturers' Index

MICHAELS STORE FRONT CONSTRUCTION



Michaels construction is specified because of the distinct design and many practical points of advantage. For instance—no putty is necessary in setting glass; modern design conforms with any architectural scheme; any finish may be applied; screw adjustment on lever causes a spring tension on glass to absorb vibration, expansion and contraction. Any angle may be obtained by the adjustable swivel corner without losing the general shape or lines.

MODERN BRONZE STORE FRONT CO.

Factory-fabricated Store and Shop Fronts in Extruded and Cast Bronze

CHICAGO HEIGHTS, ILLINOIS

AGENTS IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

Products

ORNAMENTAL and ARCHITECTURAL NON-FERROUS METAL WORK: including Store Fronts, Entrances, Facias, Cornices, Marquises, Tablets, etc., completely "factory-fabricated," ready for erection.

For Zouri Safety Key-Set and International Store Front Construction, Standard Store Front Construction, and Zouri "Sturdiweld" Shower Stall Doors, see Manufacturers' Index.

Facilities

With a corps of skilled craftsmen and unlimited equipment, we are qualified to reproduce in any practical metal "Factory-fabricated" Store Fronts in exact accordance with the architect's design.

We carry a complete line of standard extruded shapes and cast ornaments to meet the requirements of a conservative or elaborate store front job.

The sash and bars of Modern Bronze Store Front Construction are so designed that no screws appear in the face mouldings, employing the well-known Zouri Safety Key-Set method.

Architects who desire to have their own designs extruded or cast, may rely upon the custom service offered by this company.

Full Size Details

Portfolio of full size details of standard stock mouldings and construction furnished on request.



Modern Bronze Store Front Construction

Presenting a rich appearance with its clear contours and well defined lines—a fitting frame for the finest merchandise



Arcade Entrance to Tea Shop, 737 North Michigan Avenue Building

Your own design can be factory-fabricated in complete form, including special cast ornamentation, grilles, spandrels, etc.



Some Attractive Installations

All bronze work shown is executed by the MODERN BRONZE STORE FRONT COMPANY in accordance with details and specifications prepared by the architects.

Worthy examples of the scope of the work executed by this company.



Main Entrance 737 North Michigan Avenue Building

737 North Michigan Avenue Building

REBORI, WENTWORTH, DEWEY & MCCORMICK, Architects, Chicago, Ill.

DAHL-STEDMAN COMPANY, Builders, Chicago, Ill.

PITTSBURGH PLATE GLASS COMPANY

"Easyset" Metal Store Front Construction

PITTSBURGH, PA.

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LOUISVILLE, KY.
MEMPHIS, TENN.
MILWAUKEE, WIS.
MINEOLA, N. Y.
MINNEAPOLIS, MINN.
MOUNT VERNON, N. Y.
NASHVILLE, TENN.
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SAN ANTONIO, TEX.
SAVANNAH, GA.
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Products

"Easyset" System of Metal Store Front Construction.

Also Awning Covers, Kick Plates, Thresholds, Special Mouldings, Showcase Doors, Grilles and Ornamental Store Front Construction.

See Manufacturer's Index for: Plate Glass, Vista Plate Glass, Heavy Plate Glass, Flat Drawn Window Glass, Heavy Sheet Glass, Tapestry Glass, Structural Glass, Mirrors, Paints, Varnishes and Enamels.

Modernized Design

The lineation of "Easyset" Construction is modern, though not extreme. Sharp contrasts in light and shadow are obtained through definite and angular mouldings. Absence of superfluous material and embellishment lends to each unit the desirable qualities of distinction and grace. Though amply strong, glass-holding members are reduced to minimum size, thus providing a setting that is unobtrusive to the display of merchandise.

Simplified Construction

Wherever possible, metal coverings have been made to conform to wood cores of standard sizes, thus reducing costs and installation difficulties.

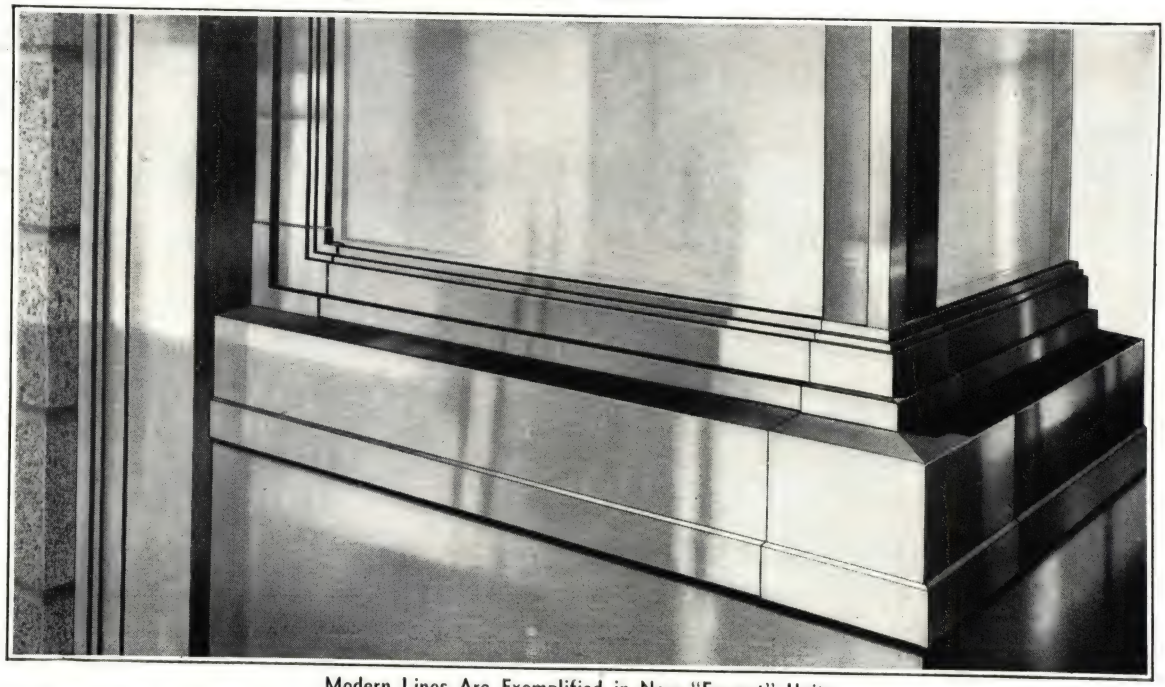
With added improvements, the original principle of uniting face and back members of sash and bars has been preserved.

True to name, "Easyset" Store Fronts are easily and quickly installed.

Catalogue and Full Size Details

Our new 32-page Catalogue "M" shows the complete "Easyset" System of Bronze Store Fronts, with illustrations and details of the various members. Write for it. A portfolio of full size working details of the new construction will be sent for the asking.

"Modern Store Fronts by Easyset" is a free portfolio of some outstanding installations of recent date. This brochure bears the A.I.A. File Number, as do the catalogue and working details mentioned above.



Modern Lines Are Exemplified in New "Easyset" Units

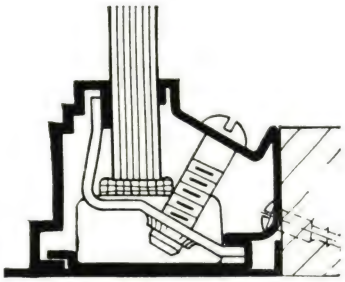
The sharp, clean-cut lines of this construction make it extremely desirable for the modern shop front

"EASYSET" SASH AND BARS

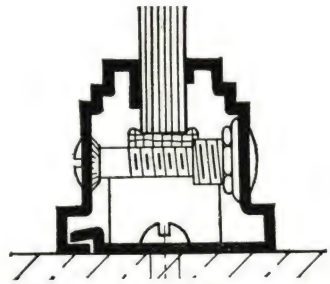
(Full Size Details)

All "Easyset" Sash and Bars are made of solid bronze or aluminum alloy in the following finishes, which are designated by number:

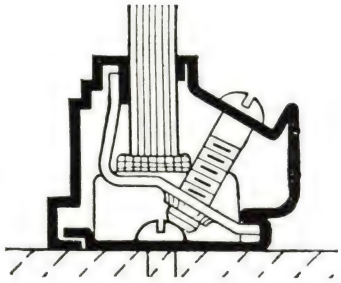
17—Satin Bronze
20—Unfinished Bronze
8—Polished Bronze
9—Light Statuary on Bronze
21—Dark Statuary on Bronze
18—Polished Aluminum Alloy
19—Satin Aluminum Alloy



52-A Regular Sash



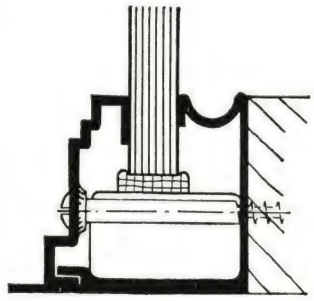
52-C Double-face Self-supporting



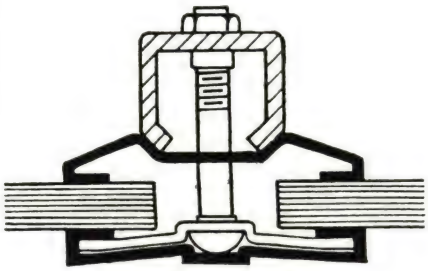
52-B Self-supporting



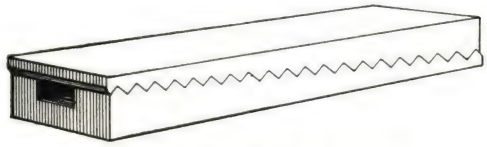
Method of Adjusting Sash from the Inside



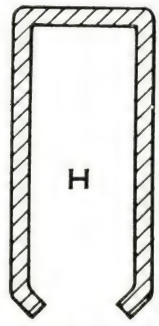
52-D For Outside Setting



Division Bar 79-L*

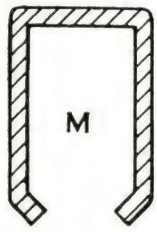


Adjustable Setting Block Used with All "Easyset" Sash
(Actual size)



HEAVY

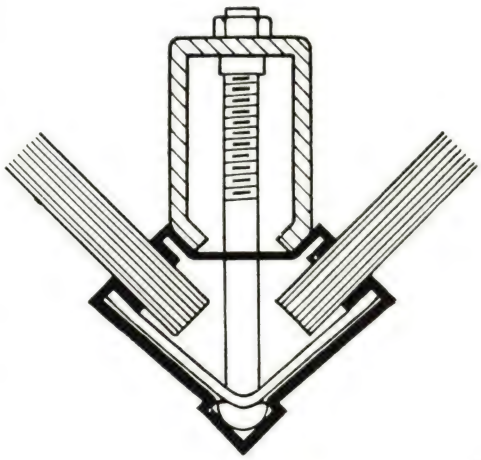
At Right:
Steel Stiffeners
For use with any "Easyset" Corner, Division or Reverse Bar. Three sizes cover all requirements



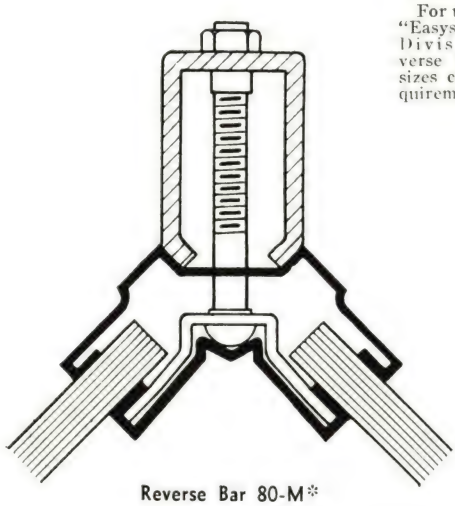
MEDIUM



LIGHT

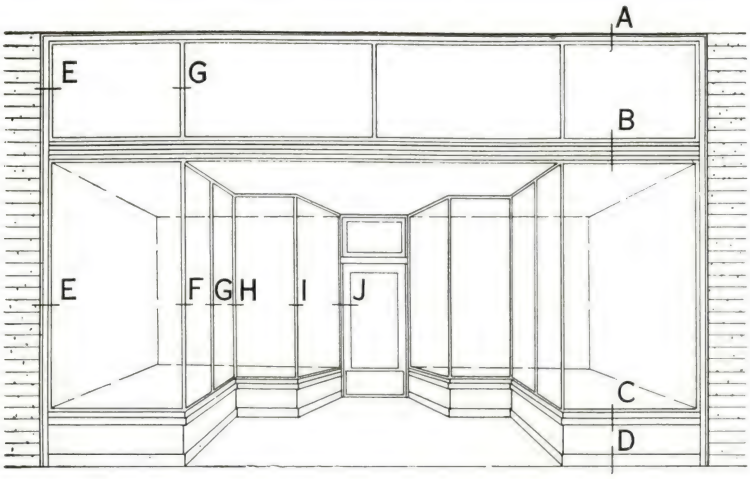


Corner Bar 78-M*



Reverse Bar 80-M*

*The letters L, M or H denote the size of stiffener shown with bar



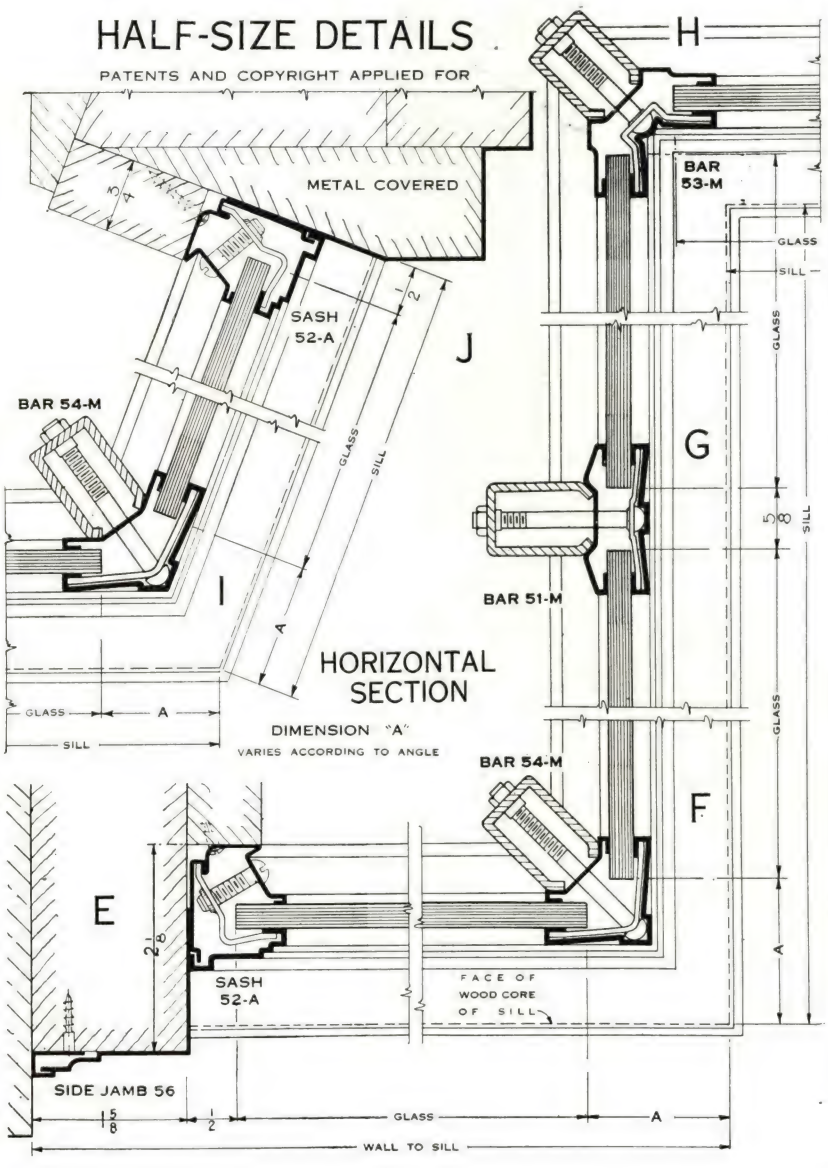
Note: Keyed elevation shows position of various members detailed on this page. Light stiffener is used at "G" in transom.

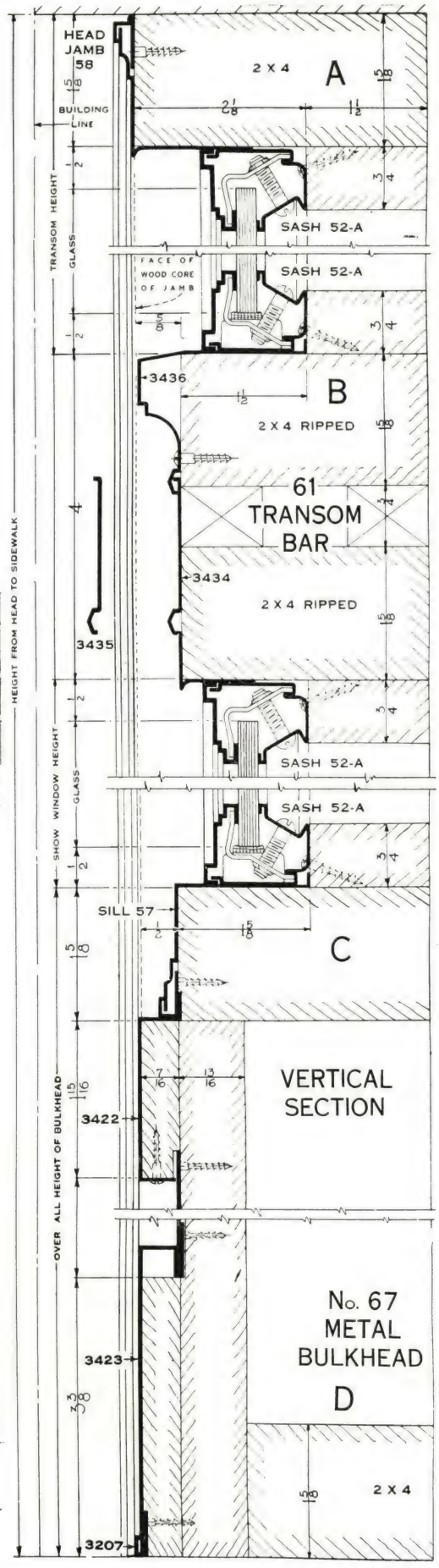
A Complete "Easyset" Store Front

The accompanying details show manner of building a typical "Easyset" Store Front. A diversity of treatment is possible with "Easyset" members. Our services are at your disposal when designing a store front.

HALF-SIZE DETAILS

PATENTS AND COPYRIGHT APPLIED FOR





STANDARD STORE FRONT CONSTRUCTION CO.

Manufacturers of Standard Store Front Construction

CHICAGO HEIGHTS, ILL.

ASSOCIATED COMPANIES

THE ZOURI COMPANY, MODERN BRONZE STORE FRONT CO.
INTERNATIONAL STORE FRONT CO.

INTERNATIONAL DISTRIBUTION

Products

STANDARD STORE FRONT CONSTRUCTON in Solid Bronze, Copper, Aluminum and Nickel-silver or Electrolytic Finishes.

Bronze Doors and Entrances

For Zouri Company's "Sturdiweld" Shower Stall Doors, and Safety Key-set Store Front Construction, see Manufacturers' Index.

Also for Architectural and Extruded Bronze and Aluminum, see Modern Bronze Store Front Co. in Manufacturers' Index.

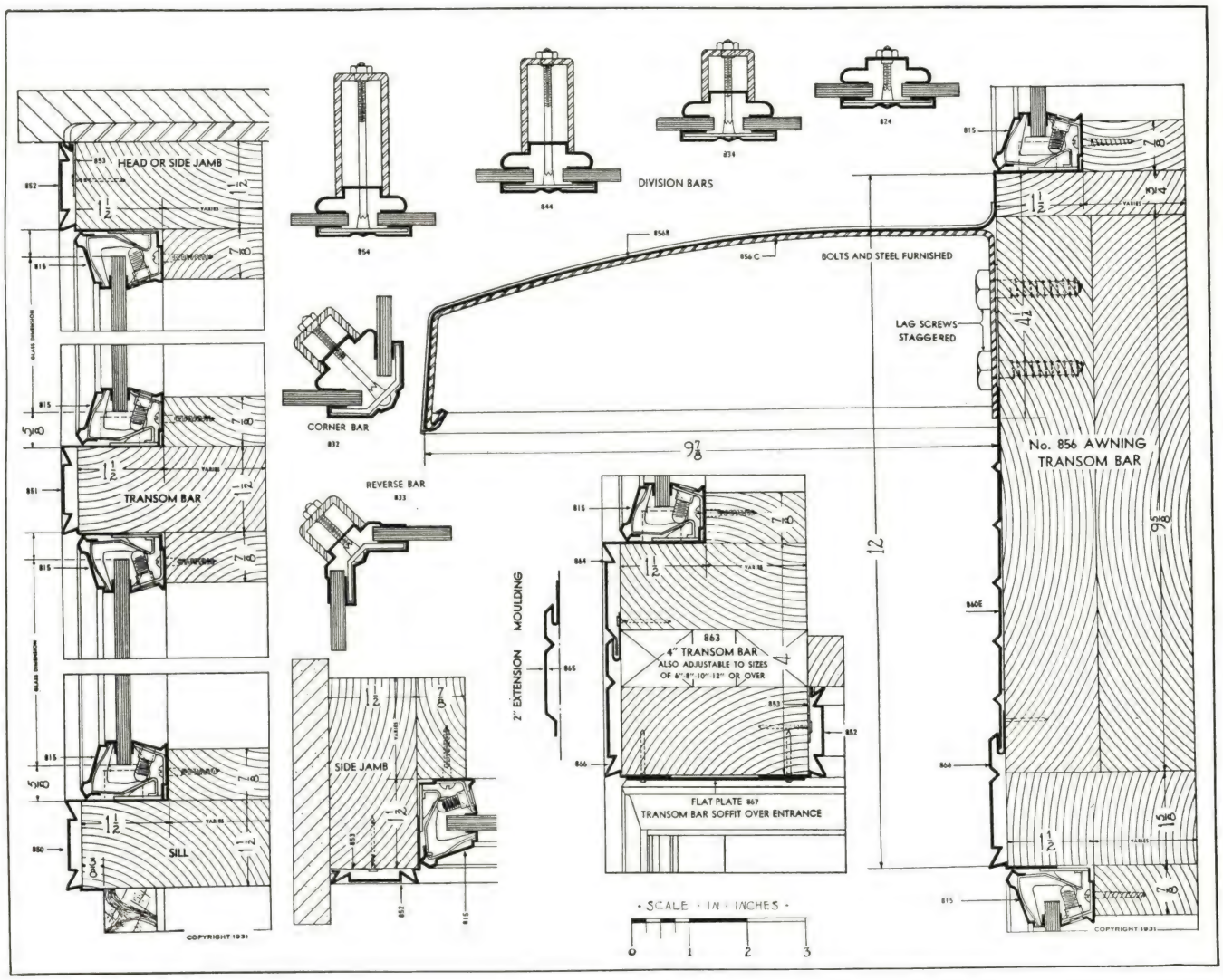
Service

Catalogues and full-size detailed sheets furnished on request. We welcome the opportunity of submitting drawings and details without obligation.

Description

The advanced ideas of construction embodied in Standard Construction are many. The sash face is held firmly to the glass by set screws against an inclined plane of the drawplate, thus presenting the well-known safety method of actual indirect screw pressure.

Installation of Modernized Standard coverings, although considerably simplified, is possible without exposed nails or screws, thus harmonizing with Key-set construction.



THE ZOURI COMPANY

Manufacturers of Zouri Safety Key-set Store Front Construction

CHICAGO HEIGHTS, ILL.

ASSOCIATED COMPANIES

STANDARD STORE FRONT CONSTRUCTION CO. MODERN BRONZE STORE FRONT CO.

INTERNATIONAL STORE FRONT COMPANY

INTERNATIONAL DISTRIBUTION

Products

ZOURI SAFETY KEY-SET STORE FRONT CONSTRUCTION in Rolled Bronze, Copper, Aluminum and Nickel Silver or Electrolytic Finishes.

Also Bronze Doors.

For Zouri "Sturdiweld" Shower Stall Doors, see Manufacturers' Index.

For Architectural and Extruded Bronze and Aluminum, see Modern Bronze Store Front Company in Manufacturers' Index.

For Standard Store Front Construction see Manufacturers' Index.

Service

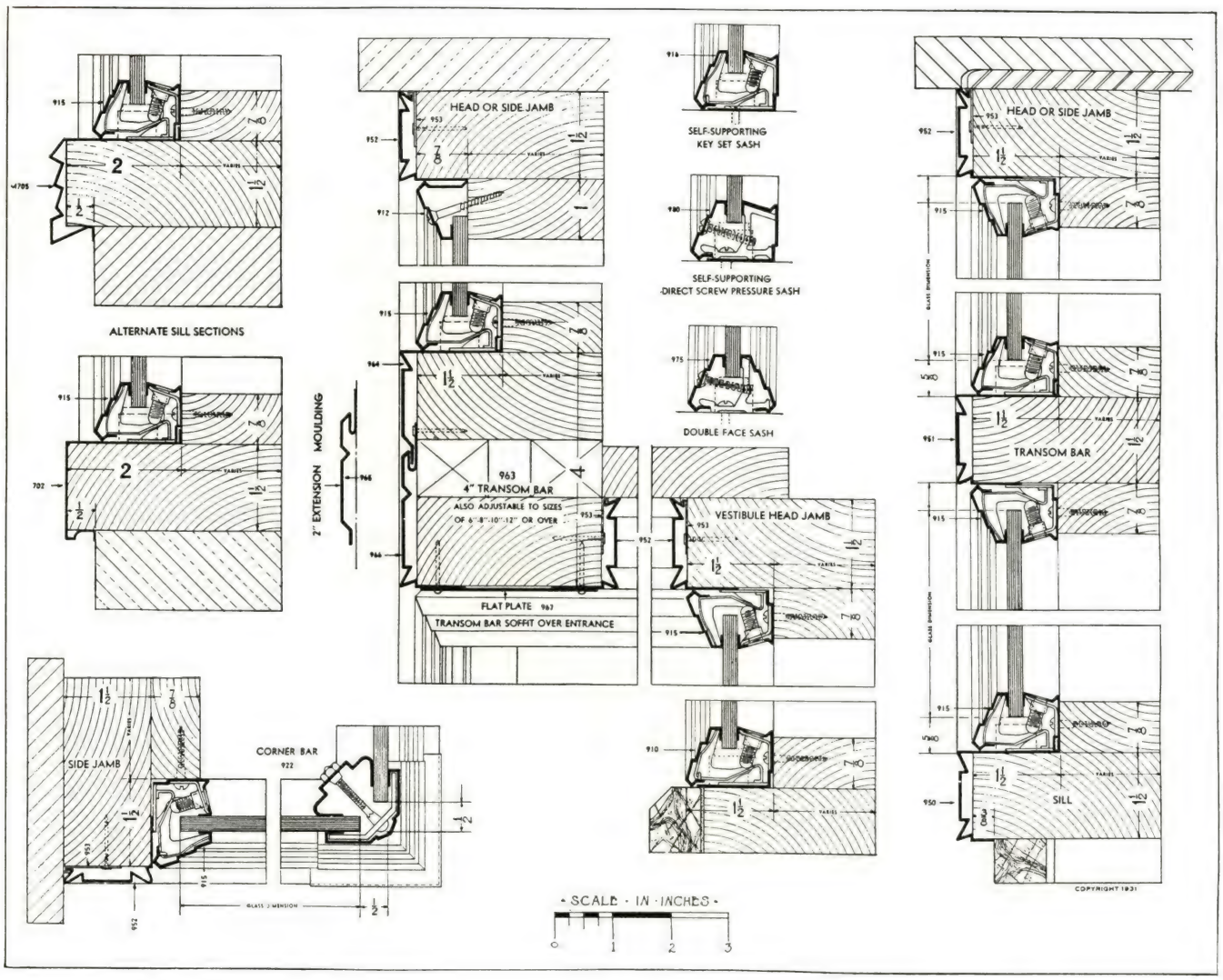
Catalogues and full-size detailed sheets furnished on request. We welcome the opportunity of submitting drawings and details without obligation.

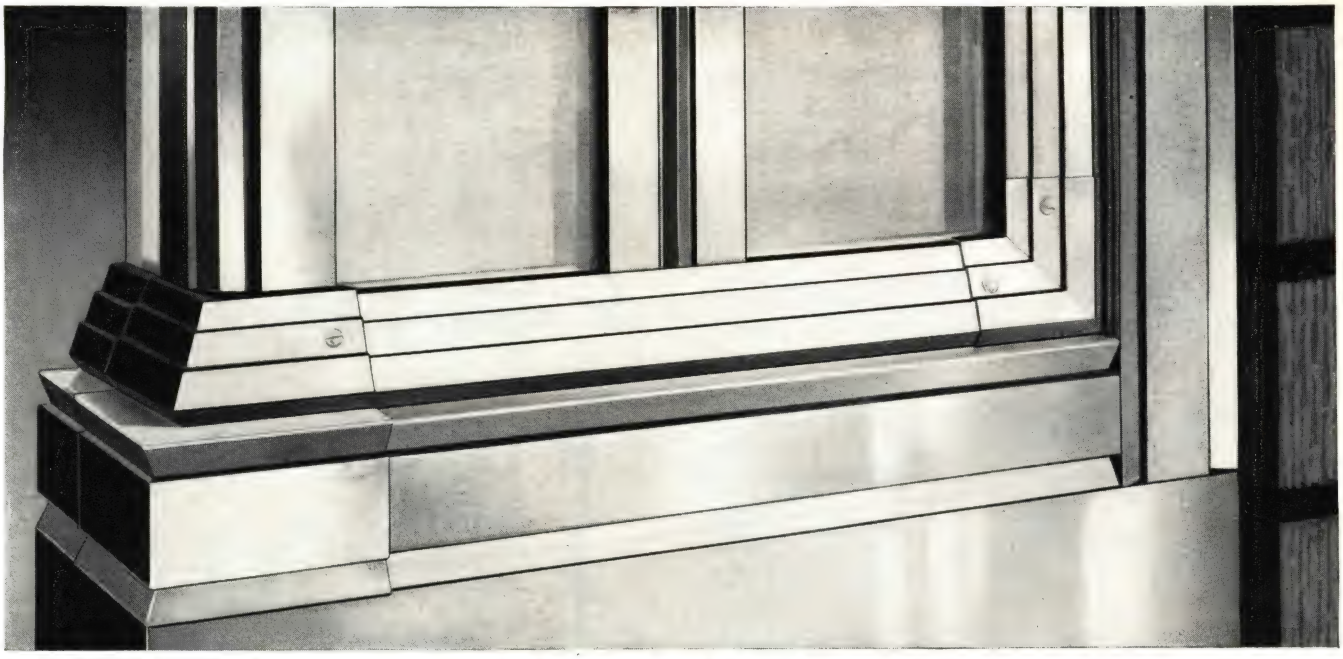
Description

The advanced ideas of construction embodied in Zouri Key-set Construction are many. The sash face is firmly held to the glass by a setscrew against the inclined plane of the draw plate, presenting the well-known Zouri method of actual indirect screw pressure.

Installation of Modernized Zouri coverings, although considerably simplified, is possible without exposed nails or screws, thus harmonizing with Key-set Construction.

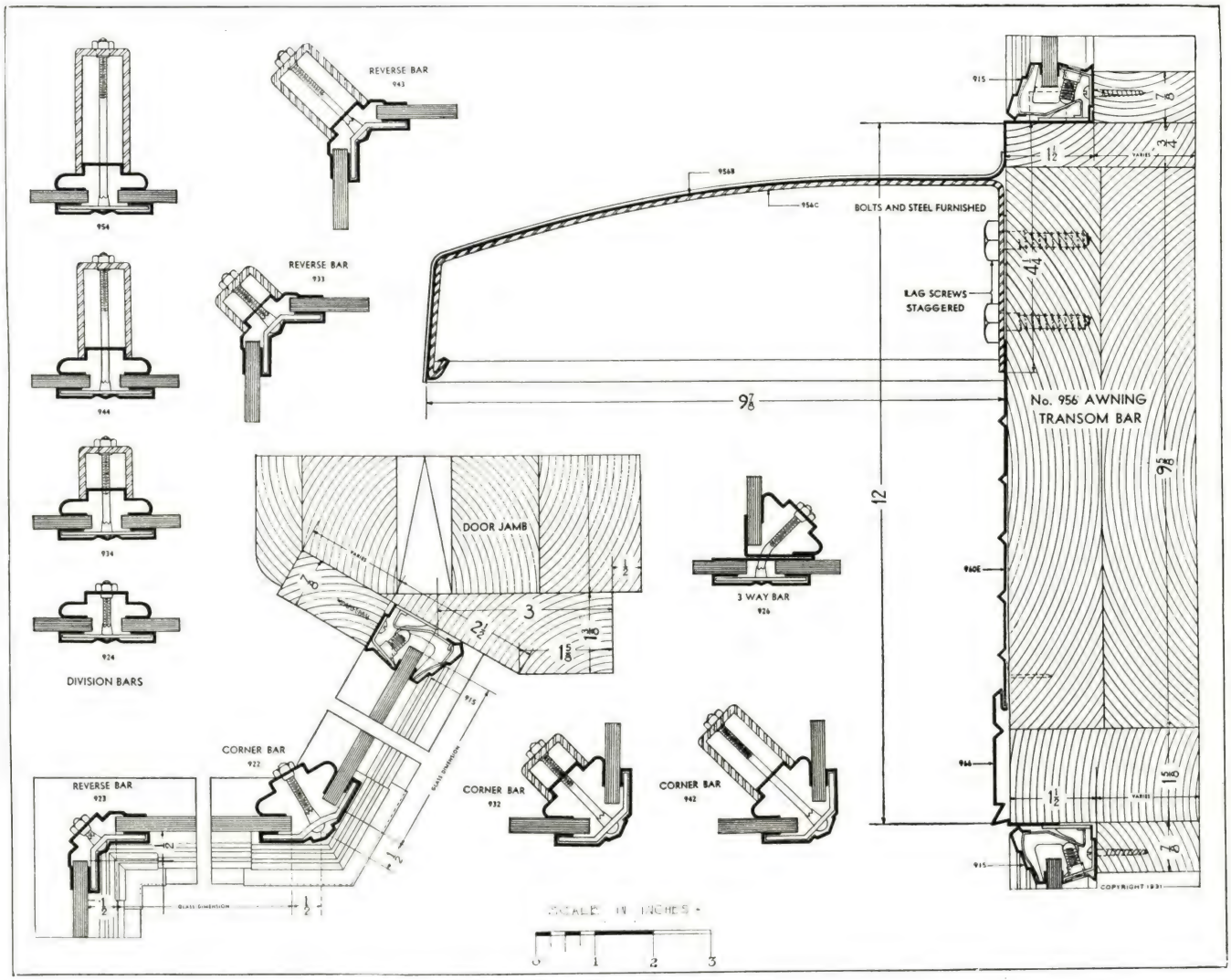
For Zouri Dubl-Wate Construction see second following page.





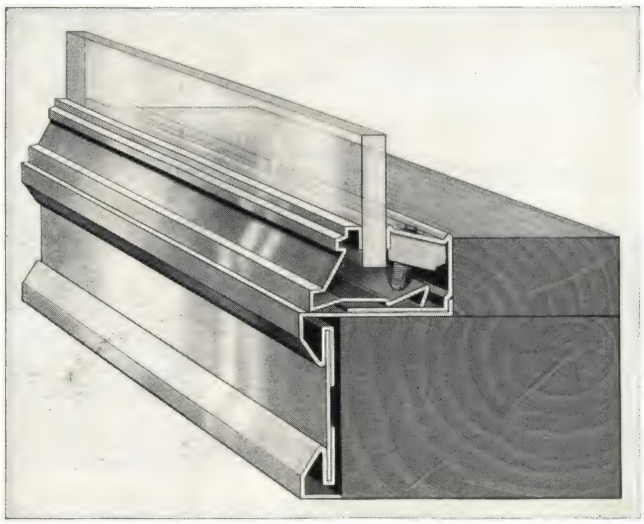
Zouri Mouldings are Modern in Every Detail

Above View Slightly Over Half Size

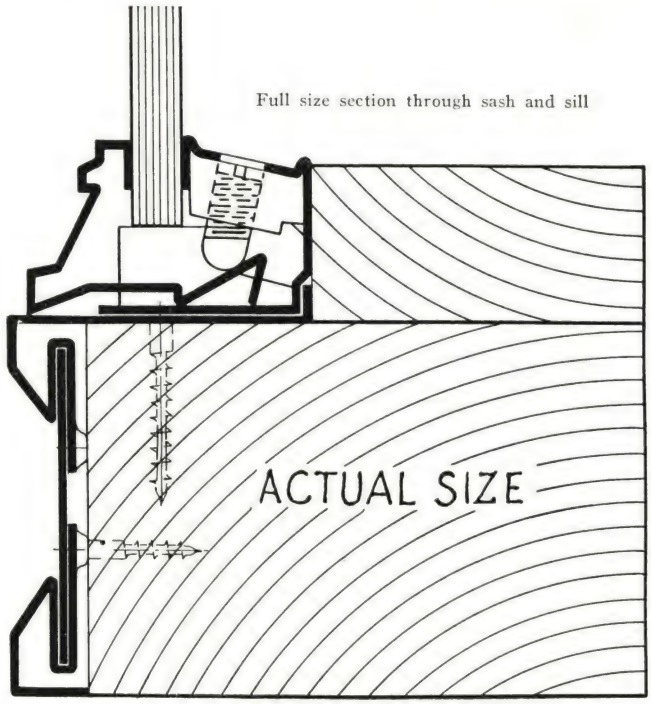


ZOURI DUBL-WATE STORE FRONT CONSTRUCTION

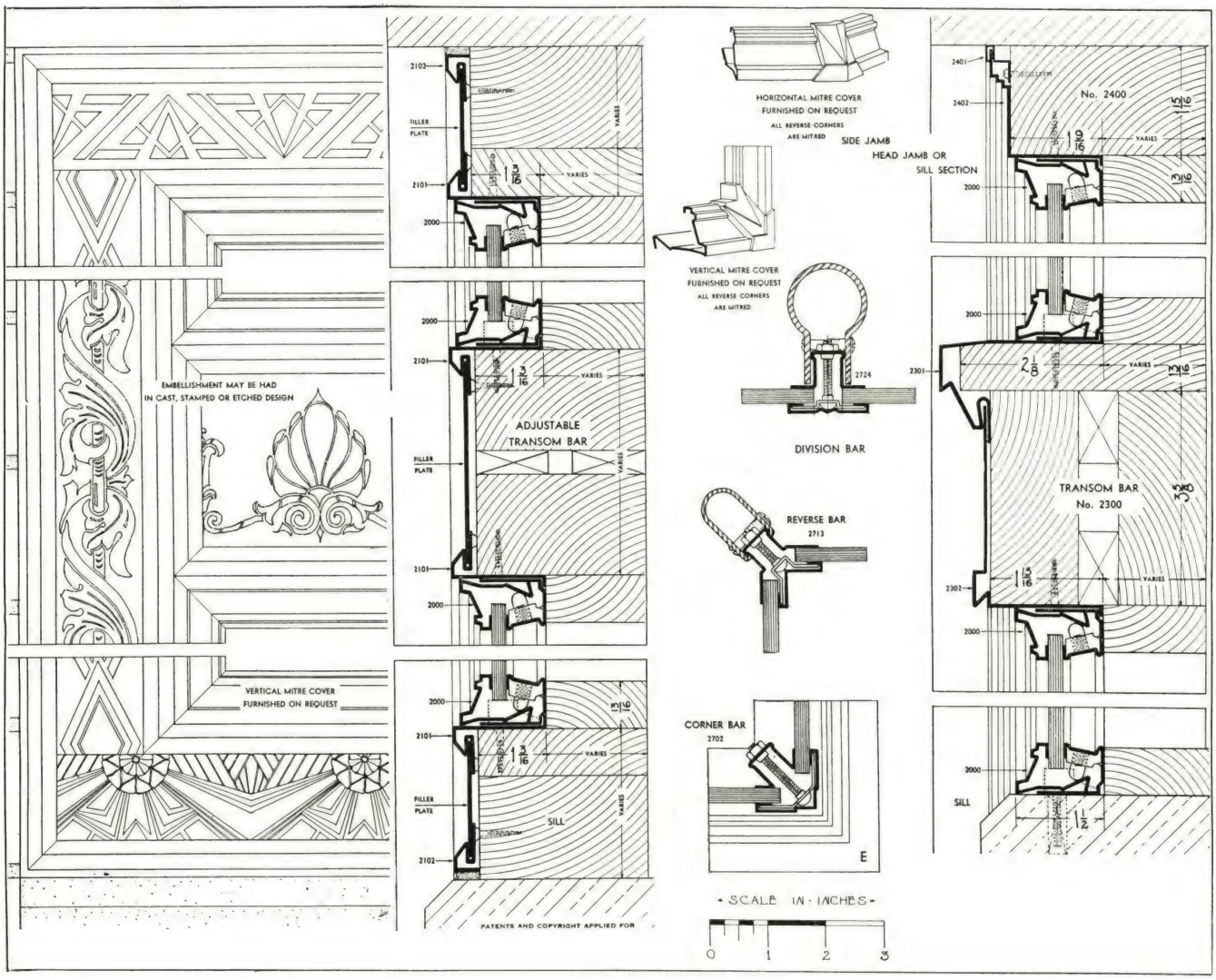
Its impressive appearance adds prestige to shop fronts.



Full size section through sash and sill



Heavier Sections — Modern Shapes



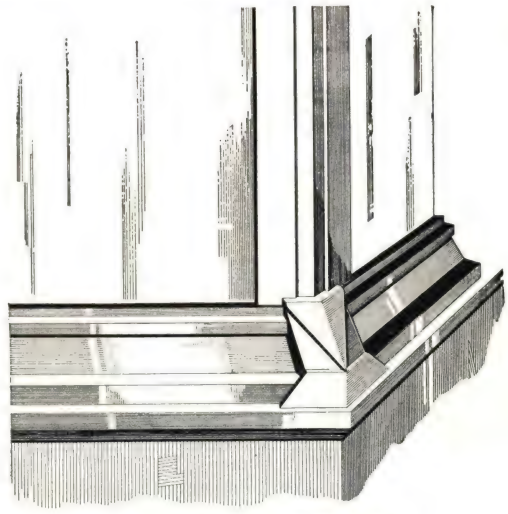


Left:

Betty Wales Dress Shop, Michigan Avenue, Chicago, Ill.

MICHIGAN STORE FIXTURE CO., Designers

MUNDIE & JENSEN, Consulting Architects



Special Treatment at Corners

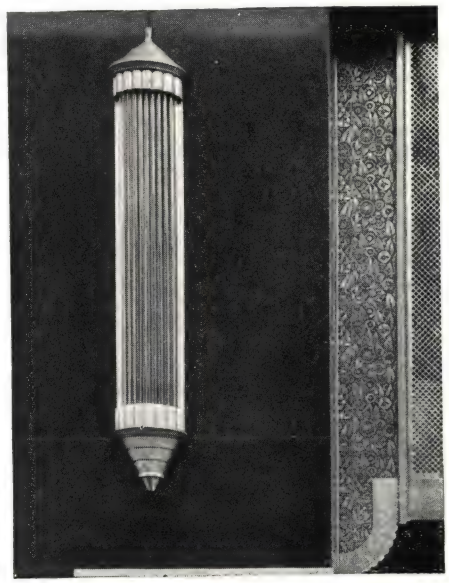
THE DISTINCTIVE QUALITY OF ZOURI DUBL-WATE IS MANIFESTED BY THIS BEAUTIFUL STORE FRONT

The Betty Wales Dress Shop is convincing evidence of the character and adaptability of the new Zouri Dubl-Wate Construction. Modern in contour, designed to meet present day trends. Easily installed. A distinct contribution to modern store front construction.

Zouri Dubl-Wate is formed in bronze or aluminum alloy.

THE ZOURI COMPANY
GENERAL OFFICES
CHICAGO HEIGHTS, ILLINOIS





CONCORD PAINT CO., INC.

Manufacturers of Putty, Calking Compounds and Roof Plastics

421-423 Hunts Point Avenue, The Bronx

NEW YORK, N. Y.

Products

CONCORD'S GUARANTEED 100% LINSEED OIL PUTTY for wood sash.

CONCORD'S CERTIFIED STEEL SASH PUTTY for steel and casement sash.

CONCORD'S MONO-SKY CEMENT for monitor sash and skylights.

CONCORD'S CALKING COMPOUND for calking between frames and building openings.

CONCORD'S ROOF-FIX, Plastic and Liquid for waterproofing and roof repairs.

Also Concord's Carrarament for setting carrara glass; Concord's Crane Patent Cement for crane fronts.



Concord's Special and Exclusive Cooking Process for Concord's Putties

The superior quality of Concord Putties is due to the modern manufacturing facilities and high grade materials employed in their manufacture.

No other oil but pure linseed oil is used in Concord's Putties and this oil is put through a special and secret "Cooking" process which is an exclusive feature of Concord products.

This special cooking process, used only in the manufacture of Concord Putties, gives the oil a heavier body and better drying qualities. It prolongs the life of the putty, prevents crumbling and cracking, and renders the putty absolutely waterproof.

The easy workability of Concord Putties and their quick setting qualities make the glazier's work easier and quicker, thus effecting economies in actual cost of installation.

Concord guarantees their putty to be exactly as represented and satisfactory in every way.

Concord's Guaranteed 100% Linseed Oil Putty for Wood Sash

Concord's Guaranteed 100% Linseed Oil Putty contains no other oil but linseed oil. This is a standard practice with reliable putty manufacturers.

However, the linseed oil used in this grade of Concord's Putty is put through a special *and exclusive* "Cooking" process.

This process, used only in the manufacture of Concord's Putty, gives the oil a heavier body and better drying qualities. It also prevents the oil from penetrating into the wood. Hence, the oil remains in the putty, prolonging its life, preventing crumbling and rendering the putty absolutely waterproof.

Specification—Putty used for glazing wood sash shall be Concord's Guaranteed 100% Linseed Oil Putty, as manufactured by the CONCORD PAINT CO., INC., 421-23 Hunts Point Avenue, The Bronx, New York, N. Y.

All glass shall be bedded in putty and secured with glazier's tacks or clips, and putty. The putty shall not be carried beyond the face of the rabbet nor shall it finish more than 1/16 inch back from that face. All rabbets shall be primed before glazing is done.

Concord's Certified Steel Sash Putty

Concord's Certified Steel Sash Putty is absolutely waterproof. The base of the oil used in this putty is linseed oil. This oil is put through a special cooking process to make the putty set quickly, and give it the durable elastic properties which are necessary for steel sash frames to allow for any expansion or contraction.

For casement sash we recommend specifying "Concord's Certified Steel Sash Putty for Casement Sash". This putty is the same as the steel sash putty with additional provisions for quicker setting.

Specification—Putty used for glazing all steel sash (except casement sash—see alternate below) shall be Concord's Certified Steel Sash Putty, as manufactured by the CONCORD PAINT CO., INC., 421-23 Hunts Point Avenue, The Bronx, New York, N. Y.

Alternate—Putty used for glazing steel casement sash shall be Concord's Certified Steel Sash Putty for Casement Sash.

All glass shall be bedded in putty and secured with clips provided with the steel sash frames. The putty shall not be carried beyond the face of the rabbet nor shall it finish more than 1/16 inch back from that face.

Note: Steel sash putty should be allowed to set from ten days to two weeks before painting.

Concord's Mono-Sky Cement

The oil used in Concord's Mono-Sky Cement is give it exceptionally heavy body, in order to hold firmly the heavy glass used on this type of sash and to withstand the severe weather conditions encountered.

Concord's Mono-Sky Cement should be allowed to set for two or three weeks if painting is desired to match interior trim. Painting, however, is not necessary due to the exceptionally heavy body of the oil.

Concord's Calking Compound

Concord's Calking Compound is an especially processed, non-drying compound of gun or knife consistency for calking between frames and building openings. It is waterproof.

Concord's Roof-Fix

Furnished in plastic or liquid consistencies for roof repairs and general waterproofing purposes.

Service

Fresh putty at all times; forty-eight hour service; twenty-four hour delivery.

Requests for additional information on our products or on any special problem will receive immediate attention.

A Few Concord Putty Users

Building Contractors—Starrett Bros. & Eken; Wm. Kennedy Construction Co.; Gibbs-Rice Co.; Turner Construction Co.; Kurzrock Realty Association; White Construction Co.; Isaac Hopper; Harper Organization; Thomas G. Sperling; A. E. Lefcourt; S. S. Roth & Bros.

Architects—Shreve, Lamb & Harmon; Halsey, McCormack & Helmer; Walter C. Martin; D. T. Mack; Voorhis, Gmelin & Walker; Schwartz & Gross; Kenneth Franzheim; Lockwood & Greene; Emery Roth; Victor Bark; Starrett & VanVleck.

ESTABLISHED 1889

H. B. FRED KUHLS

Manufacturer of Kuhls' Elastic Glazing and Caulking Compositions

OFFICE AND FACTORY

6411-6423 Third Avenue, BROOKLYN, N. Y.

Products



ELASTIC GLAZING COMPOSITION — For glazing skylights, conservatories, bedding and glazing of glass in steel or sheet metal frames and all other glass construction work.

ELASTIC CAULKING COMPOSITION—For caulking between masonry of window and door frames of wood or steel.

For Kuhls' Elastic Waterproofing Composition, See Manufacturers' Index. On the same pages will be found a list of agents carrying stocks, and also architects who have specified Kuhls' Elastic Products.

Kuhls' Elastic Glazing and Caulking Compositions

They yield slightly to atmospheric conditions, yet always make a tight joint, and are not affected by vibration, heat, cold or moisture. Will not crack, peel or chip. Adhere strongly to wood, metal, glass, etc., bedding perfectly, and always making a tight joint.

The stock color of Kuhls' Elastic Glazing and Caulking Compositions is light gray. Any desired dark shade or color can be furnished at the same price as the stock color.

Kuhls' Elastic Glazing and Caulking Compositions are of such consistency as to be easily applied with a trowel, knife or gun.

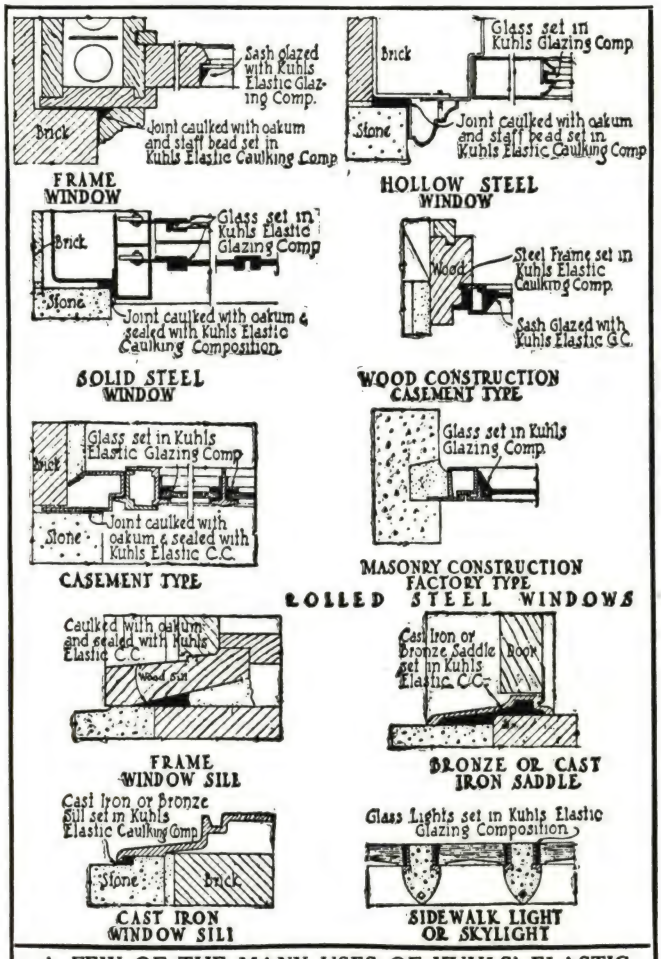
Put up in cans of 1, 2 and 5 lb.; in drums of 12½, 25, 50 and 100 lb.; in half-barrels of 100 to 500 lb.; and in barrels of 700 and 800 lb.

In the service of H. B. FRED KUHLS is a corps of experienced men, each trained in his respective line to co-operate in the fullest measure with architects, engineers and contractors. This efficient service in the use of Kuhls' Elastic Glazing Composition is without obligation.

Architects on the Pacific Coast are referred to the California Minwax Corporation, 1322 So. Los Angeles Street, Los Angeles, Cal., who have a staff of trained waterproofing engineers. They will gladly furnish information and samples gratis.

Glazing Composition—Kuhls' Elastic Glazing Composition for bedding and glazing sash, skylights, conservatories and glass construction in general is an ideal material. It is elastic and retains its elasticity indefinitely because it never sets hard or becomes brittle. This saves breakage of glass—especially important in the case of wire glass.

Its use is economical, as it is double the bulk of white lead putty, and retains its essential qualities indefinitely.



A FEW OF THE MANY USES OF KUHLS' ELASTIC GLAZING AND CAULKING COMPOSITIONS

Specifications for Kuhls' Elastic Glazing Composition

For Bedding and Setting Glass in Sash, Doors, Skylights, Conservatories, Marquises, etc.—Kuhls' Elastic Glazing Composition shall be used in the same way as ordinary putty in bedding and puttying glass. For wood sash and doors the wood shall first be primed; or, on old work, the wood sash and doors shall be scraped and painted before setting the glass. For metal or metal covered sash and doors, the glass shall be bedded in the glazing composition and then secured in place with metal clamps, sprigs or mouldings, or the composition smoothed off, depending on the construction.

General Specification (Under Glazing)—All glass, unless otherwise specified, required for sash and doors of metal, metal covered or wood, shall be bedded and set or puttied with Kuhls' Elastic Glazing Composition (manufactured by H. B. FRED KUHLS, Third Avenue and 65th Street, Brooklyn, N. Y.). It shall be secured either by clamps or metal or wood mouldings, sprigs, supplied by other contractors, or puttied as required.

The Elastic Glazing Composition shall be delivered at the job or factory, where glazing is to be done, and is not to be opened until after the inspection and approval of the architect.

Specifications for Kuhls' Elastic Caulking Composition

Caulking Exterior Wood Window and Door Frames—For new or old frames, the staff bead shall be removed and the joint between the frame and the masonry on all sides, jamb, head and sill, shall be completely filled with Kuhls' Elastic Caulking Composition so that it will project out beyond the masonry. The staff bead, when placed in position, shall be pressed into the Elastic Caulking Composition.

If the joints are wide and deep on old work, they shall be caulked with oakum to within ¾ in. of the surface; then the remainder of the joints shall be filled with Kuhls' Elastic Caulking Composition as for new work.

Caulking Steel or Metal Frames—When metal frames are set in masonry after opening has been built, the inside edge of the masonry opening or the frame shall be buttered with Kuhls' Elastic Caulking Composition and the frame pressed into place and secured.

Where frames are already set, Kuhls' Elastic Caulking Composition shall be used to thoroughly caulk between the frame and the masonry, at head, jamb and sill.

LASTIK PRODUCTS COMPANY, INC.

Caulking and Glazing Compounds and Pointing Cements

GENERAL OFFICES
828 Oliver Building, PITTSBURGH, PA.
FACTORY: WAMPUM, PA.

Lastikalk Caulking and Glazing Compound

A waterproof plastic that is weatherproof, being unaffected by changes in temperature or chemical gases. It will surface-dry for painting overnight, yet permanently remains pliable underneath, never cracking or drying out. It will adhere to any surface—wood, metal, masonry or glass. It expands and contracts with the surface to which it is applied under any and all conditions. It can be applied in any weather; heat, cold or moisture will not affect it. Stocked only in gray. Any shade matched from color chip.

For Caulking (Three Consistencies)—***Knife Grade***—To be applied with a caulking tool.

Gun Grade—To be applied with a hand-caulking gun.

Pneumatic Pressure Grade—To be applied with pneumatic pressure gun at 100 lb. pressure or more.

For Glazing—For all types of construction that are subjected to unusually severe conditions: i. e., gas and acid fumes, excessive vibration, variations in temperature, etc., Lastikalk should be used for bedding and glazing all glass. Its elasticity prevents breakage of glass. It goes much farther than putty.

Packing—Lastikalk is packed in metal containers from 1 to 600 lb.

General Specifications—All joints around outside windows and door frames shall be caulked with Lastikalk, applied in accordance with the specific specifications.

Specific Specifications—***Wood Window and Door Frames***—(1) *For caulking behind staff bead (Fig. 1).*

(a) The general contractor shall provide for removing temporarily set staff beads previous to the caulking of joints around window and door frames; and after caulking is completed, inspected and approved, he shall reset same permanently in place.

(b) Where joints between frame and surounding masonry are wider than ¼ in. and deeper than ¾ in., these joints shall be packed to within ½ in. of frame surface with dry jute or oakum, solidly tamped. The remaining space shall be filled with Lastikalk.

(2) *For caulking between staff beads and masonry or where there is no staff bead (Fig. 2).*

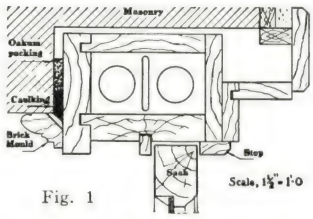


Fig. 1

Lastikalk with Oakum Behind the Staff Bead

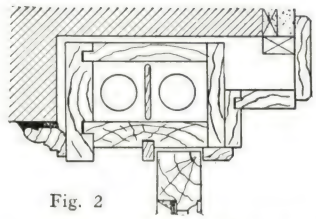


Fig. 2

Lastikalk Between Staff Bead and Masonry

(a) Thoroughly caulk all joints around all window and door frames with Lastikalk, forcing compound into the space between staff beads and masonry [between frames and masonry], around jambs, heads and sills.

(b) Where joints between the staff bead and surrounding masonry [between frames and surrounding masonry] are wider than ¼ in. and deeper than ¾ in., these joints shall be packed to within ½ in. of frame surface with dry jute or oakum, solidly tamped. The remaining space shall be filled with Lastikalk.



Northwestern Bank Building, Minneapolis, Minn.

Lastik Pointing Cement

For pointing up masonry and stonework. This product has been developed to meet the specific needs of this particular kind of work. Its high elasticity of body combined with its cementlike appearance and tenacity of "staying put," make it invaluable in exterior pointing of exposed joints. It is used extensively on tile, limestone and terra cotta construction. *It is absolutely stainless.*

Specifications—***(1) New Work***—The stone mason contractor will rake back all joints from ½ to ¾ in. before the cement hardens, and fill in with Lastik Pointing Cement.

(2) Old Work—The contractor will clean out all old cement and loose dirt and fill all crevices with Lastik Pointing Cement. This insures a positive seal against weather, and is permanently waterproof.



White Plains High School, White Plains, N. Y.



Christ Hospital, Cincinnati, Ohio

Representative Buildings Protected with Lastik Products

ESTABLISHED 1922

PLASTIC PRODUCTS COMPANY

Manufacturers of Putty Exclusively

6475 Georgia Avenue, DETROIT, MICH.

BRANCH FACTORIES

CHICAGO, ILL., 3100 West 51st Street

JERSEY CITY, N. J., 42 Halladay Street

Products

PLASTOID STEEL SASH PUTTY.
PLASTOID METAL CASEMENT PUTTY.
PLASTOID PURE LINSEED OIL PUTTY.
PLASTOID ACID RESISTING PUTTY.
PLASTOID CAULKING COMPOUND.

Plastoid Putties

Plastoid Putties are formulated from blends of high grade whitings, driers and oils that experience has shown will produce the dependable and lasting qualities necessary for satisfactory glazing.

The imported, soft, amorphous chalk whiting used absorbs oil readily and permanently.

This produces a velvety texture and a smooth, easily painted surface.

Plastoid Steel Sash Putty

Plastoid Steel Sash Putty dries readily by oxidation and evaporation (there being no chance for absorption on metal sash).

This putty will retain its life through a long period of service under the exacting conditions caused by the vibration present in many industrial buildings.

Has just the proper "length" and minimum "pull" to insure easy, inexpensive glazing.

Plastoid Metal Casement Putty

Plastoid Metal Casement Putty is designed for the glazing of the casement type of metal sash. Its rapid set provides against distortion from disturbance of the sash, with due consideration for the weathering to which it is exposed during the setting period.

Since with casement sash the putty is outside instead of inside as with ordinary steel sash, this putty should be specified instead of regular steel sash putty in all cases where casement steel sash are used.

Plastoid Pure Linseed Oil Putty

Plastoid Pure Linseed Oil Putty is used for glazing wood sash. The whiting used

Plastoid (REGISTERED) is chosen for its texture, life and other glazing qualities.

Specifications should include the proper priming of the sash.

Special Purpose Putties

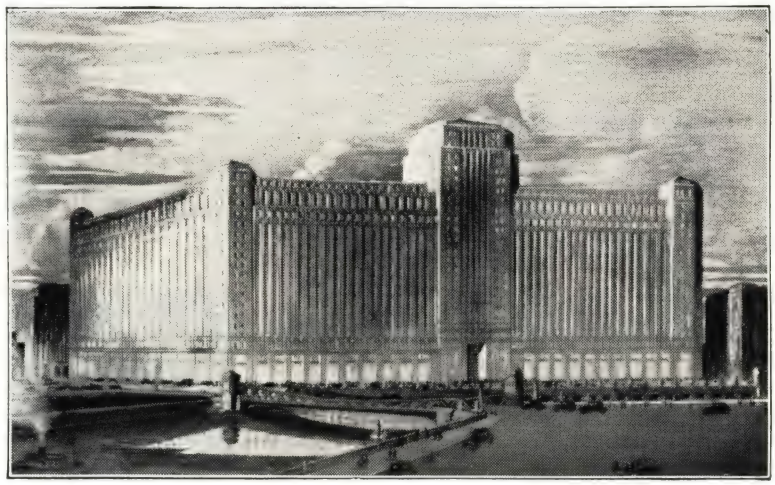
As the PLASTIC PRODUCTS COMPANY manufactures nothing but putty, we are in position to supply putty for any special purpose desired, such as: acid-resisting putty; partition putty; greenhouse putty; caulking compound, etc. We are glad to co-operate with architects on any exceptional conditions that may arise.

Colors

Plastoid Putties will be furnished in natural color, red, black, gray, green and brown. Other colors can be matched as desired.

Specifications

For Regular Steel Sash—Specify Plastoid Steel Sash Putty.
For Metal Casement Sash—Specify Plastoid Metal Casement Putty.
For Wood Sash—Specify Plastoid Pure Linseed Oil Putty.



Merchandise Mart, Chicago, Ill. (World's Largest Building)
GRAHAM, ANDERSON, PROBST & WHITE, Architects
JOHN GRIFFITHS & SON, Builders
TYLER & HIPPACH INC., Glass and Glazing

Representative Jobs Where Plastoid Putties Have Been Used

American Can Co., Chicago, Ill., and Terre Haute, Ind.
Attica State Prison, Attica, N. Y.
Bemberg Corp., Elizabethtown, Tenn.
Bendix Brake Corp., South Bend, Ind.
Campbell's Soup Co., Chicago, Ill.
Celanese Corp. of America, Amcelle, Md.
Chevrolet Motor Co., Detroit and Flint, Mich.; Tarrytown, N. Y.
Chrysler Building, New York, N. Y.
Chrysler Corp., Detroit, Mich., and Evansville, Ind.
Cleveland Stadium, Cleveland, Ohio
Commerce Building, Washington, D. C.
Cornell Medical Association Hospital, New York, N. Y.
E. I. du Pont de Nemours, Inc., Nashville, Tenn.
Goodyear Tire & Rubber Co., Akron, Ohio
Illinois Steel Company, East Chicago, Ind.
Internal Revenue Building, Washington, D. C.
Libby-Owens Sheet Glass Co., Toledo, Ohio
Mayflower Hotel, Akron, Ohio
Merchandise Mart, Chicago, Ill.
Ohio Bell Telephone Co., Cleveland, Ohio
Owens Bottle Co., Huntington, W. Va.
Palmolive-Peet Company, Chicago, Ill.
Pennsylvania Station, Philadelphia, Pa.
Pittsburgh Plate Glass Co., Ford City, Pa.
Pratt & Whitney Aircraft Co., East Hartford, Conn.
Radio Building, New York, N. Y.
Union Pacific Headquarters, Omaha, Neb.
Union Station, Cleveland, Ohio
U. S. Engineering Shops, Vicksburg, Miss.
United States Gypsum Co., Plasterco, Va.
United States Radiator Corp., Dunkirk, N. Y.
Western Union Building, New York, N. Y.
Waldorf-Astoria Hotel, New York, N. Y.
Westinghouse Electric & Mfg. Co., Trafford City, Pa.
Willys-Overland Co., Toledo, Ohio
World's Fair Buildings, Chicago, Ill.

THE TREMCO MANUFACTURING CO.

Caulking, Pointing and Glazing Compounds, Waterproofings and Paints

393 East 131st Street, CLEVELAND, OHIO

CANADA: The Tremco Manufacturing Co. (Canada) Limited, TORONTO, ONT.

Tremco Glazing Compound

A cushionlike, non-hardening, tenacious material easily handled by professional glaziers, weatherproof and waterproof, takes up expansion and contraction, absorbs vibration, unaffected by moisture, gases, acids, etc., made in 6 colors, for wood or steel sash.

Glazing Specifications—Write for detailed specifications.

Wood Sash—Bed all glass in Tremco Glazing Compound as manufactured by The Tremco Manufacturing Co., and delivered on the job in the original sealed containers. Set all glass with glazier's points and bed and face putty with Tremco Glazing Compound.

Metal Sash—All glass in metal sash shall be bedded, held in place with spring glazing clips and face glazed with Tremco Glazing Compound, special consistency for steel sash glazing, as manufactured by The Tremco Manufacturing Co.

Tremco Caulking and Pointing Compound

A non-staining plastic compound which will never become brittle or crack. Adheres tightly to wood, metal or masonry, forming a weatherproof, waterproof joint. Stock colors are gray, chocolate brown, stone, red and green.

Two consistencies—one for use with a caulking gun and the other for application with a caulking or pointing tool.

Approved Caulking Contractors are located in the principal cities of the United States and Canada.

Caulking Specifications—Write for detailed specifications.

Preparation—All cleaning or pointing of the building exterior shall be completed, and interior window and door trim shall be set, before caulking is begun.

Application—All caulking, including caulking of the sills, shall be done on the exterior side of the building wall.

All joints around all window and door frames shall be caulked in such a manner as will make them airtight and watertight, with Tremco Caulking and Pointing Compound as manufactured by The Tremco Manufacturing Co.

The spaces between the masonry, and the outside of frames, around jambs, head and sill shall be filled completely with Tremco Caulking Compound, forcing the compound into the opening with the Tremco Hand Caulking Gun, and making a neat, smooth bead, one edge flush with the frame, the other edge flush against the masonry, and not extending more than ¼ in. out beyond the face of the frame.

Note: Approved Caulking Contractors are located in principal cities of the United States and Canada.

Pointing Specifications—Write for detailed specifications.

The mason contractor will rake out joints to a depth of ¾ in. and width of ½ in. in all features. Before applying Tremco Pointing Compound clean joints thoroughly, then fill these joints with Tremco Pointing Compound manufactured by The Tremco Manufacturing Co. Force as much Tremco Pointing Compound as possible into spaces in such a manner as will make them weathertight, and finish off neatly and smoothly flush with the masonry.



Pennsylvania Museum of Art, Philadelphia, Pa.

Over 1200 gal. of Tremco Caulking and Pointing Compound used

Courtesy of the Pennsylvania Museum of Art, Philadelphia, Pa.



Northwestern Bell Telephone Building, Minneapolis, Minn.

Glazed with Tremco Glazing Compound

Tremco Transparent Dampproofing

A positive dampproofing for exposed masonry surfaces above grade; will not materially change color or texture of surface treated.

Transparent Dampproofing Specifications—Write for detailed specifications.

Preparation—Surface shall be clean and absolutely dry. Application should not be made at temperatures below 45° F.

Application—Surfaces to be treated shall be thoroughly pointed before application of Tremco Transparent Dampproofing. All loose mortar joints shall be removed and repointed; all holes and cracks filled; all coping joints pointed; and all window and door frames caulked with Tremco Caulking and Pointing Compound. Tremco Transparent Dampproofing may then be applied in two heavy coats with a brush or spray, allowing the first coat to dry before applying the final coat.

Tremco Mulsomastic Flooring

A cold-applied, heavy duty mastic floor, waterproof, dustless, resilient, quiet, light in weight, only ½-in. thickness, low in cost, long lived under severe trucking conditions, for interior or exterior use over a base of concrete, wood or brick. Especially suited for trucking aisles or entire floors in industrial plants; for urinals, shower rooms, gymnasium floors; for corridors in schools and public buildings, or as a base for asphalt tile flooring. Recommended for freight loading platforms, cooling tower decks, stair treads and waterproof driveways and sidewalks.

Flooring Specifications—Write for complete detailed specifications. Surface shall be a Mulsomastic Floor applied with Tremco Mulsomastic in accordance with the specifications of The Tremco Manufacturing Co. The material to be delivered on the job in original sealed containers.

Tremco Architectural Catalogue

We will be pleased to furnish upon request, the Tremco Architectural Catalogue, containing complete specifications for the proper application of all types of waterproofings and paints, among which are:

Tremco Caulking and Pointing Compound—Non-staining, long lived.

Tremco Glazing Compound—Non-hardening, shock absorbing, made in six colors, ready for use on steel or wood sash.

Tremco Transparent Dampproofing—For building exteriors.

Aquanox 101—For bedding stone sills and coping stones.

Aquanox 202—The positive plaster bond for smooth concrete ceilings.

Cretemix A—Concrete accelator and anti-freeze.

Cretemix B—Integral waterproofing paste.

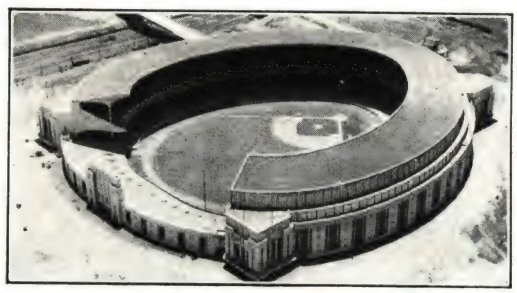
Dryfix Foundation Coating—For exterior walls below grade.

Dryfix Plaster Bond Dampproofing—For interior of all exterior walls prior to plastering.

Florall—A preservative and decorative coating that stands heavy foot traffic. For wood, concrete or linoleum floors.

Kemi-Kote—Chemical floor hardener.

Mulsomastic—Heavy duty flooring, light in weight, waterproof; dustproof, resilient, withstands heavy trucking.



New Cleveland Stadium, Cleveland, Ohio

Over ¾ mile of stone pointing with Tremco Caulking and Pointing Compound

HARDWARE ROUGH AND FINISHED AND SPECIALTIES

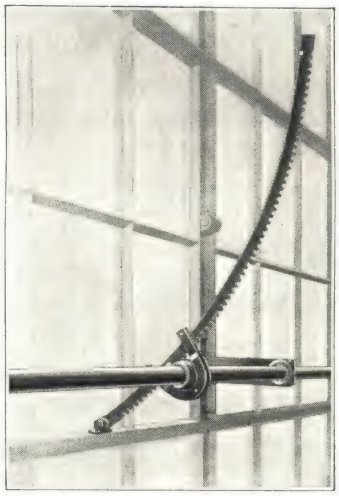
DAYTON DIRECT-ACTION WINDOW OPERATORS

Manufactured by
THE DAYTON GREENHOUSE MFG. COMPANY
FORMERLY THE T. J. CALLAHAN COMPANY
DAYTON, OHIO

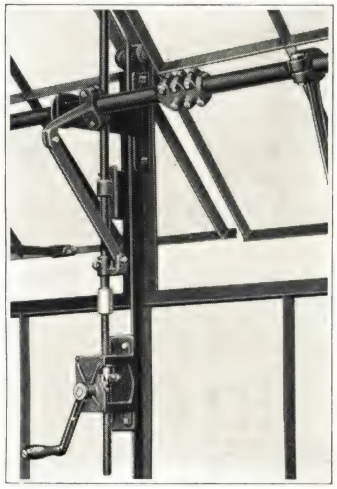
Product

WINDOW OPERATING APPARATUS, hand and electrically controlled, for steel or wood sash in factories, foundries, machine-shops, central stations, powerhouses, theaters, churches, gymnasia, exhibition buildings, etc.

Also special types for greenhouses and sludge bed covers. For our page on Greenhouses, etc., see Manufacturers' Index.



Dayton Direct-Action Operator
Showing the convex rack and pinion operating arm



Dayton (Screw Type) No. 1203 Light Duty Operator

Types

The 500 Series comprises manually operated open type powers handling shorter runs of windows. Easily adapted to average conditions.

The 700 Series has manually operated powers, chain or shaft drive, for long runs of either top hung or center pivoted windows. Gears enclosed in case packed with grease.

The 800 Series consists of manually operated powers using endless chain drive. Powers operate tension shaft for top hung continuous sash.

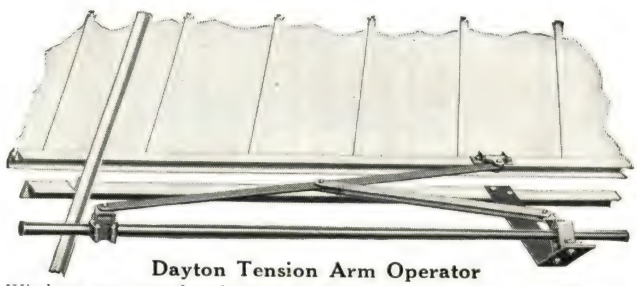
The 900 Series of motorized drives is the ideal sash control providing easy and convenient ventilation over large areas of floor space.

Large runs of sash are operated at the touch of a button from one central control station.

No. 1200 Series Screw Type Operator

The No. 1200 screw type window operator is small yet sturdy. It is equipped with a steel and bronze mitre gear and machine cut ¾-in. diameter double thread screw, thrust bearing automatic stop and detachable crank handle or chain wheel as required. All lever arms are of malleable iron with steel connecting rods.

The Dayton screw type operator is guaranteed and it is recommended for short multiple bay installations because it provides the utmost in a neat, convenient and durable window operator.

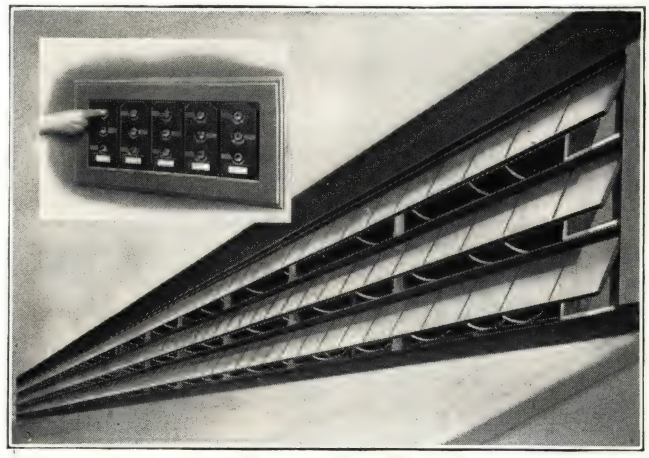


Dayton Tension Arm Operator
Windows are opened and closed by toggle lever arms. Manual force is applied by endless chain

Dayton Direct-Action Principle

The principle employed by these operators consists of a pinion gear fixed to the line shaft in a self-aligning yoke or housing opposite the hinged sash. The teeth of the pinion engage a circular cut steel arm or rack of any length needed. The distance from the center of the line shaft to pitch line of the rack is only 1¼ in., and this distance is always constant. Torque in line shaft is thus reduced to an absolute minimum.

The short leverage permits operating stations to be located most conveniently in the building. All sash operate to the same height (as much as 90° opening) without any variation along the line and are pulled down easily, yet firmly. An absolutely tight close-down is always assured, preventing dripping, drafts and loss of heat.

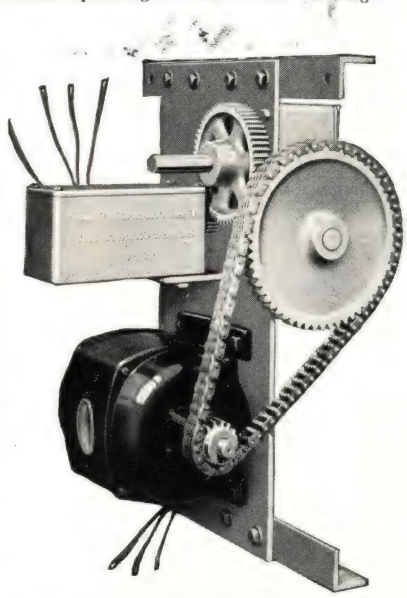


Monitor Sash with 3 Runs of Top Hung Continuous Sash Showing Dayton Direct-Action Operators Easily Controlled by Dayton Electric Power
Insert—Panel of push buttons operating all sash in this building

Long runs of top hung or heavy center pivoted sash may be operated with a minimum of operating stations, centralizing the control and substantially lowering cost of installation.

All Dayton equipment is painted in gray enamel. Only the best materials are used. Properly tempered steel shafting of large diameter and analyzed castings are used throughout to withstand the necessary loads.

Installations for center pivoted sash can be arranged to reverse up to 120°, for top hung sash up to 90°, and for bottom hung sash up to 60° from the closed position. This gives convenient accessibility for washing or cleaning the glass.



Dayton Electric Power for Dayton Direct-Action Window Operators

Engineering Service

The range of types offered in Dayton operators is such as to meet all demands. Our new catalogue gives complete information. Send for it.

Our Engineering Department will gladly co-operate and advise with you or your contractors. Your inquiry is solicited.

LORD AND BURNHAM COMPANY

SASH OPERATING DIVISION

Graybar Building, NEW YORK, N. Y.

FACTORIES: IRVINGTON, N. Y., DES PLAINES, ILL., ST. CATHARINES, ONT., CANADA

BRANCH OFFICES IN PRINCIPAL CITIES

Products

SASH OPERATING MECHANISM of the highest grade, architecturally suitable for Banks and Office Buildings, Churches, Libraries, Theaters and Public Buildings.

SASH OPERATING EQUIPMENT for Factories, Power Houses and Industrial Type Buildings.

SCREW THREAD OPERATORS for Transom Sash.

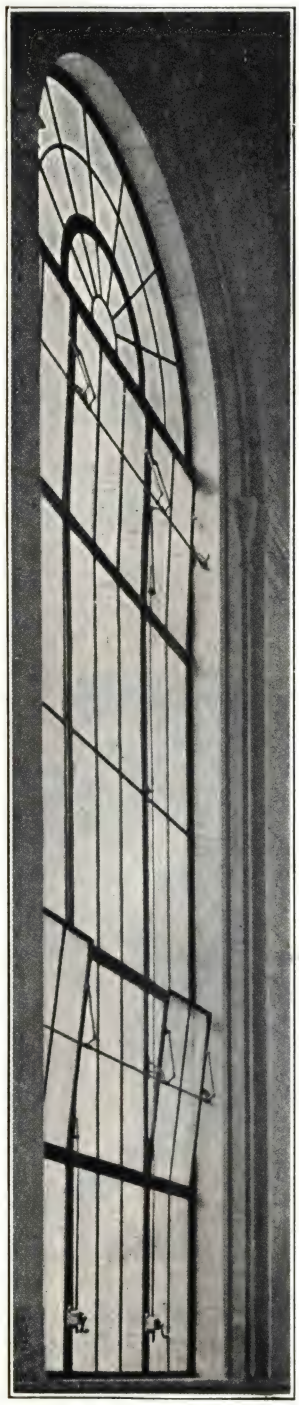
For our pages on Greenhouses, see Manufacturers' Index.

Estimating and Advisory Service

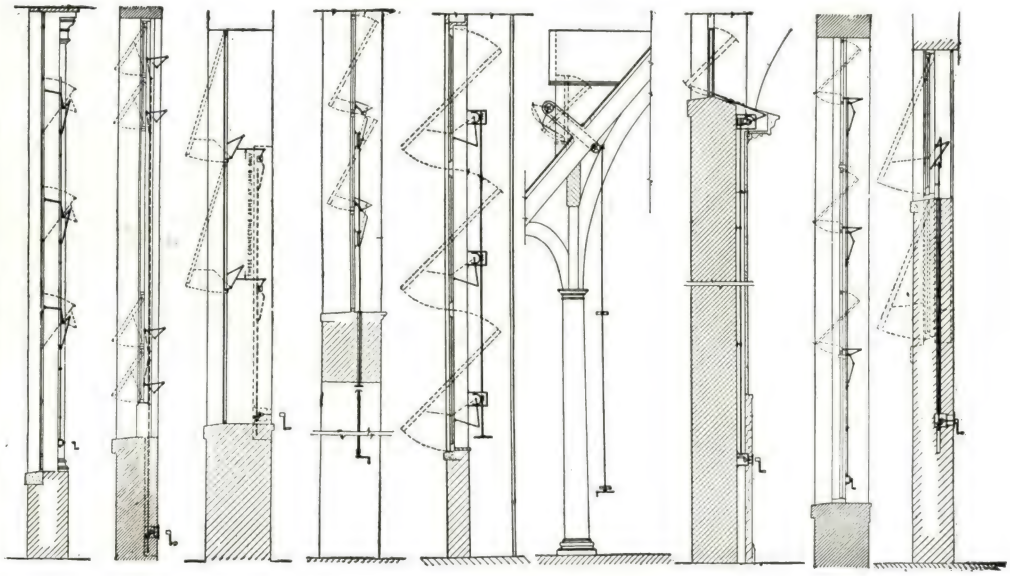
Our engineers are prepared to give full information regarding our products and their uses, to offer suggestions as to arrangements, to quote prices, etc.

These mechanisms are especially made to meet individual building conditions. Each problem is carefully studied by our engineers. Drawings showing the most practical solution are prepared for architects' approval.

Architects secure co-ordination of architectural treatment and utility, by using this service in the preliminary stages of their design.



Sash Controls in Large Bank Windows

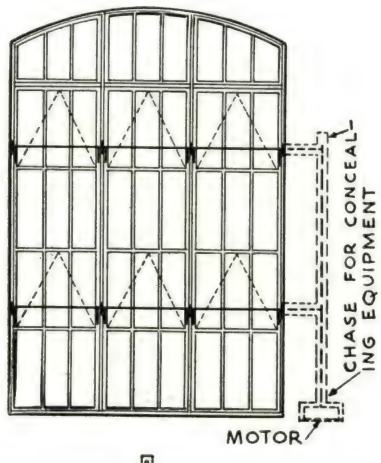


Arrangements of Mechanisms Which Solved Various Problems of Sash Operation

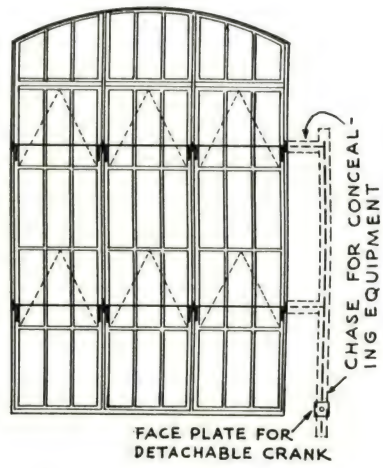
We have prepared a series of drawings and photographs showing solutions of sash operating problems.

These include schools, churches, banks and other public buildings. The ideas illustrated will be found of help to architects and designers.

This series and our catalogues in an American Institute File Folder gladly sent upon request.



MOTOR OPERATED



HAND OPERATED

E. T. RYAN IRON WORKS INC.

Ornamental Iron and Bronze

TELEPHONE
Stadium 3418

9-35 Braintree Street
(ALLSTON STATION) BOSTON, MASS.

RYAN CONCEALED TRANSOM OPERATOR

Construction and Operating Principle



This transom is used for operating bottom, top and center hung transoms of wood or metal in all types of buildings.

It is made of cold rolled steel with all bearings bronze bushed and the operating worm and gear are machine cut. The handle and escutcheon, which are the only visible parts, are of bronze finished in any desired color to match the hardware. The escutcheon is made to fit over any type of architrave moulding. The body of operator is finished in gray duco.

The operating principle is the gear and worm type as shown in the illustrations and is so simple as to need no explanation.

Installation

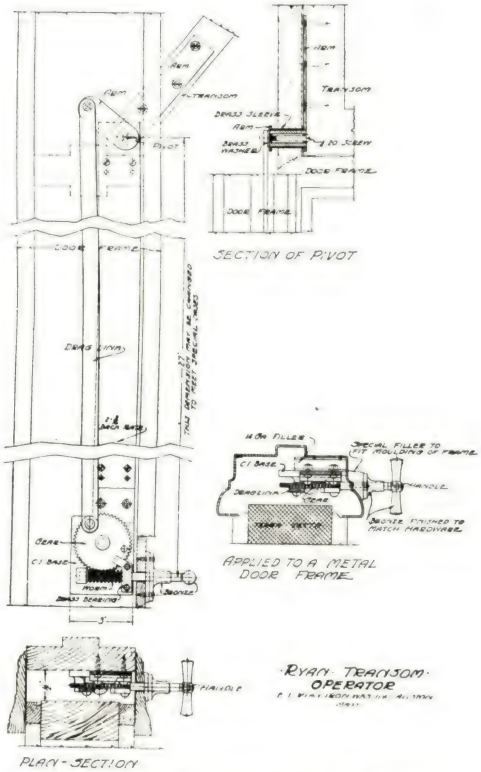
The length of the operator is governed by the height of the doors under the transom. Installation for center pivoted and top hung transoms must also take into consideration height of sash.

We stock operators for bottom hung transoms over doors approximately 7 ft. high which are 2 ft. 3 in. from center of handle to center of pivot in transom which locates the handle 5 ft. from floor.

Instructions for Detailing

Round lower edge of sash for bottom hung, upper edge for top hung transoms; otherwise, details can be standard.

We will make operators for special requirements. The net price is $7.00 complete.



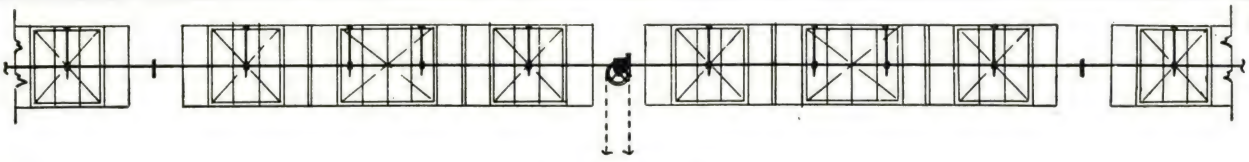
Detail of Ryan Concealed Transom Operator



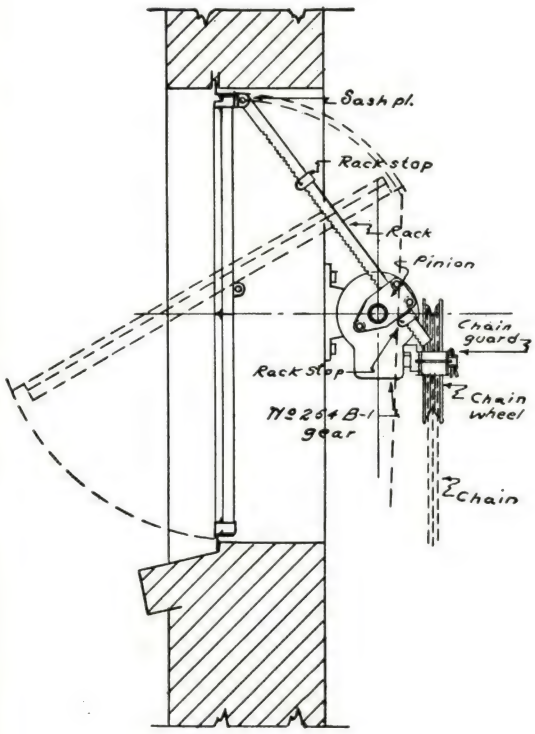
Ryan Concealed Transom Operator

METALLIC SASH OPERATOR COMPANY

4367 Duncan Avenue
ST. LOUIS, MO.



ELEVATION



VERTICAL SECTION

Rack and Pinion Type Sash Operators

The rack and pinion type sash operators, as manufactured by the METALLIC SASH OPERATOR CO., have met with the approval of leading architects and building engineers. The old style cast iron racks and pinions have been replaced by the use of only machine-cut cold rolled steel racks and pinions. These operators insure ease of operation, greater strength, more positive action and absolute elimination of rattle of sash while being opened or closed, as all sash are positively held in position in a rigid manner.

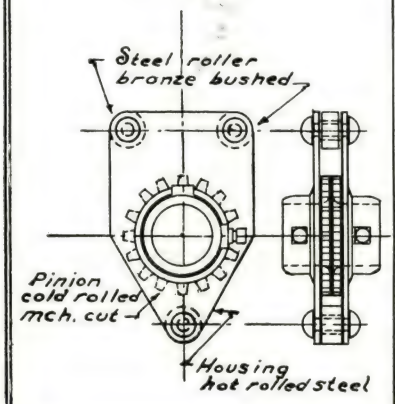
The principle employed in rack and pinion type sash operators is a cut steel pinion gear enclosed in a steel housing which is self-aligning. It is rigidly attached to horizontal shaft directly opposite sash ventilator. A cold rolled cut steel rack passes through pinion housing engaging the steel pinion. Ends of the racks are attached to either bottom or top of ventilator which is to be operated. The revolving of the horizontal shafting causes racks to move forward or backward, opening or closing sash ventilators to any desired degree.

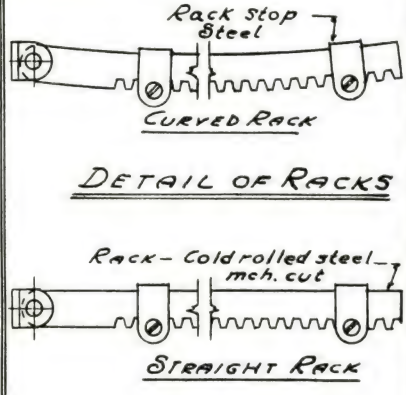
Distance from center line of operating shaft to pitch line of racks is only 1⅛ in. and is always constant. This reduces torque in shafting to an absolute minimum, allowing the operation of much longer runs of sash than can be accomplished by use of the torsion type sash operator.

Racks are furnished either straight or in convex shapes. Where interferences occur that prohibit use of the straight racks, to avoid parts of the operators projecting beyond line of horizontal shafts, the convex racks will be found satisfactory.

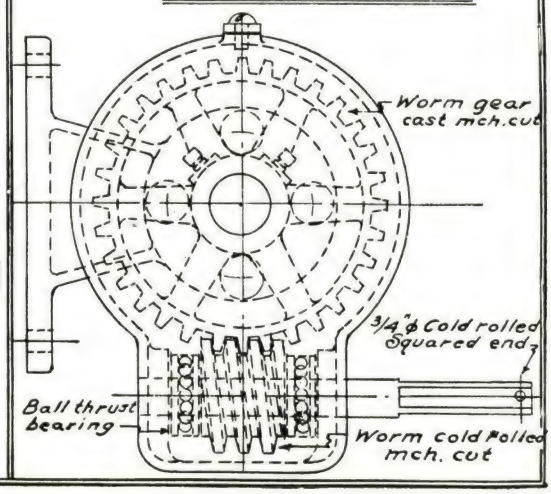
Specifications—Sash operators shall be rack and pinion type as manufactured by the METALLIC SASH OPERATOR CO. Powers shall consist of cut gears with cut steel worms, enclosed in suitable housings or frames. Racks and pinions shall be of cold rolled steel with cut teeth; pinions shall be enclosed in steel housings. Shafting shall be 1-in. wrought pipe, held in place with adjustable brackets.

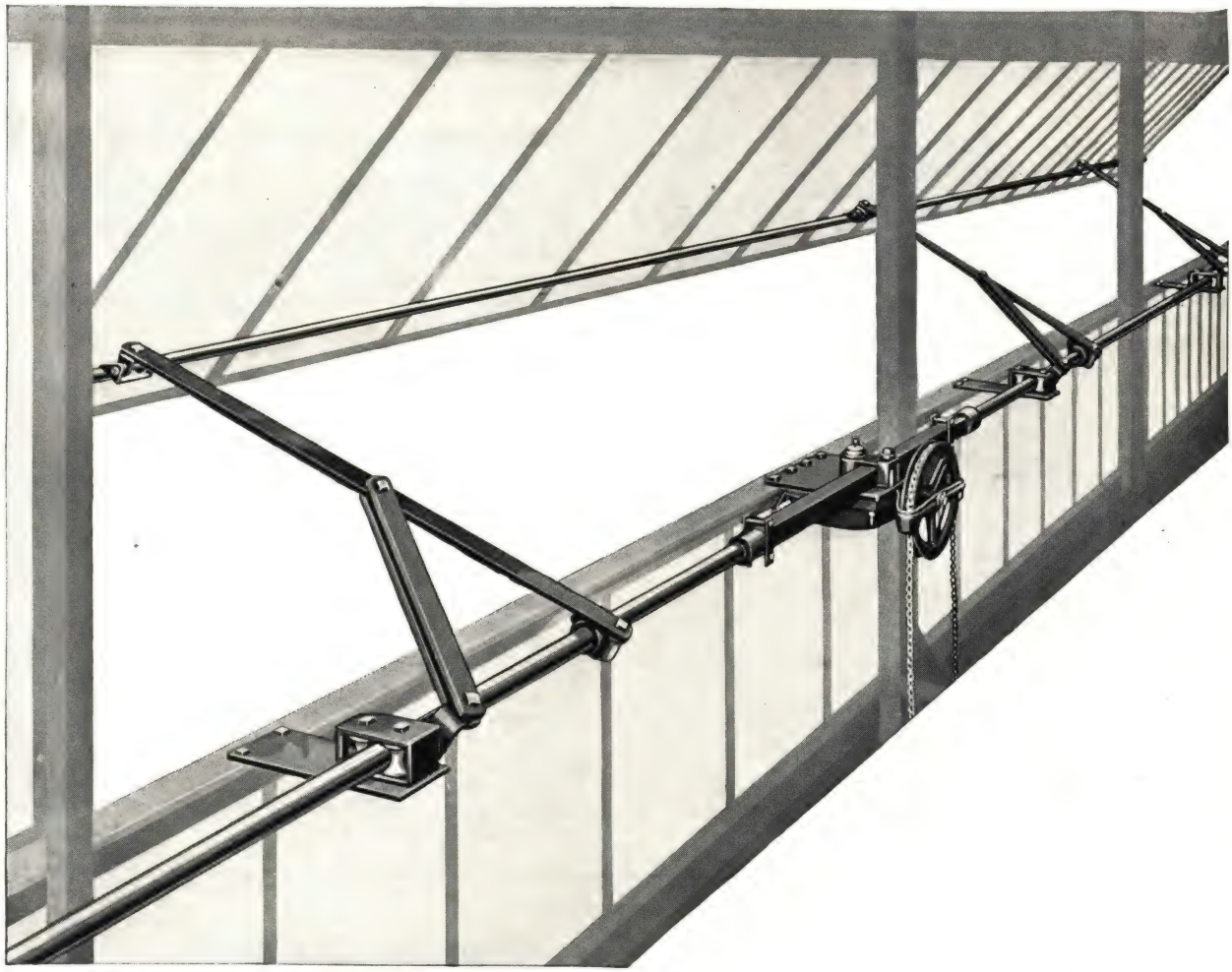
CUT STEEL PINION





N° 254-B POWER





Metallic Sash Operators Are Built for the Satisfaction of Tomorrow, Not for the Price of Today

These heavy duty sash operators are of the tension type. They are capable of controlling very long runs of top-hinged continuous, top pivoted, or center side pivoted sash. The powers in these tension type sash operators cause horizontal line of shaft to move in lateral plane backward and forward. Attached to the horizontal shaft are connecting arms of the so-called toggle type. These arms also are attached to the sash. The intermediate section of toggle arm is rigidly attached to roller bracket and does not move. Thus, when shafting is driven backward or forward, toggle arms open sash to desired degree.

METALLIC SASH OPERATOR CO. tension type operators are the very latest in sash operator design, made up of heavy materials by skilled workmen. They last indefinitely.

Powers, No. 9H—Are made of heavy cut cast worm gears, cut steel worms with thrust ball bearings at either end of worm; all enclosed in dustproof housings with worms and worm gears running in oil at all times.

Connecting Arms—Made of heavy sections of flat steel with bronze washers between sections to avoid sticking through corrosion. Every hinge point is phosphor-bronze bushed.

Racks and Rack Pinions—Cut out of solid cold rolled steel, with teeth cut and generated on latest improved machines.

Roller Brackets—Supported on heavy steel plates which are rigidly attached to still angles or structural members. Rollers of spool type.

Shafting—1 in. wrought pipe supported by roller brackets. In lengths rigidly coupled together.

Chain—Double jack galvanized, of sufficient strength. Smooth on the hands.

Prices—On application.

ESTABLISHED 1875

THE PAYSON MANUFACTURING COMPANY

Manufacturers of Sash Operating Devices, Casters, and Builders' Hardware

2916-2930 Jackson Boulevard
CHICAGO, ILL.

Products

SASH, LOUVRE and DAMPER OPERATING DEVICES.

Also manufacturers of: Simplex Transom Lifter, for all types of transoms; Casement Adjusters, friction, geared, and thumb-screw control, for all types of casement sash; Signal Sash Lock, for double hung windows; No. 49 Harris Concealed Transom Lifters; Window, Door and Miscellaneous Builders' Hardware; Truck and Furniture Casters of all types.

Payson Products Give Complete Satisfaction

The selected list of Payson quality products shown below and in the next column is presented with the hope that it may be of assistance in determining the general type of equipment required. Our Engineering Department is at the service of architects, engineers, contractors and owners in suggesting a solution for any problem of mechanical operation.

We manufacture one of the most complete lines of sash operating devices in the country, and are, therefore, in a position to furnish a device of the proper size and type required to fill any need in any class of building.

Payson Service Builds Goodwill

Payson Operating Devices are made to order from stock materials, using measurements taken from the plans and checked at the building. Every job is exhaustively studied by our engineers and detailed drawings showing the arrangement considered most suitable are prepared and submitted to the architect for approval or correction as to layout and general design. These drawings also give full directions for erection of materials.

Types of Payson Sash Operating Devices

Worm and Gear Torsion Type, with Lever Arms—

Ideal—Chain control, for pivoted sash.

Superior—Hand wheel, crank or pole control, for pivoted sash.

Triumph—Hand wheel control, for pivoted sash located at a considerable distance from control.

Worm and Gear Torsion Type, with Racks and Pinions—

Reliance—For top hinged sash and skylights, long runs of pivoted sash and short runs of continuous top hung sash.

Marvel—Chain or pole control, for short runs of top hinged sash and skylights.

Gem—Chain control, for single skylight sash.

Star—Pole control, for single skylight sash.

Screw Torsion Type, with Lever Arms—

Crown—For short runs of hinged sash.

Signet—For long runs of hinged sash.

Globe A—Heavy, for tandem runs in large windows.

Globe B—Light, for tandem runs in smaller windows.

Other Screw Type Devices—

Eureka—With toggle lifting arms, for close-in operation.

Duplex—For heavy, bottom hinged transoms.

Acme—Crank control, for small single or double sash.

Atlas—Chain control, for small single or double sash.

Tension Type, Chain Control—

Peerless—For long runs of continuous top hung steel sash.

Victor—For vertically pivoted or side hinged sash.

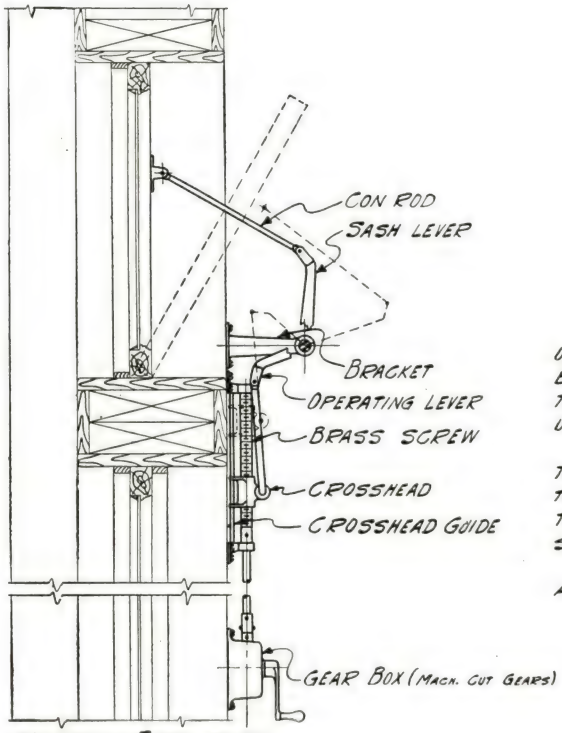
Premier—For very long runs of pivoted sash.

Other Devices for Vertically Pivoted or Side Hinged Sash—

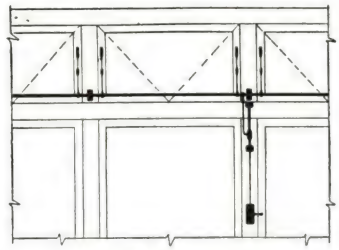
Ideal and Superior—With swivels on lever arms.

Monarch—For one to three sash in one row or in tandem.

Note: All types furnished with electrical control, if desired.



SECTION THRU SASH
SCALE:- 1"=1'-0"



ELEVATION

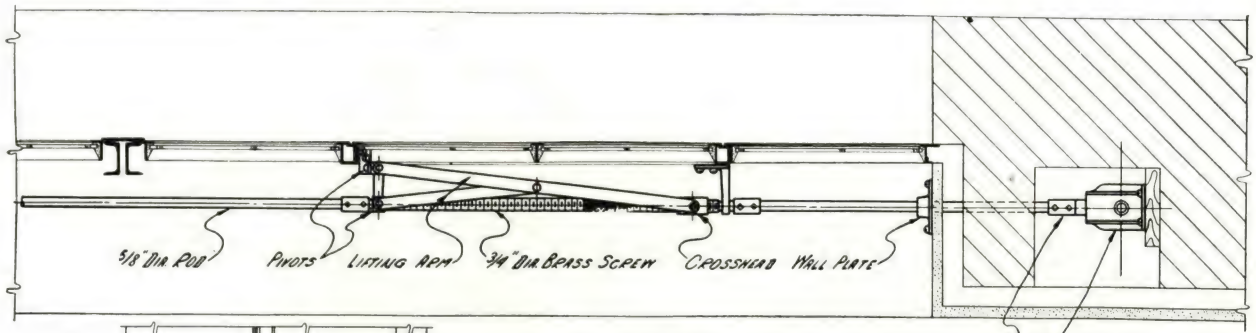
THE CROWN OPERATOR IS ESPECIALLY SUITABLE FOR SHORT RUNS OF TOP OR BOTTOM HINGED SASH OR FOR SINGLE HINGED SASH AS THE BRASS SCREW POWER PRACTICALLY ELIMINATES ALL SASH VIBRATION USUALLY PRESENT WHEN A WORM AND GEAR OPERATOR IS USED ON SASH OF THIS TYPE.

WHEN THE SCREW IS REVOLVED, IT IMPARTS A MOVEMENT TO THE THREADED CROSSHEAD, WHICH, THROUGH THE CONNECTION TO THE OPERATING LEVER, ROTATES THE HORIZONTAL SHAFTING TO WHICH THE SASH LEVERS ARE ATTACHED. THE SASH ARE HELD SECURELY LOCKED IN ANY POSITION.

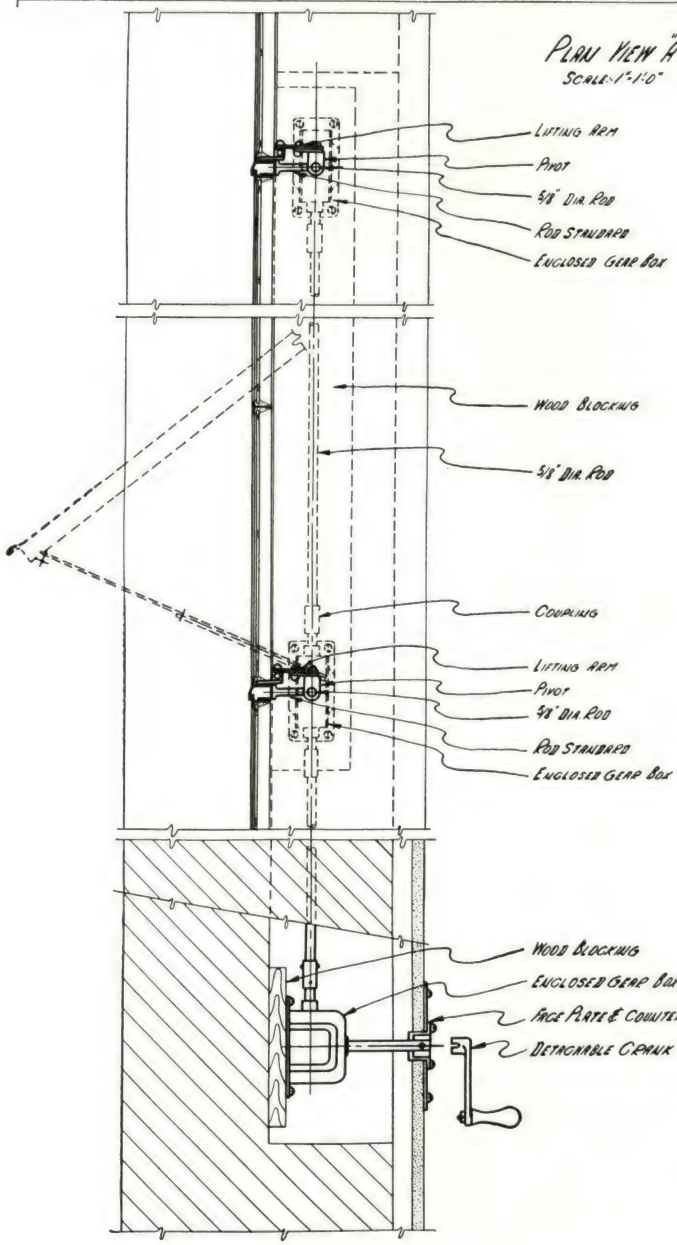
THIS DEVICE CAN BE FURNISHED IN ANY REQUIRED MATERIAL AND FINISH.

CROWN OPERATOR

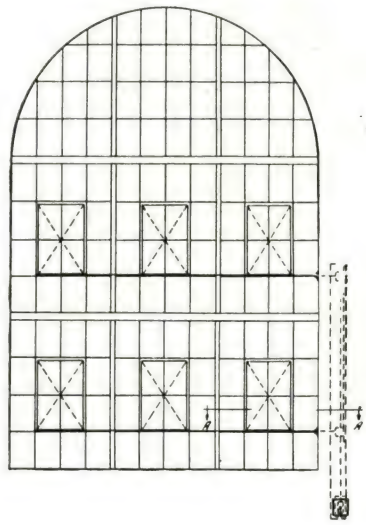
THE PAYSON MANUFACTURING COMPANY CHICAGO, ILL., U.S.A.				
DRWG. NO.	DRAWN BY	TRACED BY	CHECKED	APPROVED
C-140	K.A.N.	K.A.N.	V.G.S.	W.E.P.



Plan View "A-A"
Scale: 1"-1'-0"



Cross Section Through Sash
Scale: 1"-1'-0"



Floor Line

Interior Elevation
Scale: 1/8"-1'-0"

The Eureka screw type operator is designed for use where a very neat and inconspicuous type of sash operator is desired and where a minimum of projection inside the sash is required, as when blinds or screens are to be used.

This device can be applied on single ventilators, short runs, or on two or three tandem runs in one window, where sash are center side pivoted or top hung swinging out.

The lifting arms are attached to threaded crossheads which move on horizontal brass screws when shaft is revolved. Power is transmitted by rod and enclosed machine cut mitre gears. The brass screws assure smooth, silent operation, eliminating sash vibration and locking sash in any position.

The Eureka operator is designed for concealment in a vertical chase left in wall but can be mounted on face of wall or side of jamb as conditions permit.

Eureka Operator

Standard Details

THE PAYSON MANUFACTURING CO. CHICAGO, ILLINOIS, U.S.A.				
DRWG. NO. C-139	DRAWN BY F.D.M.	TRACED BY K.G.W.	CHECKED BY V.O.S.	APPROVED BY W.E.P.

INCORPORATED 1914

GATES REVERSIBLE WINDOW CO.

Manufacturers of Patent Window Devices

PITTSBURGH, PA.

SALES AGENCIES IN PRINCIPAL CITIES

Products

GATES REVERSIBLE WINDOW FIXTURES for plank frame and double hung windows; GATES VERTICAL PIVOT WINDOW FIXTURES.

Gates Reversible Window Fixtures

For Plank Frame Windows—Suitable for use in schoolhouses, public buildings and factories and where 100% ventilation is desired.

For Double Hung Windows—Suitable for schoolhouses, office buildings, hotels, hospitals and residences.

Advantages—Windows equipped with Gates reversible fixtures, either double hung or plank frame, offer an enormous saving in cleaning, as both sides can be cleaned from inside the building. This not only saves time and expense, but eliminates the undesirable and dangerous feature of outside cleaning from the window sill with safety life belts.

Gates reversible fixtures in either double hung or plank windows, require no special construction of frame or sash. The sash are merely to be made 1½ in. narrower than the inside width of the frame.

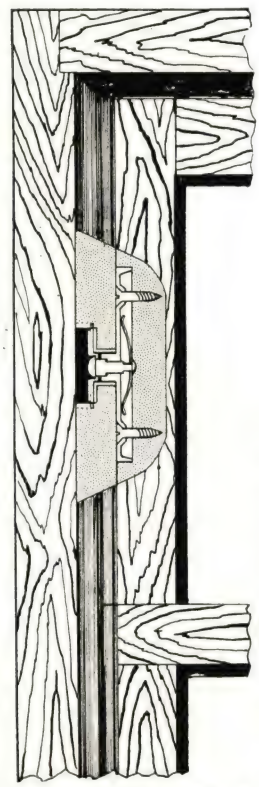
Plank frame windows in schoolhouses and factories have the added economical advantages of the elimination of space required for box frames, especially mullion windows. Also the cost of weights, cords and pulleys is eliminated.

Construction—Gates reversible fixtures consist of the following: A specially designed wood strip, of well seasoned hard maple, meshed into the vertical sides of sash in lengths equal to the sash, and an interlocking pivot of non-rustable metal. Between this strip and the frame attached to the jamb is a continuous metal strip of spring brass, which not only holds the maple strip firmly against the sash preventing rattling but also eliminates any air, moisture, or dirt from coming into the room between the maple reversible strip and the jamb. This metal strip is included in either plank or box frame windows as a part of our standard equipment.

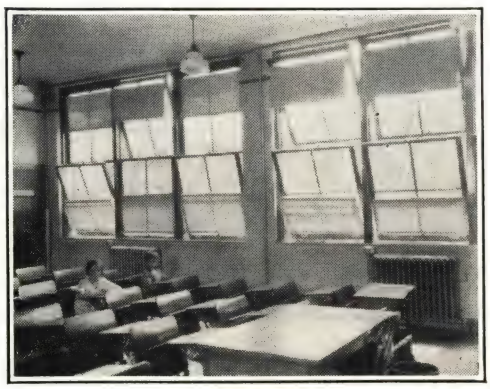
The Gates pivot is of the interlocking type, constructed to hold the sash rigid at any angle when open or reverse.

A ¾-in. bearing upon which the sash operates, insures the proper operation of windows of extra size and weight.

The Gates pivot is made of non-rustable metal guaranteeing against rusting and future trouble along this line. When the window is closed the maple strip which is firmly attached to the jamb meshes into the vertical sides of the sash, thus holding the sash rigid when closed, also eliminating any air or dirt from coming in between the strip and the sash.



Phantom View of the Gates Pivot



Interior of School Room



In Double Hung Window In Plank Frame Window

Gates Reversible Fixtures

When specified we furnish and install a weatherstripping at head, sill and meeting rail giving a complete airtight job at little added expense. This weatherstripping should be specified extra.

Hardware—We will furnish and install finished window hardware (such as sash locks, lifts, pulls and poles) if desired, although regular hardware may be used.

Installation—A corps of expert mechanics is maintained to install Gates reversible fixtures anywhere in the United States. This includes fittings and hanging sash as well as applying reversible fixtures. This fixes the responsibility for successful operation, insuring a perfect, satisfactory installation.

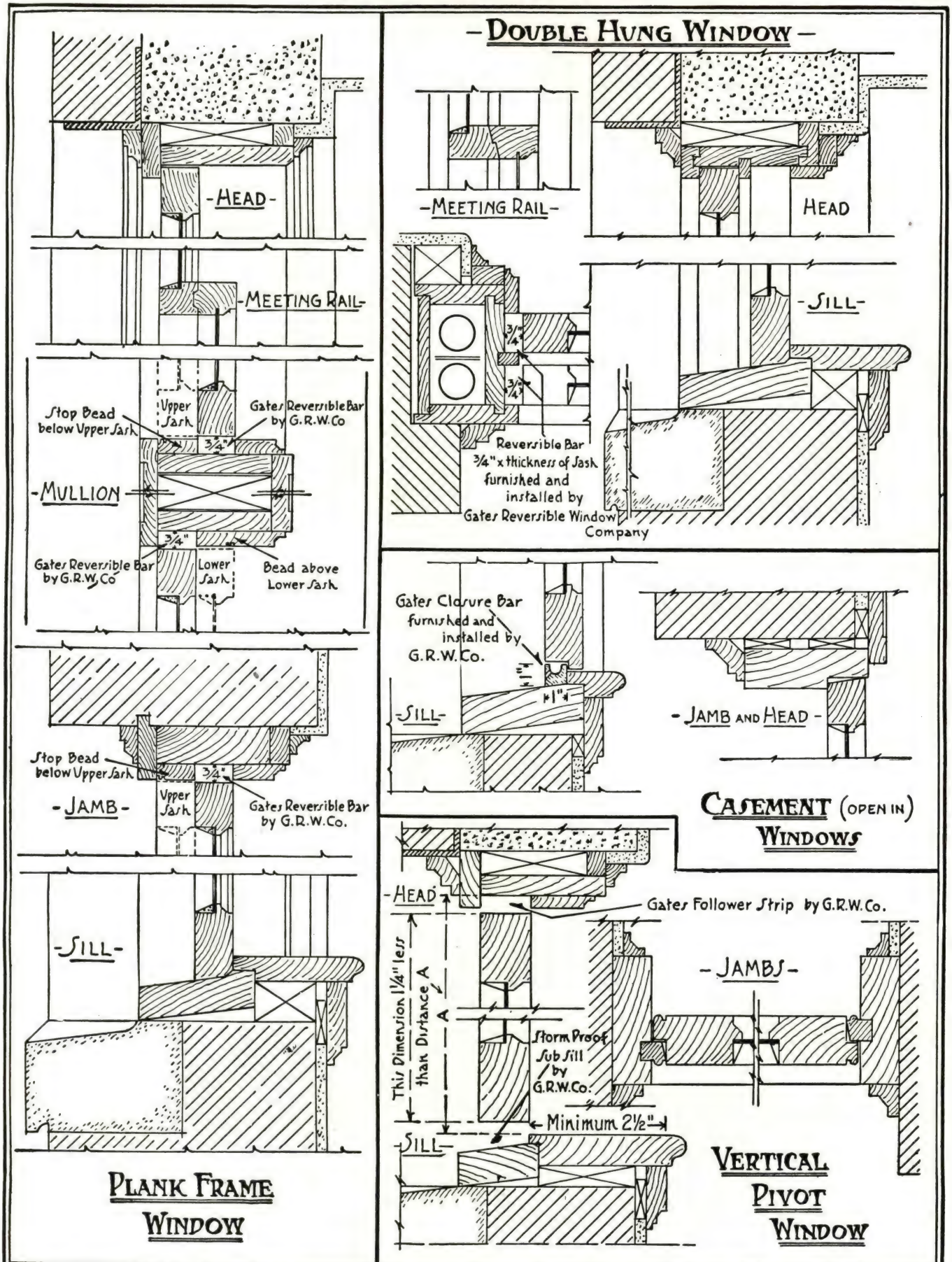
Gates Vertical Pivot Window Fixtures

A perfect storm and weatherproof window sill for vertical pivot windows. No special construction required for head or jambs. Standard requirements include: Gates closure bar with Gates reversible fixture at sill and follower strip at head. Gates reversible fixture at sill allows sash to open either right or left, holding it securely at different angles when open. Bronze weatherstripping furnished and installed in addition, if desired.

References

Horner, Turner, Johnson and Allison Schools, Wilkinsburg, Pa.
Elementary School, L and Lucerne Streets, Philadelphia, Pa.
Upper Darby Junior High School, Upper Darby, Pa.
Homestead Park School, Munhall, Pa.
Munhall High School, Munhall, Pa.
Wilkinsburg Senior High School, Wilkinsburg, Pa.
Masonic Temple, Tyrone, Pa.
Freedom High School, Freedom, Pa.
Lewisburg High School, Lewisburg, Pa.
Maple Shade School, Maple Shade, N. J.
Technical High School, Scranton, Pa.
School No. 21, Scranton, Pa.
Pinebrook Grade School, Scranton, Pa.
St. Paul's R. C. School, Scranton, Pa.
St. Elizabeth's Hospital, Granite City, Ill.
George Washington School, Norristown, Pa.
Senior High School, Ardmore, Pa.
St. Vincent's Home, Landsdown, Pa.
Friends Central School, Overbrook, Pa.
Union Bank Building, Altoona, Pa.
Boys Catholic High School, Pittsburgh, Pa.
Westinghouse High School, Pittsburgh, Pa.
South Hills High School, Pittsburgh, Pa.
Adams Township High School, Sidman, Pa.
Mercy Hospital, Altoona, Pa.
Cochran High School, Johnstown, Pa.

And a number of others.



GATES WINDOW DEVICES WEATHER STRIPPING HARDWARE

:GATES REVERSIBLE WINDOW CO:PITTSBURGH PA:
FURTHER INFORMATION - F.S. & MILL DETAILS SENT UPON REQUEST

"ORGANIZED FOR SERVICE"

MONARCH MANUFACTURING CO.

Builders Hardware

2511-2525 Hart Avenue
DETROIT, MICH.

EASTERN REPRESENTATIVE, George Pariot, 101 Park Avenue, NEW YORK, N. Y.

Products

MONARCH FRICTION SASH CENTERS.

For Monarch Panic Exit Devices, Door Bumpers and Holders, see Manufacturers' Index.

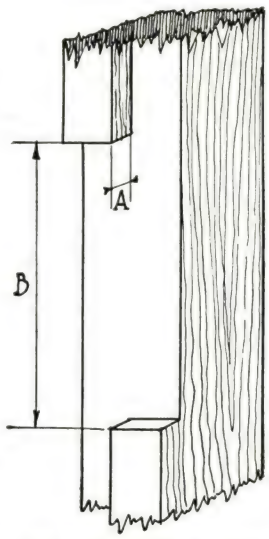
The Latest Improved Monarch Friction Sash Center

Designed for use on wood or metal sash, this sash center is equipped with automatic friction and will hold the sash open at any desired angle without the use of a sash adjuster.

It can also be used on double hung windows with a hanging stile, allowing the sash to pivot as well as slide up and down; or on single windows hung on sides, top or bottom. This feature permits cleaning both sides of the glass from the room side.

Ideal Transom Equipment

They are specially adapted for inside or outside transoms and will hold the transom in any position without the use of a transom lift.



Detail of Rabbet for Frame and Sash

A	½	in.	for all	sash
B	4½	in.	for 1⅜	in. sash
B	4⅝	in.	for 1¾	in. sash
B	4⅞	in.	for 2¼	in. sash

Absolutely Weatherproof

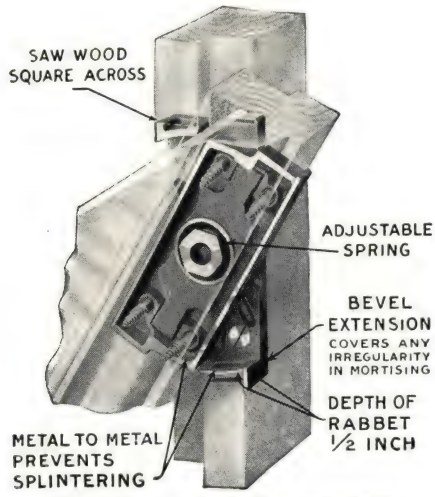
The construction of our pivot guarantees a perfectly tight joint at all times. This feature is very important on outside windows and transoms.

Monitor sash or factory windows can be operated from the floor with a cord, and will hold the monitor sash open as desired.

Catalogue

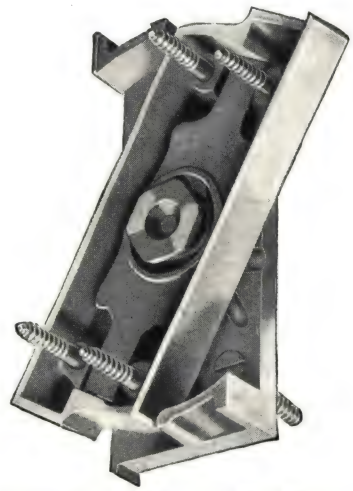
We make a number of other kinds and types of sash pivots including Monarch Elevating Pivots. All are shown in our latest catalogue. Any details or samples wanted will be mailed on request.

Write for our latest catalogue showing our complete line of builders' hardware and fire exit devices. Let us quote on your special hardware; we specialize in this.



Detail Showing Sash Center Applied

Note: The adjustable tension on the friction spring and the mortise cut straight across the sash and hanging stile make it easy to apply and adjust to either wood or metal sash



Latest Improved Monarch Sash Center

Thickness of sash, in.	Cast iron	Cast brass or bronze
1⅜	No. 140	No. 0140
1¾	No. 141	No. 0141
2¼	No. 143	No. 0143

C. M. STEINER CO., INC.

Manufacturers of Window Hardware
PITTSBURGH, PA.

Products

ELEVATING WINDOW PIVOTS.
ELEVATING CASEMENT HINGES.

Giesey Elevating Window Pivot

For large vertically pivoted wood or metal sash (pivoted top and bottom); no lock or adjuster rods required. Dusttight and weathertight when closed.

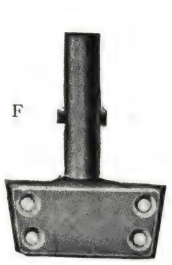
Full sized detail blueprints will be sent on request.

How to Specify—Provide Giesey Pivots small size for 1¾ to 2⅛-in. sash and large size for 2¼ to 3-in. sash. Made of cast iron, brass or bronze, in any finish.

Note: Whether sash be 1¾ or 3 in. thick, follower and mouldings forming box for the same must be 1¼ in. deep.

Follower must be at least 1½ in wider than thickness of sash.

Bottom rail for all 1¾ to 2⅛ in. sash must not be less than 4⅛ in. high. Bottom rail for all 2¼ to 3-in. sash, must be from 5 to 6 in. high.



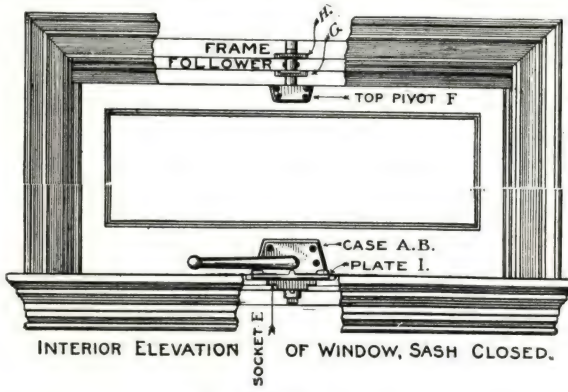
Top Pivot F fits flush in top rail of sash



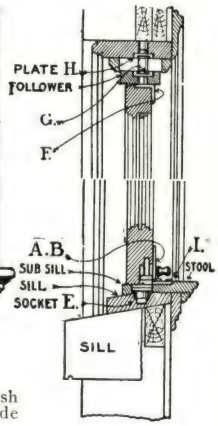
G fits flush with top side of follower



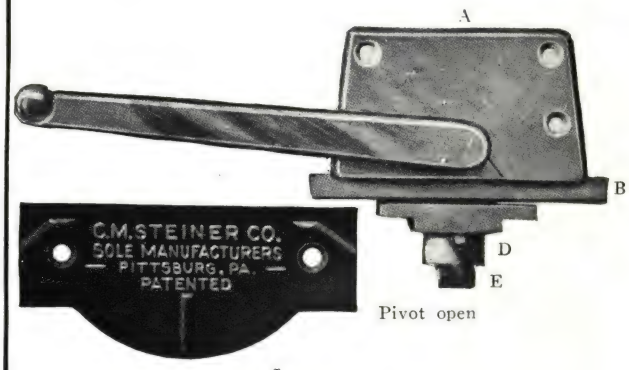
H fits flush with lower side of head of window frame



INTERIOR ELEVATION OF WINDOW, SASH CLOSED.



A and B fit in front of bottom rail of sash
E fits flush with sill on line with inside stool of window frame



Pivot open

I

I fits flush in stool of window sill just in front of A and B

Giesey Elevating Window Pivot

Giesey Elevating Casement Hinges

For inswinging, vertically hinged casement; no locks, or adjuster rods are required.

These hinges make it possible to raise the sash above the stool and swing into the room, making both sides of the glass accessible for cleaning and permitting the use of screens which can be hinged to swing out.

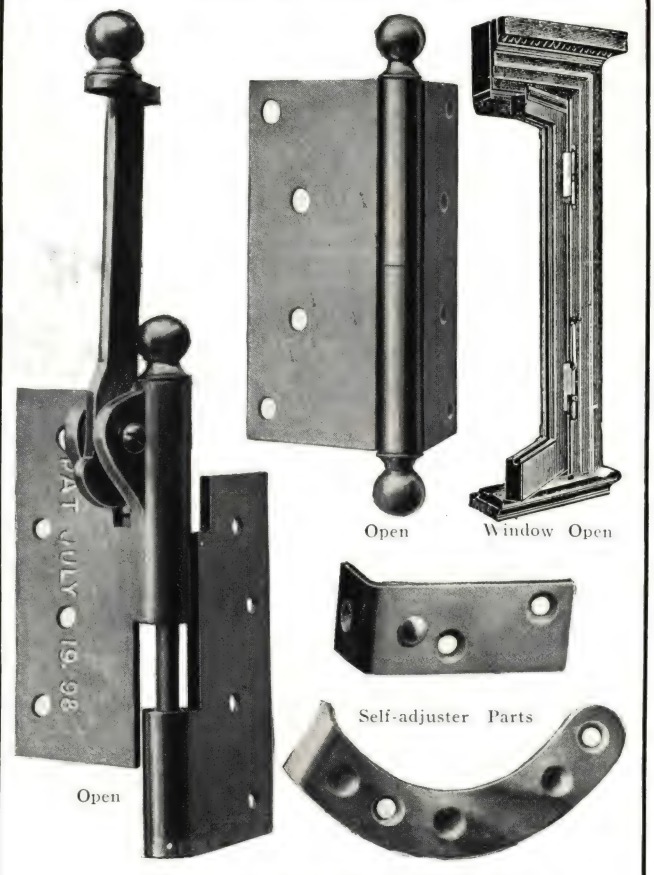
When closed, the sash drops below the stool, thereby affording a dusttight and weathertight casement. The self-adjusting parts shown in illustration permit the sash to be held open at any one of three angles for ventilation.

The lever in closed position locks sash securely and is impossible of being pried open from the outside.

A set consists of one upper and one elevating (lower) hinge.

Full size detail blue prints sent on request.

How to Specify—Provide Giesey Hinges sizes 4x4 in. for 1¾ to 2-in. sash; 5x5 in. for 2 to 2¼-in. Sash; 6x6 in. for 2¼ to 2¾-in. sash. In cast iron, brass or bronze in any finish. Use additional upper hinge for sash over 5 ft. high.



Open

Open

Window Open

Self-adjuster Parts

Giesey Elevating Casement Hinge

THE WILLIAMS PIVOT SASH CO.

Reversible, Pivoted and Casement Window Equipment

CLEVELAND, OHIO

BRANCH OFFICES

ALBANY, N. Y., Cassius J. Logan, 271 Washington Avenue
BALTIMORE, MD., Wm. H. Kane, First National Bank Building
BOSTON, MASS., C. N. Eaton Corporation, 11 Beacon Street
BUFFALO, N. Y., James P. Hunt, 333 Jackson Building
CHICAGO, ILL., M. R. Duffy, 1528 Tribune Tower
CINCINNATI, OHIO, Richard F. Strong, 206 W. Court Street
DETROIT, MICH., The Rayl Co., 1233 Griswold Street
GREENVILLE, S. C., James McCabe, P. O. Box 573
LOS ANGELES, CAL., Kerner Sales Co., Ltd., Architects Building Materials Exhibit, Fifth at Figueroa Streets
MILWAUKEE, WIS., Phillip Gross Hardware & Supply Co., 216 Third Street
NEW YORK, N. Y., Walter T. Voege, Graybar Building
PHILADELPHIA, PA., J. H. Windell, 1505 Race Street
PITTSBURGH, PA., J. R. Colclough, 1425 Dagmar Avenue
ST. LOUIS, MO., P. C. Baerveldt, 1458 Graham Avenue
SAN FRANCISCO, CAL., Kerner Sales Co., Ltd., 450 Clementina Street
SEATTLE, WASH., Kerner Sales Co., Ltd., 843 E. 83rd Street
CANADA, Aikenhead Hardware Limited, 17-21 Temperance Street, TORONTO

Products

WILLIAMS REVERSIBLE WINDOW EQUIPMENT for Double Hung and Plank Frame Windows; STORMPROOF SUBSILL for In-swinging Casement Windows; VERTICALLY PIVOTED WINDOW EQUIPMENT.

Adaptability

Williams double hung reversible window equipment is adaptable for use in office buildings, hospitals, hotels, schools—in fact, any place where good double hung wood windows are used. The plank frame equipment (not sliding) is especially adaptable for schools.

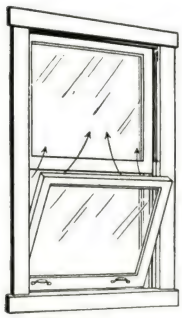


Double Hung

Advantages

Cleaning—Outside of both sash may be cleaned from inside the room with the window closed. With the double hung type, all cleaning is done from the floor level. Much less time is required and cheaper help can be obtained than on outside cleaning. This reduced window cleaning cost alone will pay for the equipment in a few years and is an economic factor throughout the life of the building.

With the cleaner on the inside and the window closed, there is no physical discomfort nor apprehension on the part of the occupants of the room. In addition, in every day use, reversible window equipment provides ideal draftless ventilation.



Showing Air Travel

Use in Hospitals—Williams reversible window equipment is particularly adapted for use in hospitals where draftless ventilation is of the utmost importance, and where patients must not be annoyed by cleaners climbing in and out of windows.

Little or No Air Leakage—Tests for air leakage between sash and reversible strip prove conclusively that passage of air at this point is negligible. These tests were thorough and comprehensive—a copy will be gladly furnished on request.



Hospital Window Being Cleaned from the Inside

Weatherstrips and Screens—Any standard type of weatherstripping may be used. Full or half length screens may be accommodated to the double hung type.

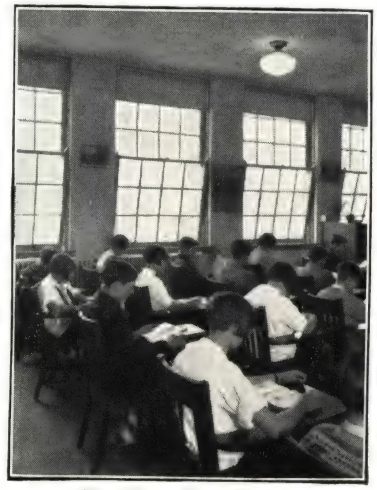
Plank Frame Windows—Especially adapted for schools, eliminate weights, cords and pulleys as well as provide more weathertight windows than the ordinary double hung window which is not weatherstripped. This type of reversible equipment also provides a greater light area on mullioned windows. Such items save in construction. Plank frame windows are economical.

Installation

A staff of expert mechanics is maintained to install Williams equipment. This service includes fitting and hanging of sash as well as the application of Williams equipment.

Responsibility

Because the installation is made by mechanics under the direct control of the home office, we can and do assume responsibility for proper operation of Williams equipment. This policy has been one of the strong factors in establishing this product during the past twenty-seven years.



Draftless Ventilation

Williams Reversible Window Equipment

No special frame or sash construction is required for Williams reversible window equipment, the sash merely being made 1¾ in. narrower than the inside width of the frame. In the plank frame type, a plank frame is substituted for a box frame.

The double hung equipment retains all the features of a sliding window with the added advantage of permitting either sash to be completely reversed or tilted to any position. The plank frame equipment does not have the sliding feature.

The Williams equipment consists of:

Williams Corrugated Side Strip—A strip made of well seasoned hard maple, ⅞ in. thick, of width equal to the thickness of the sash, and corrugated on the sash side. The sash is corrugated (by our mechanics) to meet the corrugations on the strip. The strip is attached to the sash by means of the:

Williams Truncated Cone Pivot—A reliable and effective pivot by which the weight of the sash is automatically used to draw the reversible strip and sash tightly together. The corrugations in the strip and sash are thereby firmly meshed and make a dependable weathertight joint. This pivot also holds the sash in position when tilted.

Spring Rollers—In the back of the reversible strip is embedded a series of roller and spring devices. Acting against the jamb when the window is closed, these help keep the strip in snug contact with the sash, preventing the window from rattling and allowing the sash to slide freely.

Finishing Hardware—Standard locks, handles, sockets, and poles may be used with the double hung equipment. We do, however, recommend the use of our finishing hardware especially designed for the plank frame equipment.

References—Several thousand buildings have been equipped with Williams reversible fixtures. Some typical installations, with number and types of installations:

Double Hung

First National Bank, Detroit, Mich.—2914
Sacred Heart Seminary, Detroit, Mich.—1894
Indian Village Manor, Detroit, Mich.—1746
Ford Administration Building, Fordson, Mich.—456
University Hospital Group, Cleveland, Ohio—2659
St. Luke's Hospital, Cleveland, Ohio—1095
Mt. Sinai Hospital, Cleveland, Ohio—688
Hotel Cleveland, Cleveland, Ohio—1229
Penton Publishing Co., Cleveland, Ohio—532
St. Mary's Academy (first unit), Monroe, Mich.—1109
Hoover Co., North Canton, Ohio—1903
St. Anne's Hospital, Chicago, Ill.—642
St. Joseph's Hospital, Milwaukee, Wis.—1022
Hotel Ten Eyck, Albany, New York—529

Plank Frame

McKinley High School, Canton, Ohio—849
Senior High School, York, Pa.—611
Harding School, Woodlawn, Pa.—429
Girls' Catholic High School, Philadelphia, Pa.—786

Williams Casement Subsill

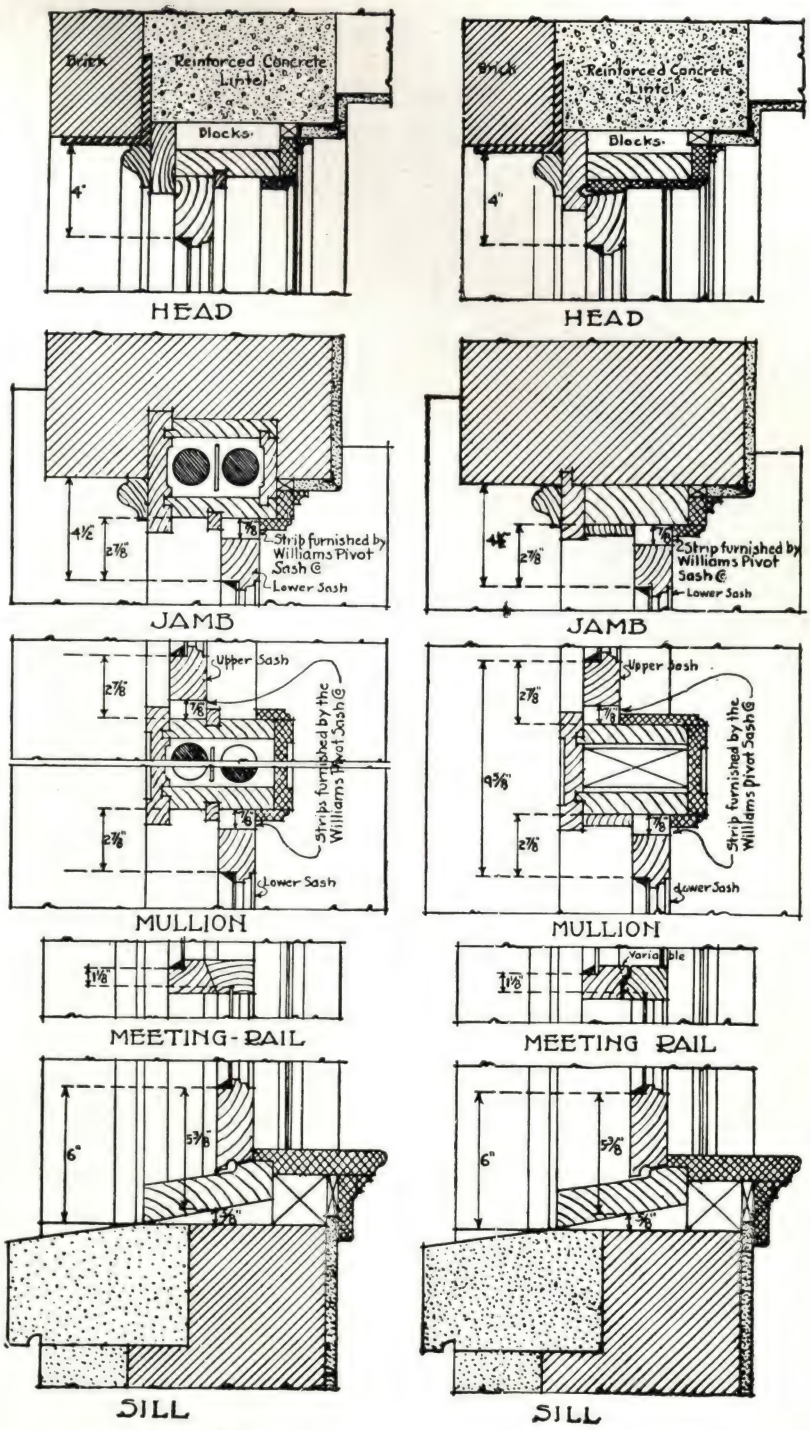
An absolutely stormproof subsill for the bottom of inswinging casement windows. A heavy brass closure bar operates from the subsill into the bottom rail of the sash.

Illustrations and details will be forwarded on request.

Williams Vertically Pivoted Window Equipment

For windows pivoted top and bottom, we furnish specially designed pivot castings in iron or bronze with our stormproof subsill at the bottom of the sash, and our corrugated strip at the top, to insure weathertightness.

Illustrations and detailed information on request.



Double Hung — Plank Frame

Details of Windows Equipped with Williams Reversible Window Fixtures

Full size or scale details sent on request

Specifications

Double Hung Type—All double hung wood sash to be equipped with reversible fixtures as manufactured and installed by THE WILLIAMS PIVOT SASH CO., Cleveland, Ohio. Said Company to fit and install all sash on which their fixtures are to be used.

Plank Frame Type—All window sash to be of the plank frame type and equipped with reversible fixtures as manufactured by THE WILLIAMS PIVOT SASH CO., Cleveland, Ohio. The contractor shall furnish all frames and sash. THE WILLIAMS PIVOT SASH CO. shall apply their strips to the sash, and they shall fit and place these sash in their respective openings. The hardware (locks, lifts, sockets and poles) for all windows equipped with Williams Fixtures shall be furnished and installed by them, and shall conform with the other hardware in metal and style of finish.

WONDER WINDOW CO.

Manufacturers and Installers of Patented Hardware for a Combined Casement and Double Hung Window

4613 North Clark Street, CHICAGO, ILL.

LICENSEES FOR INSTALLATION IN ALL PRINCIPAL CITIES

THE WONDER WINDOW

Description

The Wonder Window is a patented 2 in 1 weatherproof, waterproof inswinging casement window and a regular double hung window installed in a standard box frame and equipped with special patented hardware.

Where Adapted

Its greater convenience, weatherproof and ventilating features make it the ideal installation for homes, schools, hospitals, institutions and every type of public and business building.

Advantages

Cleaning—Wonder Window can be easily cleaned from the inside and eliminates the hazard of window washing.

Shades and Drapes—Can be hung in the same manner as for double hung windows without causing interference in raising, lowering or swinging sash.



Typical Sash Grouping

Ventilation—Wonder Window can be opened at top and bottom to provide any degree of ventilation desired.

Weatherstrip—Wonder Window is correctly weatherstripped throughout and is absolutely stormproof, insuring warmth and comfort in cold weather together with decided reduction in fuel costs.

Installations

The installation of the Wonder Window is done jointly by owner and WONDER WINDOW CO., or its Licensees, and the work is divided as follows:

By Owner—All frames must be furnished with pulleys and installed in correct locations. All sash, cords (or chains) and weights must be furnished and delivered to convenient location for installation by WONDER WINDOW CO.

All frames and sash are to conform to WONDER WINDOW CO.'s standard millwork details, except that the general design may be modified to harmonize with architectural design, providing the essential details required are left unchanged.

By Wonder Window Co.—All sash shall be fitted and hung, and the sash cord (or chains) and weights will be installed by this company. All standard hardware and special equipment will be furnished and installed by this company. Weatherstrips will be also furnished and installed by WONDER WINDOW CO.

Details—Frame and Sash

The frame is a standard type box frame made for a sash of minimum thickness of 1¾ in., and requires no special millwork.

The upper sash is standard check rail type counterbalanced in the usual manner with weights, cords (or chains) and pulleys. Height of sash should be approximately one-quarter the height of frame opening, but this height may be varied to meet requirements of architectural design.

The lower sash (singly or in pairs) are casements hinged on special butts. These butts are riveted to zinc channel slides which operate in metal track. The channels are counterweighted with weights, cords (or chains) and pulleys. Cords or chains are secured to the channel with special attachments.

Height of lower sash should be approximately three-quarters the height of frame opening. Height may be varied to meet requirements of architectural design. This arrangement permits the lower sash to be raised as an ordinary sash or raised to clear the window stool and swing in for ventilation and washing.

Details—Special Equipment

General—Each set of equipment consists of patented zinc channel slides and track, special butts riveted to channels, cord or chain attachments also riveted to channel, sash locks, sash lifts and metal weatherstrips.

Channel Slides — Made full height of lower sash and installed in tracks as shown on detail. An allowance of ½ in. in length is made to permit beveling bottom to fit slope of window sill.

Tracks—Made full height of the frame opening. The outside track is fitted into saw cut in the parting strip and nailed to the pulley stile. Parting strip is secured in place with 1½-in. No. 6 flat head screws spaced approximately 18 in. on centers. After sash cord (or chain) has been attached to the channel, the inside track is placed in position and nailed to the pulley stile at top and bottom. The inside track is covered by rebated stop which fits over projecting portion of tracks. Window stop secured in place by owner.

Butts—These are special 3-in. steel butts, of the half surface type, and are riveted to the channel so that the half surface can be readily secured to sash while in position in the opening.

Cord Attachment—Riveted to the back of the channel and can be used for either cord or chain.

Sash Locks and Lifts—Installed on each lower sash. The locks are placed near the strike stile and the lifts in the center of the bottom rail.

Finish of Hardware

The standard finish of the exposed hardware, such as butts, locks and lifts, is dull brass plated finish. Other standard finishes will be furnished at extra cost.

Weatherstrips

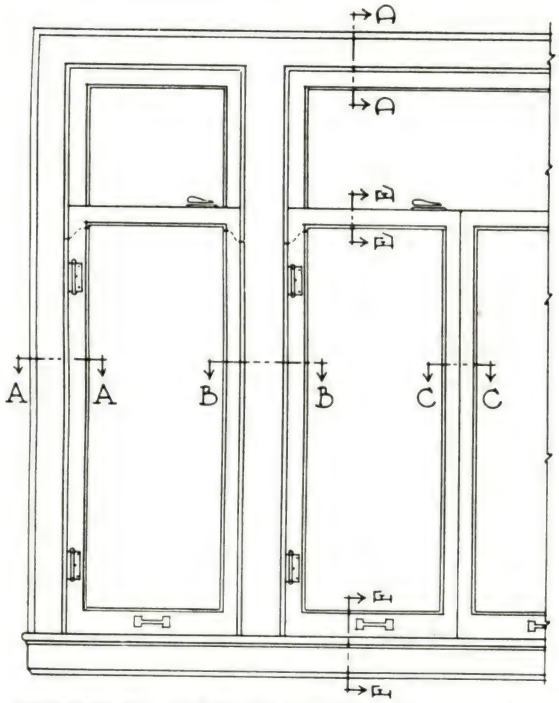
The Wonder Window is equipped with Burrowes metal weatherstrips furnished and installed by WONDER WINDOW CO. The following types of strip are installed:

Sill and top.....1½-in. zinc rib strip
Sides of upper sash.....1½-in. zinc corrugated rib strip
Check rail.....special bronze strip
Strike side of single lower sash.....1⅛-in. spring bronze

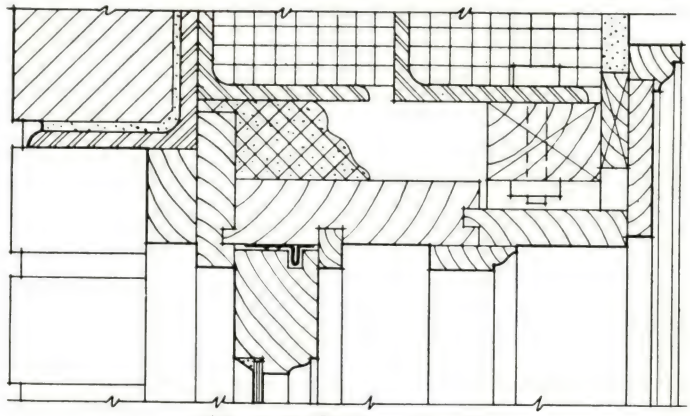
The side strips for upper sash are three-quarters of the height of frame opening so that the sash will be engaged with the rib in its lowest position.

Sizes and Set Numbers

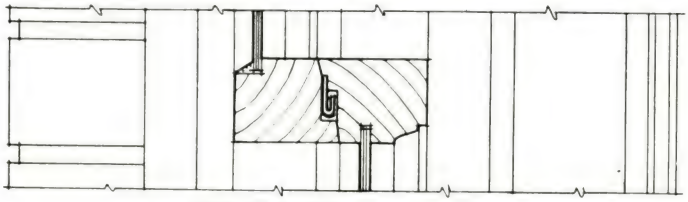
Set No.	Type	Height of lower sash, in.
12	Single casement	Up to 52
13	Single casement	52 to 72
14	Single casement	72 and up
24	Pair casement	up to 52
26	Pair casement	52 to 72
28	Pair casement	72 and up



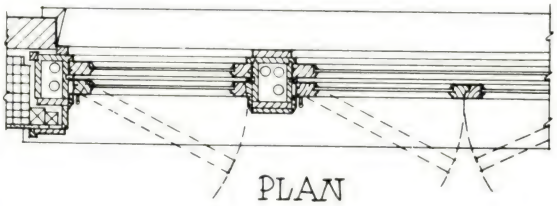
INTERIOR ELEVATION OF WINDOW



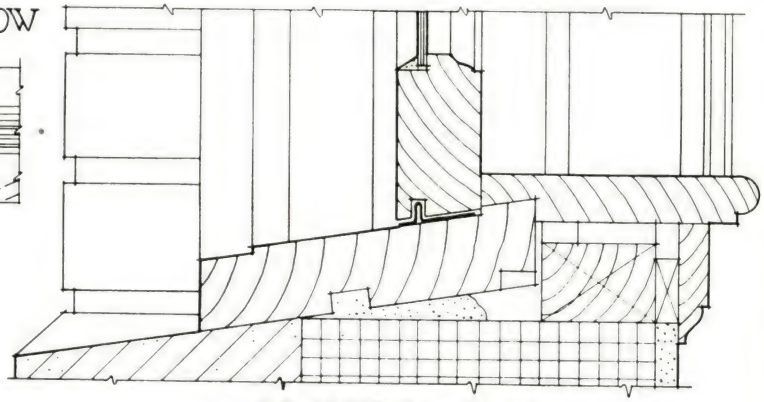
SECTION D-D



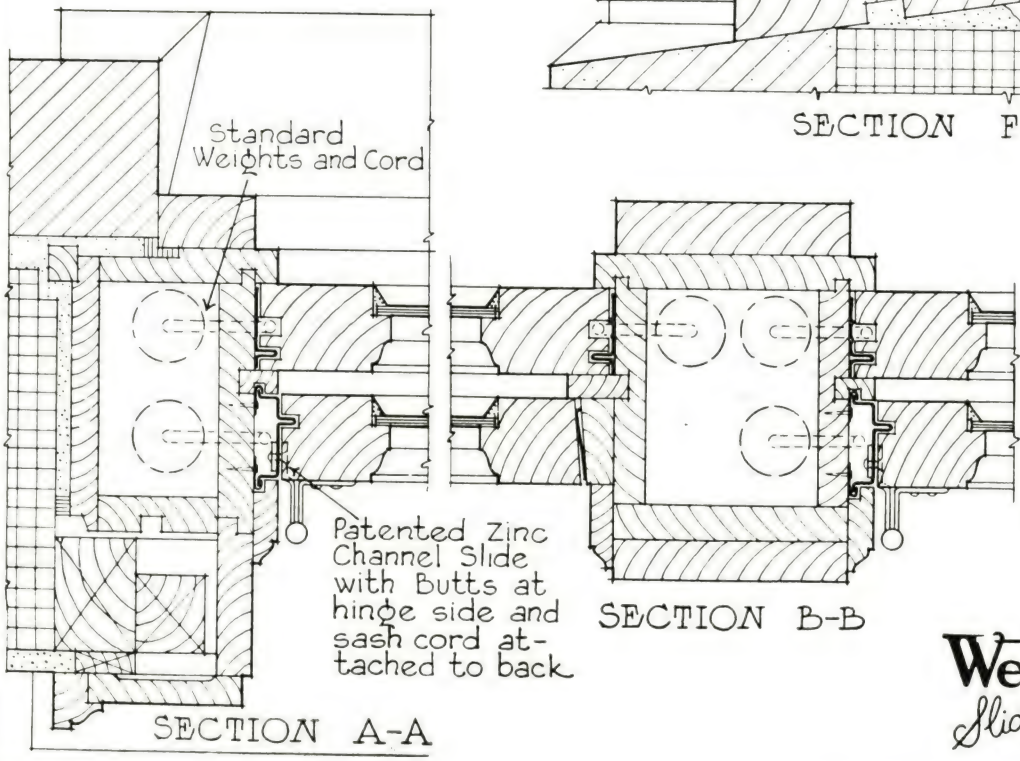
SECTION E-E



PLAN



SECTION F-F



SECTION A-A

SECTION B-B

Note.
All windows equipped with Burrowes Metal Weatherstrips.



SECTION C-C

Weatherpruf *Sliding* **Casement Windows**

WONDER WINDOW DETAILS

THE CASEMENT HARDWARE CO.

Improved Hardware for Operating Out-swung Casement Windows

FACTORY AND GENERAL OFFICES
406 North Wood Street, CHICAGO, ILL.

BRANCHES
BOSTON, MASS., 120 Pearl Street
NEW YORK, N. Y., 101 Park Avenue (Exhibit, Architects Samples Corporation)
LOS ANGELES, CALIF., 337 H. W. Hellman Building

Products

Win-Dor
TRADE-MARK

Exclusively Operating and Locking Devices specialized for *out-swung* casement and transom windows—steel and wood.

THROUGH-SCREEN (UNDER-SCREEN) CASEMENT OPERATORS: Worm Gear (Series 25), and Direct Acting Types (Series 7 and 24) for surface, flush or concealed installation. These devices control the casements entirely from inside of any type of insect screen.

OPERATOR and SCREEN UNITS for standard steel casements —Series 80 and 80A.

OPERATOR and SCREEN COMBINATION (Integral Attachment) —Series 50.

CASEMENT STAYS — Self-locking, Positive ("Sliding"), Series 61.

TRANSOM OPERATORS, THROUGH-SCREEN and NON-SCREEN TYPES, for top hung windows.

CLEANING HINGES for wood casements—Series 70.

CONCEALED CASEMENT OPERATOR—Series 35.

Win-Dor Casement Hardware

Advantages, General—A *complete line*, gradually developed from intensive specialization on out-swinging casement problems, offering a solution appropriate to every construction and type of building.

Security—Positive, self-locking principle eliminates damage through carelessness of users, as well as from winds. This and other security features eliminate dangers to users and remove liabilities from building owners.

Convenience—Quick, simple action with reserve power makes casement operation of Win-Dor devices easy and natural for women.

Durability—Win-Dor devices are designed and tested to stand not only use, but abuse, under extreme operating conditions. Many Win-Dor installations are in good service after ten to fifteen years with no, or very minor, replacements.

Materials and Finishes—All steel or iron parts are furnished in rustproofed finishes only (cadmium or Parkerized). All devices also made in solid brass in all trade finishes.

Specialized Application—Win-Dor operators and stays are the only specialized or patent devices coordinated to the standard practice of steel casement manufacture and attachment. (See notes on final page.) They are equally advanced in their application to all desirable wood casement details.

Availability and Plant Capacity

Distributed for steel casements through leading steel window manufacturers with warehouse stocks and branches throughout the United States.

For wood and steel casements, stock and samples are available from over one thousand leading builders' hardware merchants. Display in permanent exhibit, Architects Samples Corporation, New York, N. Y.

Win-Dor products are manufactured in a modern day-light plant with capacity of over one million units per year.

Development and Research

A special department, staffed by experienced architectural engineers, constantly testing, designing and improving.

Architectural Service

An experienced department freely available for advice on casement screening and operating problems.

Technical Analysis of Duty and Safety Factors for Out-swung Casement Hardware

A brief analysis of these characteristics will give a sound basis for determining satisfactory solutions.

(1) Wind Pressures as Related to Friction and Positive Holding Means—Obviously, out-swung casement leaves are subjected to the full force of wind pressures, from which inward opening sash are generally protected. Friction devices may be set for the latter at very low resistance, convenient to operate, yet sufficient for the duty. Out-opening vents are subject to the full force of the wind, which may be calculated as per wind pressure table from formula $P=0033x(V)^2xA$. A friction resistance of 16 to 20 lb. (at center of swing leaf) is the limit which may be operated with reasonable convenience. It, therefore, appears that maximum friction will hold in average but not in all wind velocities to be occasionally expected. Win-Dor Positive Operators and Stays, as shown on succeeding pages, are designed specifically for such duty, and when locked will hold any practical size casement without injury to such casement or itself, plus a large factor of safety. When operated, there is no resistance to work against and no racking strain on the casements.

WIND PRESSURE ON OUTSWUNG CASEMENTS

Mi. per hr.	Wind pressure, lb.	
	6-light, 4.5 sq. ft.	8-light, 6 sq. ft.
15	3.34	4.46
20	5.94	7.92
25	9.28	12.38
30	13.37	17.82
35	18.19	24.26
40	23.76	31.68
50	37.13	49.50
60	53.46	71.28

Note: For any constant velocity, puffy wind conditions and vacuums will cause much greater temporary pressures. Hence, *occasional* severe strains at moderate *average* wind velocities.

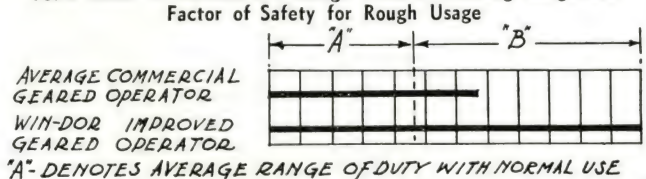
(2) The Human Element as Related to Holding Means—The characteristic holding duty may be theoretically met by any positive means of sufficient strength—as thumb screw adjusters or peg and stay. Such devices depend upon the intelligence and carefulness of the operator always to manually secure the casement when left open.

Negligence in this matter is common in private houses and flagrant in apartments, hotels and institutions. All Win-Dor devices are, therefore, automatically self-locking. Flung to any position, the positive lock will take hold at the slightest movement of the sash.

(3) The Human Element as Related to Strength and Safety Factors—Given a device (such as a geared operator), both positive and self-locking, proper design involves meeting not only probable wind pressures, but all conditions of actual use. This involves inevitable occasional abuse:

(A) Leaving casements open in exceptional winds.
(B) Abuse of workmen on building.
(C) Abuse by servants, transients, or other careless users.
(D) Attempts of intruders to jimmy or force sash.

Tests Made to Determine Average Normal Working Range and Factor of Safety for Rough Usage



"A"- DENOTES AVERAGE RANGE OF DUTY WITH NORMAL USE
"B"- -"- -"- FACTOR OF SAFETY FOR ROUGH USAGE

The standards for Win-Dor strength and safety factors are set to meet these practical usage factors in all cases—and all Win-Dor devices are guaranteed adequate to every reasonable duty.

The data for these standards obviously are obtainable only from long and wide experience; in the case of Win-Dor, twenty-five years of constant improvement, from actual observation.

(4) Weather Exposure as Related to Holding Means—Out-swung casement holders are exposed to a variety of weather conditions which successful products must meet, if they are to endure. All Win-Dor operators and stays use bronze or brass, regardless of cost or competitive prices, wherever experience and tests indicate that corrosion or wear may seriously affect operation. The least expensive Win-Dor units may, therefore, be used with assurance not only in dry localities but in salt-air, sea-coast exposures, etc.

(5) Convenience and Security of Operative as Related to Operating Means—The locking handle itself cannot always provide convenient or even safe means of swinging an out-open casement, as at full opening, 90°, it will be from two and one-half to four feet from the operator—or inside wall.

Win-Dor Stays reduce the operating reach 12 inches.

Win-Dor Under-screen Operators eliminate it entirely.

Win-Dor Geared Casement Operators, Series 25 and 26

General—Win-Dor geared operators are not only sturdy and practical controlling mechanisms, but are so refined in design that they rank as first grade finish hardware, and can be used anywhere for surface installation. Their fine appearance makes concealment unnecessary, though such application can be readily made where desired.

Where Recommended—For all outswung casements of wood or steel which are to be screened.

Important Features—Bronze worm makes bearings self-cleaning and insures permanent easy working even under salt air exposure.

All other moving parts also have bronze bushings and washers.

Series 26 Win-Dor operators are reversible to right or left hand installation.

Quick Action—Only four turns of crank required for full 90 degree opening.

No Back Slip—Patent brake on worm prevents slipping.

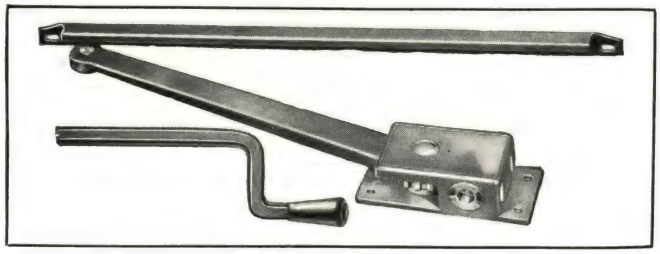
Quietness—Careful manufacture, assembly and inspection produce close-fitting parts free from excessive play.

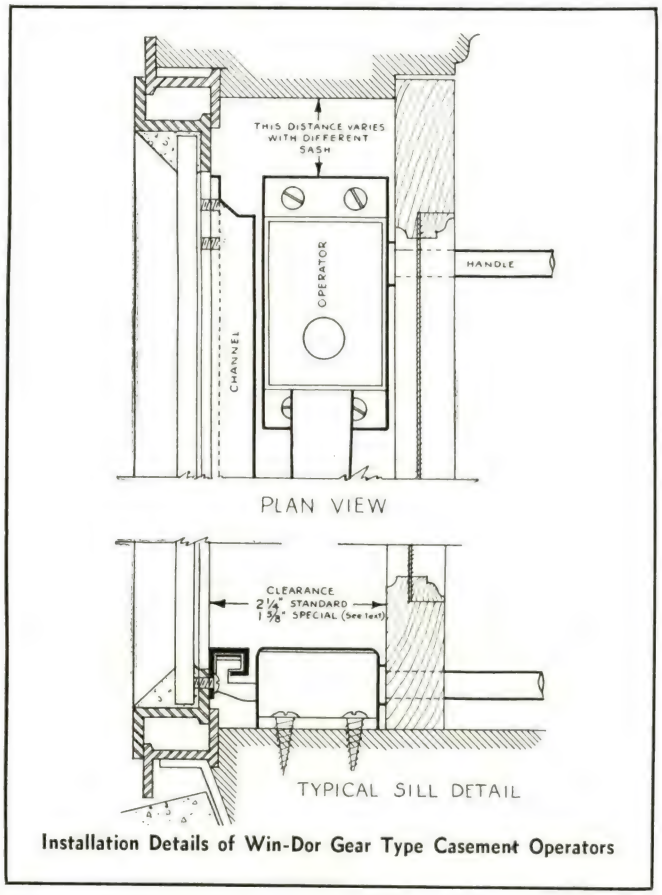
Bronze take-up spring on sliding connection also prevents rattling.

Standardized Application—These operators fit any stool with minimum of 2¼ in. between sash and screen (with wood casements this space may be reduced to 1⅝ in.).

Strength—See test chart preceding page.

Steel Casement Application—Most leading manufacturers of steel casements furnish stock casements, drilled and tapped for Win-Dor operators, or are prepared to furnish sash accordingly on order without extra cost. Series 25 and 26 operators fit same holes as Win-Dor Series 61 Stays.





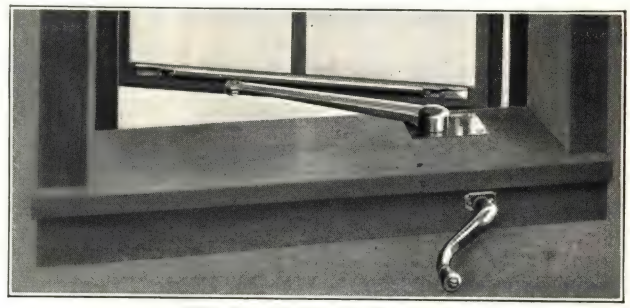
Installation Details of Win-Dor Gear Type Casement Operators

Win-Dor Concealed Operator, Series 35

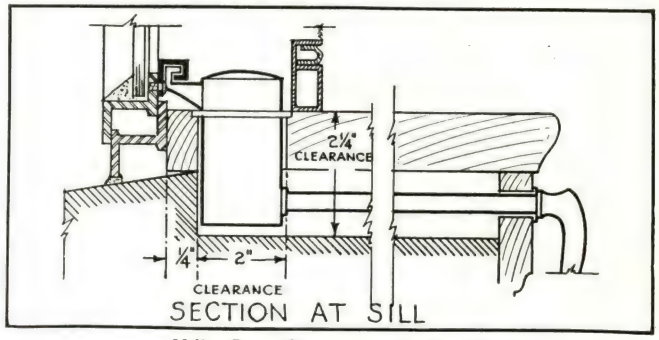
Where Recommended—An unusually fine piece of finish hardware for wood or steel casements. Eliminates surface application of crank handle over stool.

Construction—Compact, sturdy gear housing with Win-Dor bronze worm. Handsome surface pivot and arm. Bronze ornamental detachable crank handle.

Advantages—Any type of screen may be used without cutting frame and without interference. This operator is immediately accessible and overcomes the objection of concealed sub-stool installations, as mechanism may be entirely removed without affecting window trim.



Win-Dor Series 35 Operator

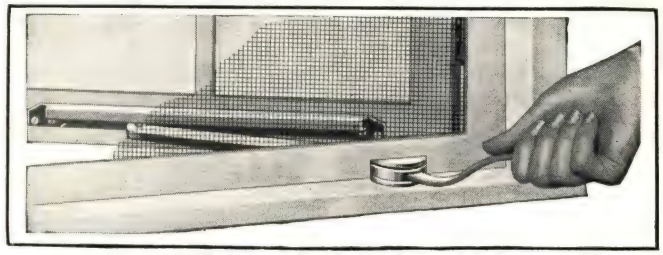


Win-Dor Operator, Series 7

A direct acting operator. Not geared.

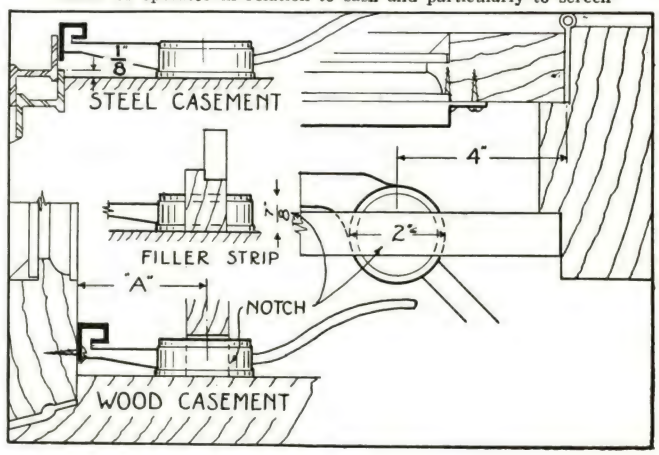
Where Recommended—For wood casements having ordinary butt hinges, particularly in private houses.

Operation—A slight downward pressure on handle releases the automatic lock and permits a swing of 90° with positive locking at 8 points. Handles detachable or permanently attached, as desired. Right and left handed. Steel or brass.



Win-Dor Series 7 Operator

Shown in use with ordinary wood (out-swung) casements. Note the application of operator in relation to sash and particularly to screen



Win-Dor Operator and Screen Unit, Series 80 and 80A

The Win-Dor standardized casement operator and screen unit consists of Series 26 worm and gear type operator, concealed by a metal stool cover, and flat type screen, as furnished by THE CASEMENT HARDWARE CO., of Chicago.

Important Features—***Worm-gear Operation***—The finest type of Win-Dor thru-screen operators, as described on preceding page.

Quality Screens Standardized—The finest quality metal frame screens. Made in standard sizes and on an economical production basis.

Ventilators Only Screened—No unwieldy screens over fixed lights.

Easily Attached and Detached—For washing windows, or storage, the screens need not be maneuvered to clear any hardware as this is contained in metal stool.

Detail Specification Data—***Screen***—A first quality top hung metal frame screen—provided with concealed pivot brackets—consisting of a heavy gauge steel frame strongly reinforced at corners, galvanized inside and out, and painted; together with the highest grade 16-mesh solid bronze wire in antique finish.

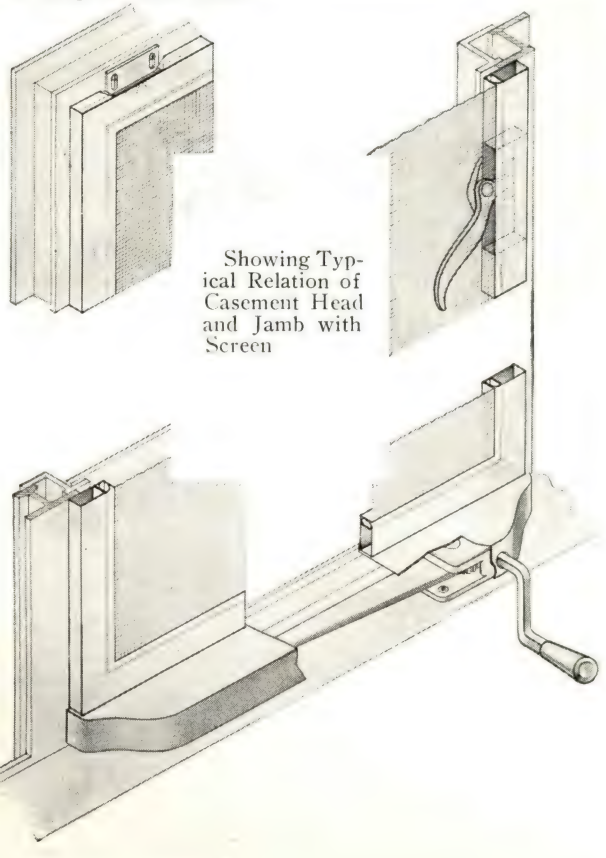
Operating Hardware—Win-Dor Series 26, reversible worm and gear type operator, provided with a solid bronze worm and bronze bushed gear, accurately machined and housed in an attractive drawn metal housing; parts of steel rust-proofed by means of parkerizing. No. 251 Handle. Special Win-Dor extruded section—easily fitted to all stool widths.

Metal Stool—A deep drawn metal stool of standard sizes to house casement operator. Made of 16 gauge copper steel, parkerized, and in addition painted on both sides. Provided with an upstanding lip for screen contact. Made reversible.

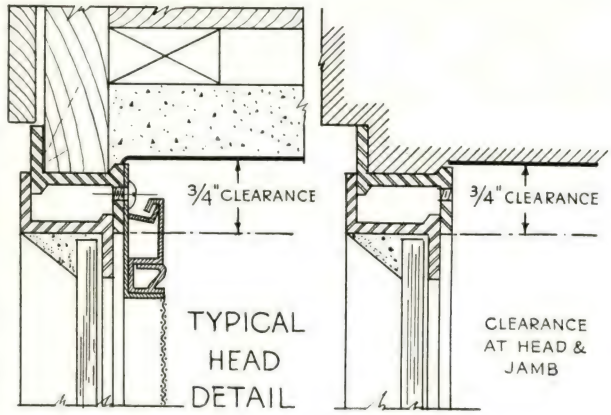
Locking Handles—Cast, flat type, locking handles of iron or bronze, provided with suitable brackets for convenient attachment, using standard drilling and tapping.

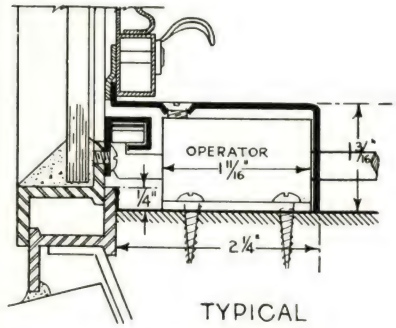
Note: Win-Dor combination operator and screen unit is adaptable to casement units of all standard makes.

Recent Improvements—Screen latches are of improved tight-wedging cam-action type. Two latches instead of one on all four-light wide screens. Increased contact margins of screens, head and stool. Gauge manufacture of metal stools to permit template installation.



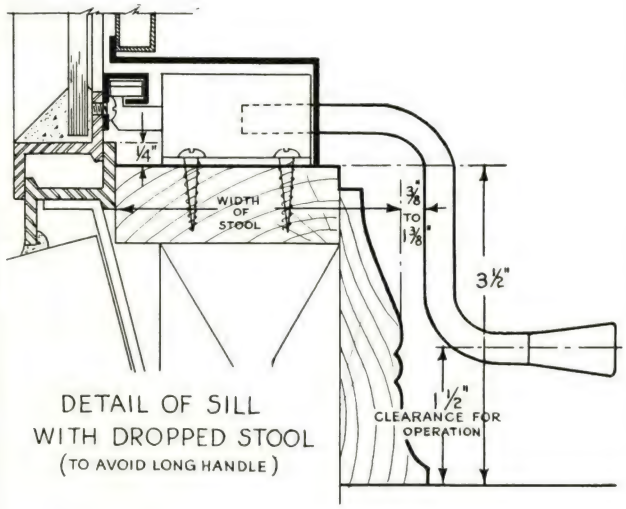
Showing Typical Relation of Casement Head and Jamb with Screen





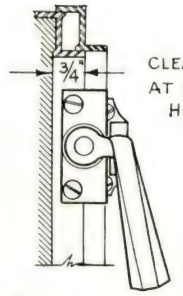
Note: Clearance at sill to be ¼ in. on both Series 80 and 80-A units.

Note: Make sure of clearance at head, jamb and stool.





Flat locking handle used with Win-Dor Series 80 Operator and Screen Unit



Through-screen locking handle used with Series 80-A Operator and Screen Unit

Win-Dor Operator and Screen Unit, Series 50

This Win-Dor combination comprises a new direct acting concealed operator and cover integrally attached and flat type screen as furnished by THE CASEMENT HARDWARE COMPANY, Chicago.

Important Features—***Integral Attachment***—The whole installation being attached direct to the steel frame offers many advantages.

Through-Screen Operator and Through-Screen Lock and Handle—Casement control is entirely from within, making the window opening absolutely insect-proof, yet instantly adjustable for ventilation.

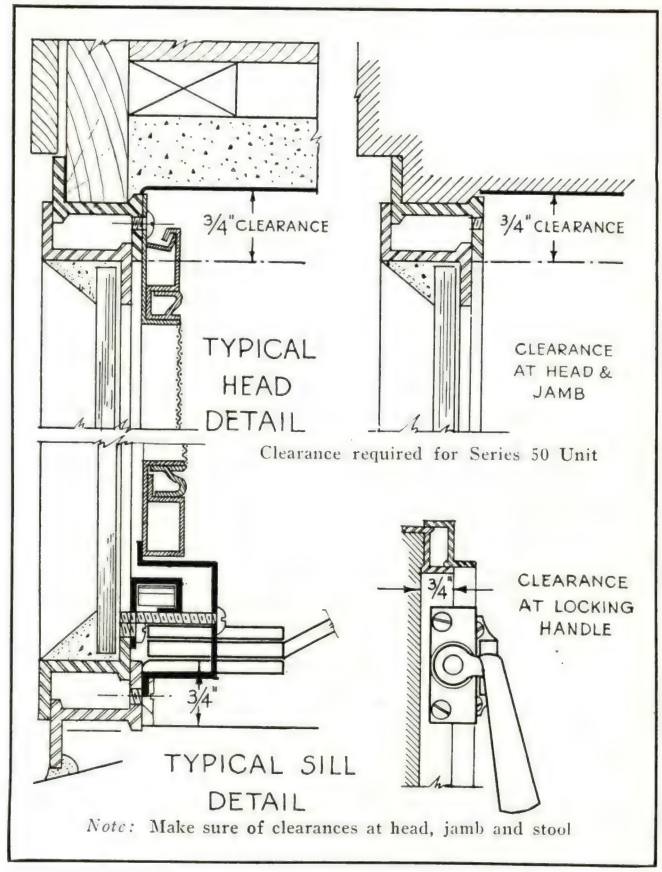
Automatic Locking and Positive Control—Over a period of years this principle of casement control has provided economy and utmost convenience in casement window operation.

Detail Specification Data—***Screen***—The metal frame flat screens for the Series 50 unit are made by several of the oldest and best known screen factories, insuring users of the highest quality and workmanship. Standard screens as listed are first quality Higgin, Watson, or equal, with bronze wire cloth antique finish No. 16 mesh. Metal frames have a two-coat baked finish. Screens are simply and *instantly* detachable.

Operating Hardware—The direct acting operator features the patented Win-Dor principle of positive automatic sash control. This is the type of operator used in New York on several of the largest steel casement installations ever built where it has proven eminently successful.

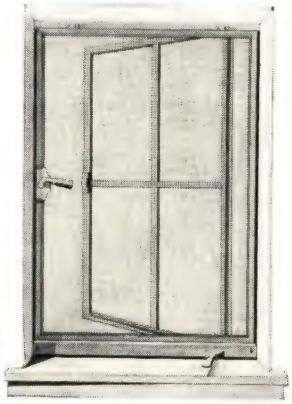
Lock and Handle—This simple, sturdy and well designed hardware is of the cam action type with lock fastened to the sash frame and with removable handle which works through the screen frame as illustrated.

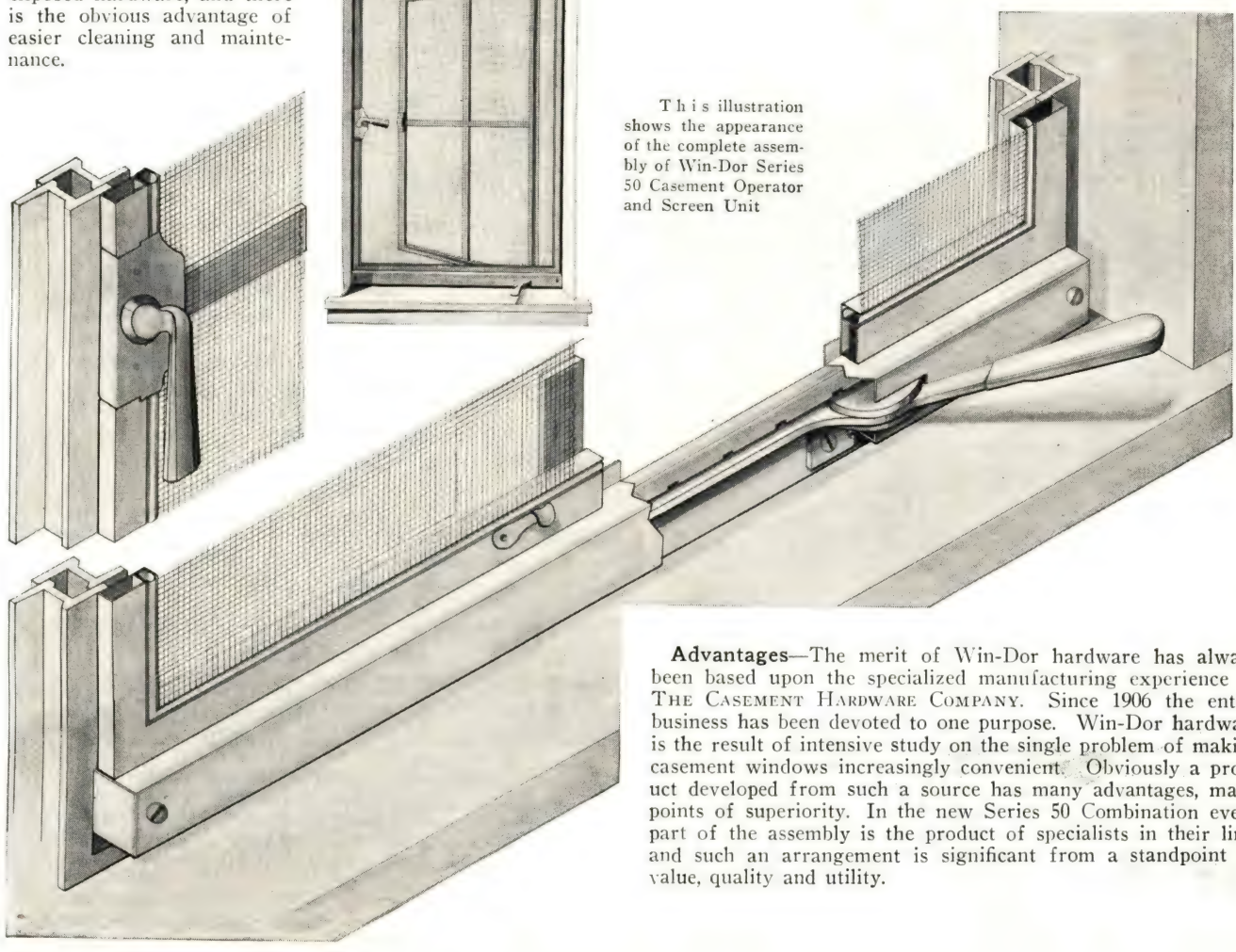
Operator Cover—This neat metal formed cover attaches direct to the casement frame, making wood stools unnecessary. The compact design requires a projection of only ½-in. inside the screen. The appearance is thus one of attractive simplicity, far more acceptable than exposed hardware, and there is the obvious advantage of easier cleaning and maintenance.



Clearance required for Series 50 Unit

Note: Make sure of clearances at head, jamb and stool





This illustration shows the appearance of the complete assembly of Win-Dor Series 50 Casement Operator and Screen Unit

Advantages—The merit of Win-Dor hardware has always been based upon the specialized manufacturing experience of THE CASEMENT HARDWARE COMPANY. Since 1906 the entire business has been devoted to one purpose. Win-Dor hardware is the result of intensive study on the single problem of making casement windows increasingly convenient. Obviously a product developed from such a source has many advantages, many points of superiority. In the new Series 50 Combination every part of the assembly is the product of specialists in their line, and such an arrangement is significant from a standpoint of value, quality and utility.

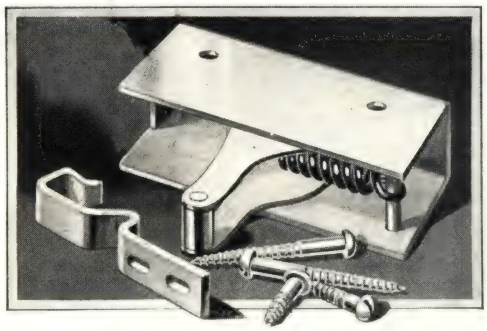
Win-Dor Series 45 Top Closer

Where Recommended—Essentially designed for out-swung wood or steel casement windows controlled with gear type operators. The Series 45 is equally efficient for use on in-swung sash, hinged transoms, screen doors and for many other purposes where tight tension contact is required.

Operation—Mechanically simple and completely automatic. Strong enough to overcome warping. Has a pull of 8 lbs. Right or left-hand installation. No mortising.

Construction—Entire closer is contained in a neat smoothly finished metal housing size 3½x1½x1 in.

Finish—Rustproof cadmium, parkerized or solid brass.



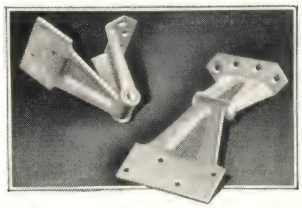
Win-Dor Series 45 Top Closer

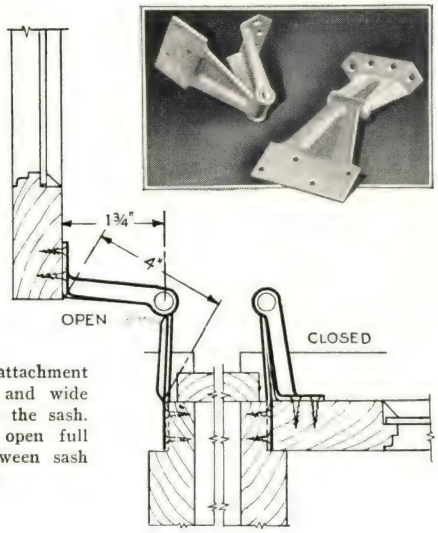
Win-Dor Cleaning Hinge, Series 70

Gives to wood casements the same type of projected swing that is general practice with standard steel casements. Particularly useful for single casements not otherwise accessible for washing from outside.

Co-ordinated With Win-Dor Operators—All Win-Dor thru-screen Operators and Series 61 Stays work with Series 70 Hinges the same as with standard close butts, giving opening of 90°.



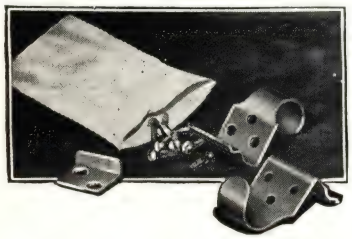




Note strong attachment to window frame and wide bearing surface on the sash. When window is open full there is 4 in. between sash and window frame

Win-Dor Screen Hardware, Series 81

This is the simplest and most inexpensive hardware for installing inside wood frame casement window screens. Spring clips are fastened to each side of the screen frame, and snap over round head screws in window frame. At the top, screen slides behind angle plate fastened to window frame.



Win-Dor Casement Stay, Series 61

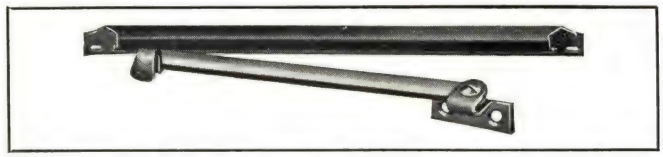
A simple, economical device which has all the best features of security and convenience except thru-screen operation.

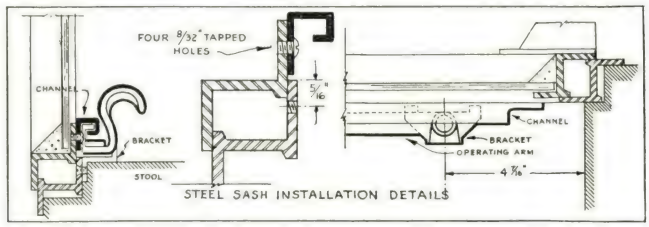
Where Recommended—This Stay is widely used in large metropolitan buildings where screens are not used throughout.

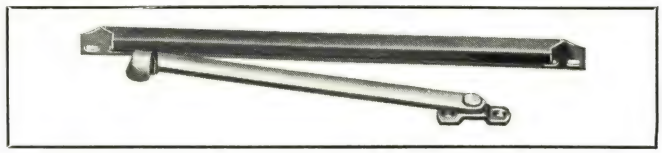
Advantages—Automatic positive locking—rigidly engages sash wherever left open. Absolutely insures against breakage even with careless use.

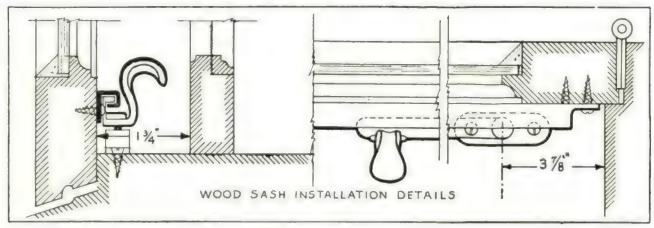
Safety—The lift handle serves both to release the lock and swing the sash. This saves one foot in reach and eliminates stretching by users. Requires only one hand to operate.

Low Cost—Series 61 Stays cost no more than thumbscrew adjusters or friction devices.









Identification

Win-Dor Devices are protected by patents, and though imitated, are not duplicated. The registered mark Win-Dor is stamped on all genuine fittings where it is inconspicuous when installed but available for protection of users.

Literature

Complete literature and details are available for all Win-Dor products in the form of A.I.A. folders.

Illustrated Price List of Casement Hardware Specialties
Series 80—Operator and Screen Unit
Series 80-A—Operator and Screen Unit
Series 50—Operator and Screen Unit

Win-Dor

A Few Prominent Win-Dor Hardware Installations and Their Architects

Beaux Arts Apartments, 44th Street and East River, New York, N. Y., Kenneth Murchison
A. J. Drexel Biddle Residence, Palm Beach, Fla., Addison Mizner
Albrook Field, Officers and N. C. O. Quarters, Panama, Canal Zone, Owner U. S. Government
Joseph Widener Residence, Palm Beach, Fla., Trainor & Fatio
Harrison Williams Residence, Palm Beach, Fla., Trainor & Fatio
Southern Bell Telephone Exchange, Savannah, Ga., Marye, Alger & Vinour
Tudor City Apartments, New York, N. Y., Fred F. French Co.
Veterans' Bureau Hospitals, Tucson, Ariz. and Alexandria, La., U. S. Government
Duke University Buildings, Durham, N. C., Horace Trumbauer
London Terrace Apartments, New York, N. Y., Farrar & Watmough

HAGSTROM MANUFACTURING CO.

Special Hardware for Doors and Casement Windows

25 Maple Avenue, GLEN COVE, L. I., N. Y.

LOCAL REPRESENTATIVE

Products (Patented)

THREE-POINT LOCK for single door or casement.

FIVE-POINT LOCK for double doors or casements.

TWO-POINT LOCK for French Astragal Meeting Stile.

HANDLE LOCK and PUSHLOCK for standing leaf of double doors or casements.

AUTOMATIC BOTTOM BOLTS.

HAGSTROM SECRET DOOR LATCH.

HAGSTROM FRICTION CATCH.

Hagstrom Door and Casement Hardware

Hagstrom door and casement hardware is designed especially to prevent or overcome the warping of sash. It may be used on new or old sash, with absolute assurance of positive results. Both automatic and concealed.

Materials and Workmanship—Brass and bronze used exclusively.

Workmanship of the highest standard.

Hagstrom products are guaranteed in every respect.

Three-point Lock for Single Door or Casement

This lock consists of a mortise latch (bevel front) at the center and spring latches at the head and sill all operated simultaneously by turning the handle. The door is firmly fastened at three points by simply closing it, and opened by a turn of the handle.

Five-point Lock for Double Doors or Casements

The standing leaf is firmly fastened at the head and sill by simply closing it. The moving leaf is firmly fastened at the head, sill and center by a three-point lock. Both doors are opened by a turn of the handle on each door. A patented interlock prevents turning the handle on the standing leaf while the moving leaf is closed.

Note: The handle controlled lock No. 50 may be omitted and a pushlock No. 25 used on the standing leaf as described hereinafter.

Thumb Turn and Cylinder Lock—Three and five-point locks may be equipped with a thumb turn on the inside, or a thumb turn on the inside and key operated cylinder on the outside. *The lock casings are made to receive any standard make cylinders.* Hubs are set either square or diamond.

Two-point Lock No. 4200, for French Astragal Meeting Stile

Sash is firmly held to head and sill automatically. Latches are released by turn of handle. Face of lock is made concave to suit the rolling meeting stile. Width from depth of concave to center of spindle is $\frac{5}{16}$ in. Used with or without thumb turn.

Handle Lock No. 50 and Pushlock No. 25 for Standing Leaf of Double Doors or Casements

The operation of handle lock (No. 50) is explained above under heading "five-point lock."

The pushlock on the standing leaf is operated by pushing with thumb a recessed latch in the face of strike plate which releases the top and bottom bolts allowing leaf to be opened. With this type lock no handle is required on the standing leaf.

Handle lock (No. 550) and pushlock (No. 525) for standing leaf can be made to special order to fit any other manufacturer's lock on the active leaf.

Automatic Bottom Bolts

Where there is no threshold or where the doors and bolts must clear rugs the spring latch at the bottom is impractical, and we recommend using an automatic bottom bolt which is raised when the handle is turned and held flush with bottom of door when open. When door is closed the bottom bolt is released automatically by the action of a lever against the hinge jamb.

Hagstrom Furnishes No Trim

All three and five-point locks are furnished with strikes, top and bottom bolts, wire for operating them and ¼-in. spring brass channel for covering the wire.

HAGSTROM MANUFACTURING CO. do not furnish any trim, such as butts, cylinders, lever handles, knobs or escutcheons. Any standard trim hardware to harmonize with the adjoining hardware may be used with these locks.

STANDARD SIZES OF CASEMENT HARDWARE—INCHES

Locks for active leaf						Locks for standing leaf				
No. 100 for cylinder			No. 200 for thumb turn No. 300 latch only			No. 50 handle lock			No. 25 pushlock	
Backset	Total depth	Height	Backset	Total depth	Height	Backset	Total depth	Height	Total depth	Height
7/8	1 7/16	5 1/16	7/8	1 7/16	4 3/4	7/8	1 7/16	3 9/16	1 3/8	3 9/16
1	1 3/4	5 1/16	1	1 3/4	4 3/4	1	1 3/4	3 9/16	.....	.....
1 1/8	1 7/8	5 1/16	1 1/8	1 7/8	4 3/4	1 1/8	1 7/8	3 9/16	.....	.....
1 1/4	2	5 1/16	1 1/4	2	4 3/4	1 1/4	2	3 9/16	.....	.....
1 3/8	2 1/8	5 1/16	1 3/8	2 1/8	4 3/4	1 3/8	2 1/8	3 9/16	.....	.....
1 1/2	2 1/4	5 1/16	1 1/2	2 1/4	4 3/4	1 1/2	2 1/4	3 9/16	.....	.....
1 5/8	2 3/8	5 1/16	1 5/8	2 3/8	4 3/4	1 5/8	2 3/8	3 9/16	.....	.....

All locks furnished with larger backset to order. Backset is figured from lower step of rabbet.

Combination of Locks

Cylinder lock No. 125 with pushlock; No. 150 with handle lock.
Thumb turn No. 225 with pushlock; No. 250 with handle lock.
Latch only No. 325 with pushlock; No. 350 with handle lock.
No. 525 pushlock to suit other manufacturers' locks.
No. 550 handle lock to suit other manufacturers' locks.

Hagstrom Hardware Suitable for Metal Sash

Hagstrom Three and Five-point Locks are also adaptable for metal sash.

Hagstrom Secret Door Latch

A new concealed latch for secret doors and panels. When door is closed no hardware is visible. No push button is used.

Simple in Operation—To close push lightly on the door; to open push hard. Door moves ⅛ in. When pressure is removed door swings open. If door must be operated from both sides a handle to pull the door is placed on the back. On tightly fitting panels it is sometimes necessary to use auxiliary springs to overcome the effect of vacuum. Shrinking or swelling of the door does not affect operation as long as the door swings free. Latch may be applied to right or left-hand doors without changing mechanism.

Easily Applied—By screwing on the door stop. May be let in if desired. Channel strike furnished, is screwed on door without cutting. If channel strike is objectionable, flat strike can be supplied.

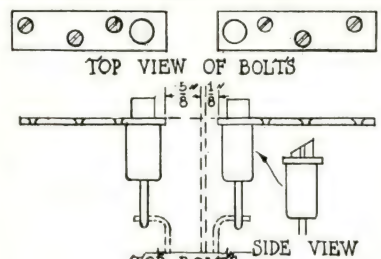
Hagstrom Friction Catch

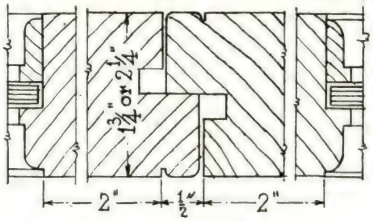
Designed for cupboards, cabinets, closets, wardrobes, refrigerator doors, in fact, anything on hinges. Made in three sizes—Nos. 10, 10½ and 11. Nos. 10 and 10½ are designed for small doors in cupboards, medicine closets, cabinets, small refrigerator doors, etc. No. 11 is designed for wardrobe doors, casement windows, screen doors, etc.

This catch prevents warping of new doors, and doors already warped are, by its action, drawn back to normal.

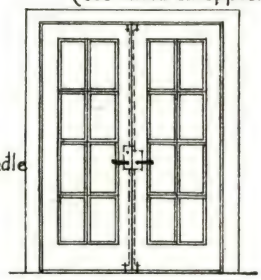
It prevents rattling of doors and hinged windows. It prevents the entrance of dust, by holding doors and windows tightly closed.

Remains effective even after door has shrunk considerably.



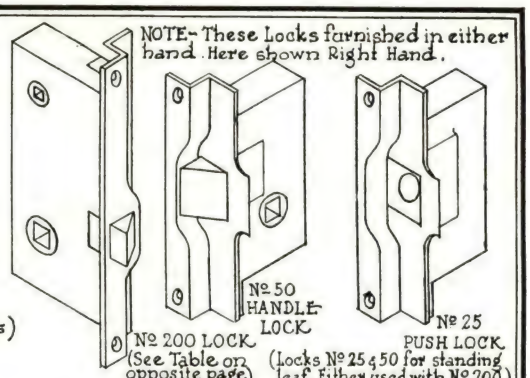


DETAIL AT MEETING STILES SHOWING STANDARD THICKNESS AND WIDTH OF STILES (See Table on opposite page for Backsets)

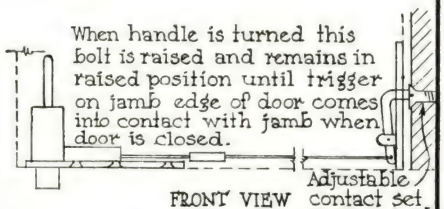




DETAIL SHOWING BRASS CHANNEL GUIDE

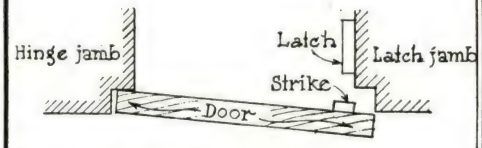


ISOMETRIC VIEWS OF LOCKS

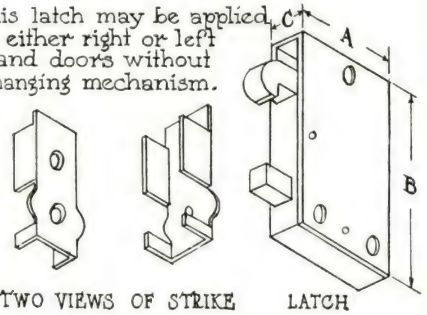


DETAILS OF HAGSTROM FIVE POINT LOCK

This Lock is also applicable to single doors as a Three Point Lock



This latch may be applied to either right or left hand doors without changing mechanism.



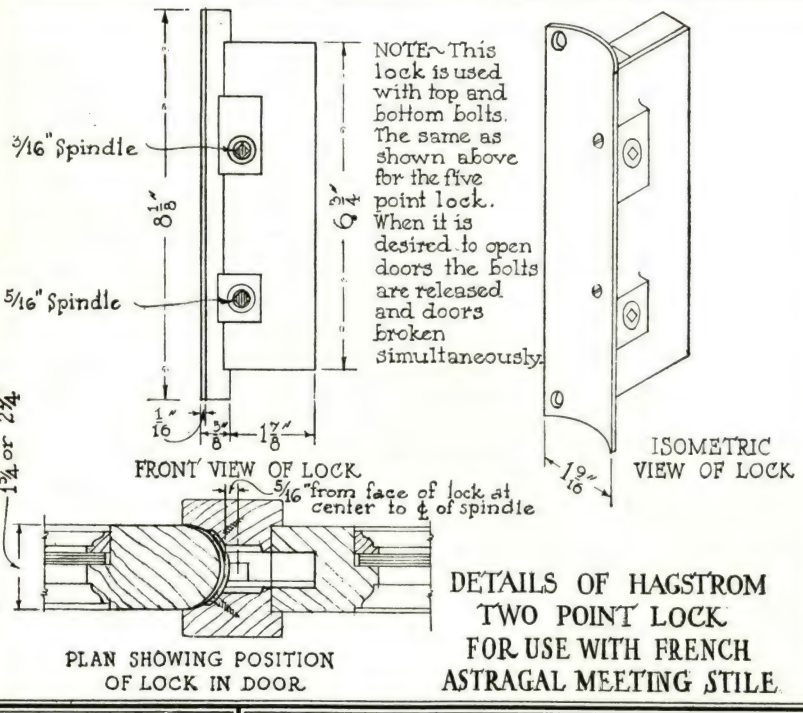
TWO VIEWS OF STRIKE LATCH

TABLE OF DIMENSIONS

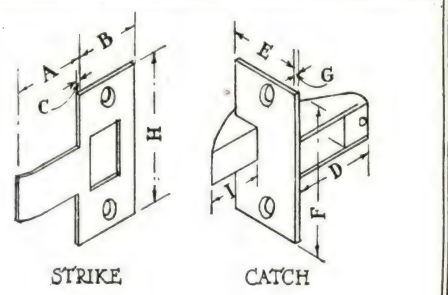
NO'S.	A	B	C	MAX. PANEL SIZES
1	3/4"	1 5/8"	1/4"	2 Sq. ft.
2	1 1/16"	2 3/16"	1 1/4"	6 " "
3	1 1/16"	2 3/16"	3/8"	10 " "
4	1 1/4"	2 7/8"	7/16"	15 " "
5	1 3/8"	3 7/16"	9/16"	Over 15 sq. ft.

NOTE:~ When panel is in closed position no part of the latch is visible. A firm inward pressure exerted on the face of panel springs latch.

HAGSTROM SECRET DOOR LATCH



DETAILS OF HAGSTROM TWO POINT LOCK FOR USE WITH FRENCH ASTRAGAL MEETING STILE



STRIKE CATCH

TABLE OF DIMENSIONS

NUMBER	A	B	C	D	E	F	G	H	I
10"	7/16"	9/16"	1/32"	1"	3/8"	1 1/4"	3/32"	1 1/2"	5/16"
10 1/2"	3/4"	5/8"	1/16"	1 1/4"	9/16"	1 7/16"	3/32"	1 9/16"	3/8"
11"	3/4"	11/16"	1/16"	1 7/16"	5/8"	1 5/8"	1/8"	1 5/8"	7/16"

DETAILS OF HAGSTROM FRICTION CATCH

HAGSTROM MANUFACTURING COMPANY	DETAILS SHOWING APPLICATION & OPERATION OF HAGSTROM HARDWARE	SCALE: 3"&6" EQUALS 1'-0" DATE: NOV. 29	DRWG. 1

Hagstrom Light Trap Lock

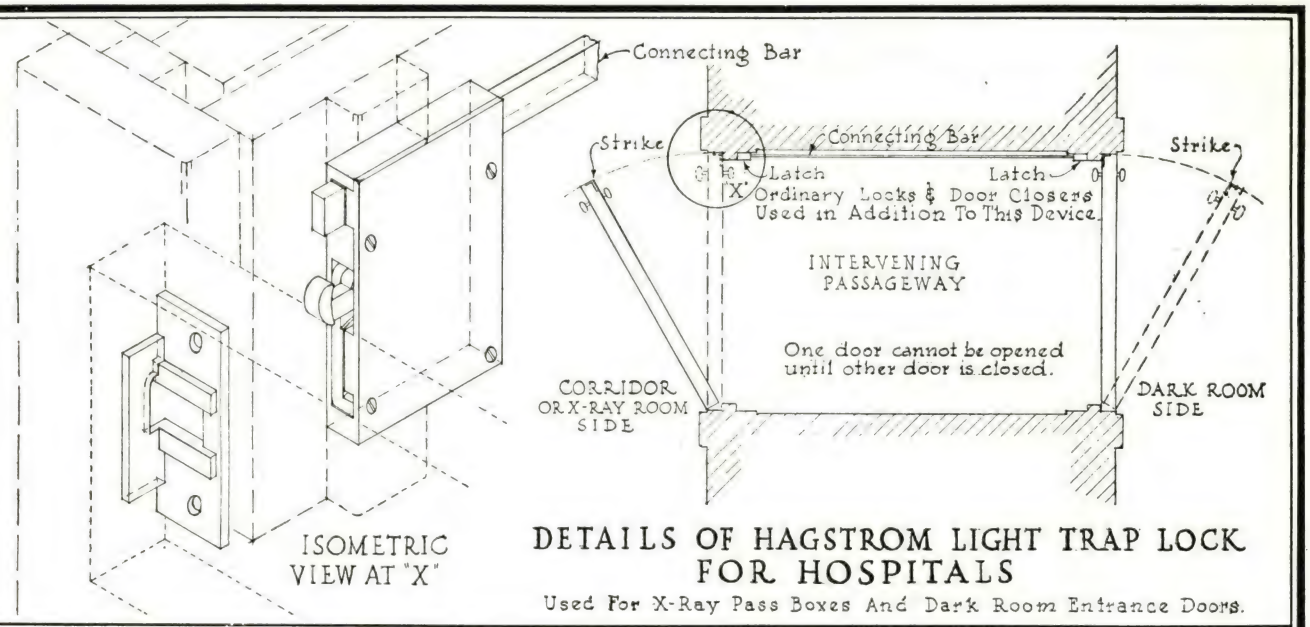
This automatic locking device prevents both doors connecting corridor or X-ray room and dark room from being opened at the same time.

When one door is opened, this Hagstrom Lock, through its connecting bar, locks the other door securely. Not until the opened door is closed tightly does the connecting bar shift to release the locked door. As soon as this door is opened, the opposite one is locked immediately.

In addition to this device, ordinary locks and door closers are used.

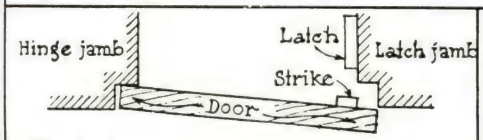
Hagstrom Secret Door Lock

An easily operated lock designed for secret panels and doors opening outward. When panel is closed, no part of this lock is visible. The lock, itself, is set in the jamb; the strike in the panel, flush with the inside. The key, which is thin, is inserted between the panel and jamb. Key inserted at point A and raised to point B, as shown on the detail, unlocks door. Adjustment of trigger C with bolt pressed back renders lock inoperative and cabinet accessible without key. Readjustment of trigger C releases tongue so that when door is closed it locks automatically.



DETAILS OF HAGSTROM LIGHT TRAP LOCK FOR HOSPITALS

Used For X-Ray Pass Boxes And Dark Room Entrance Doors.



This latch may be applied to either right or left hand doors without changing mechanism. If book strike is objectionable, flat strike can be supplied.

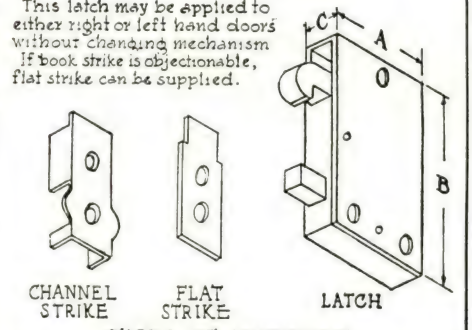


TABLE OF DIMENSIONS

NO'S.	A	B	C	MAX. PANEL SIZES
1	3/4"	1 5/8"	1/4"	2 Sq. ft.
2	1 1/16"	2 3/16"	5/16"	6 " "
3	1 1/16"	2 3/16"	3/8"	10 " "
4	1 1/4"	2 7/8"	7/16"	15 " "
5	1 3/8"	3 7/16"	9/16"	Over 15 sq. ft.

NOTE.~ When panel is in closed position no part of the latch is visible. A firm inward pressure exerted on the face of panel springs latch.

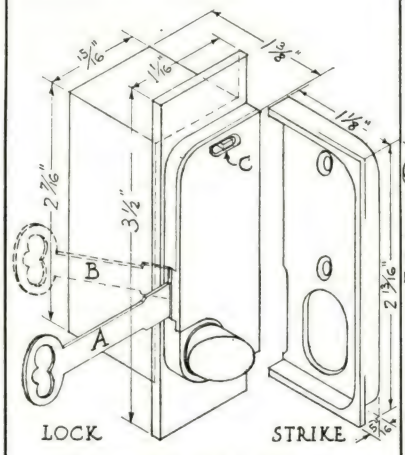
HAGSTROM SECRET DOOR LATCH

-NOTE-

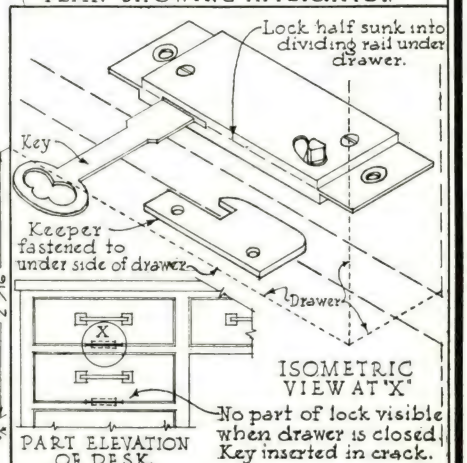
When door is in closed position no part of lock is visible. Key inserted at A and raised to B unlocks door. Adjustment of trigger C with bolt pressed back renders lock inoperative and cabinet accessible without key. Readjustment of trigger C releases tongue so that when door is closed it locks automatically.



PLAN SHOWING APPLICATION



HAGSTROM NO.7 SECRET DOOR LOCK



HAGSTROM DESK DRAWER SECRET LOCK

HAGSTROM M'F'G. CO.	DETAILS OF HAGSTROM LIGHT TRAP LOCK AND SECRET LOCKS	PLATE 2

ANDREW HOFFMAN MFG. CO.

Casement Window Hardware

616 Straus Building, CHICAGO, ILL.

DISTRIBUTERS IN ALL LARGE CITIES

Products

SLIDING CASEMENT HARDWARE FIXTURES.
IMPROVED CREMONE BOLT, pages 4 and 5.
GRIPLOX SURFACE BOLT, page 5.

Also manufacturers of Ceiling Light Sash Fixtures and Griplox Casement fastener. Literature on request.

For Ideal School Map and Display Rail, see Manufacturers' Index.

SLIDING CASEMENT HARDWARE FIXTURES

Description—Hoffman Casement Fixtures (United States and foreign patents) are for outward or inward opening windows up to a maximum size of 2 ft. 2 in. x 7 ft. per sash. They support the sash entirely from the head and they are not hinged to either jamb, which method provides many advantageous features.

Advantages—(1) The sash are firmly attached to the frame at the top by brass rollers engaging in a metal channel track, and at the bottom by guide blocks on a metal angle track.

(2) Top support prevents binding from swelling sash because sufficient clearance is left at the sill without affecting weathering.

(3) Stops both inside and outside at the jambs and three butts prevent warping and aid weathering.

(4) All cleaning is done from inside.

(5) The windows are weathertight.

(6) Ventilation. By slightly opening the window, a flue is created that draws out at the top all impure air which is automatically replaced with fresh air at the bottom without any direct draft.

(7) The sashes may be opened to any position up to the entire size of the frame at either jamb or at any point between the jambs and need no adjusters because one sash acts as a stay or brace to the other.

(8) The windows are designed by the architect and specified under carpentry or millwork the same as any other window. This company furnishes hardware only.

(9) Sash in series may be used in frames of any width omitting all mullions, providing head is securely bolted to lintel to prevent sagging. (We have a special detail sheet suggesting several methods of head support.)

(10) Sash in even numbers may be 1⅜, 1¾, or 2¼ in. thick. Single sash or sash in odd numbers must be 1¾ or 2¼ in. thick. Hardware for inward opening sash is made for sash in pairs only; details on request.

Adaptability—Hoffman Casement Fixtures are strong and serviceable, will outlast ordinary window hardware, installation is simple and because windows so equipped combine all good features of all other types of windows they are adapted for typical use in any building, public or private.

Hardware Furnished—The fixtures are packed in complete sets containing all necessary hardware for sash in pairs or for single sash. Track is included up to 2 ft. for each sash. Wider sash require extra track.

Details of hardware will be furnished upon request. Cremone bolts should be used when the top of the sash is more than 7 ft. from the floor.

Grades and Prices—All prices net f.o.b. Chicago. Distribution through agencies. Stock finish: dull brass.

No. 1—Galvanized tracks; galvanized top hangers with brass wheels; galvanized bottom guides with brass swivel pins; *plated steel* butts, fasteners and handle. Stay arms for single sash, galvanized. For pairs of sash, per set—$5.00. For single sashes, per set—$4.50. For cremone bolt (steel) add $1.00.

No. 2—Same as No. 1 excepting butts, fasteners and handle are solid brass, tumbled finish (not hand polished). For pairs of sash, per set—$7.00. For single sashes, per set—$6.00. For cremone bolt (brass) add $1.50.

No. 3—Same as No. 2 excepting that sill track is *solid brass,* and butts, fasteners and handle are *solid brass,* hand polished. For pairs of sash, per set—$9.00. For single sashes, per set—$8.00. For cremone bolt (brass) add $1.00.

No. 4—All parts *solid brass.* For pairs of sash, per set—$12.00. For single sashes, per set—$10.50. For cremone bolt (brass) add $1.00.

Also additional grades for both outward and inward opening windows.

Information Required with Orders—(1) Exact width of opening *jamb to jamb* (not between stops); (2) number of sash in each opening; (3) if single sash are used, state whether they swing to the right or left when facing them from inside the room. (4) Give the grade of hardware and the finish desired. (5) Sash thickness and approximate height is desirable, but not necessary. (6) State if cremone bolt is wanted.

Specification Form—All window frames and sash shall be milled according to details and the contractor shall exercise particular care to set the frames perfectly level and square and shall bolt the head to the lintel at intervals not exceeding 4 ft. wherever the span is greater than 4 ft. The sash shall be hung with Hoffman Casement Fixtures (here insert grade number) as manufactured by the ANDREW HOFFMAN MFG. CO., 616 Straus Building, Chicago, in exact accordance with details and directions furnished by the manufacturers.

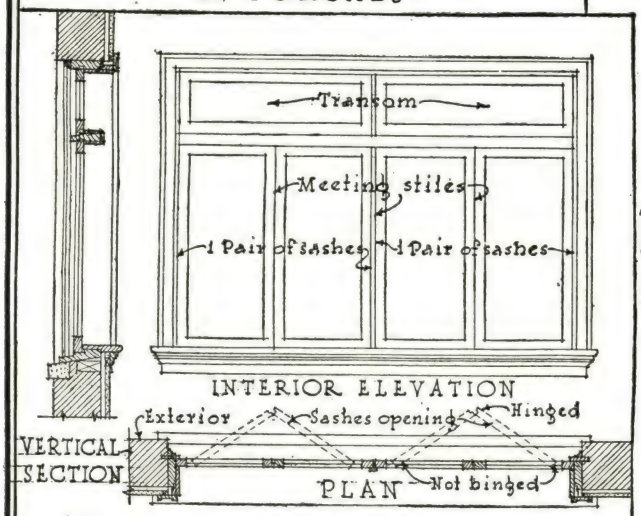


Theodore Roosevelt Junior High School, San Diego, Cal.

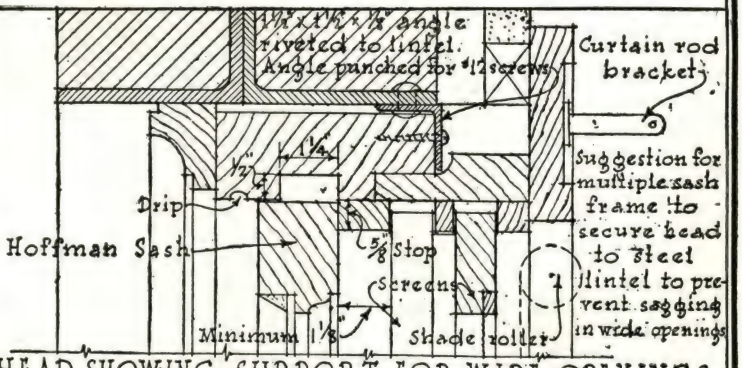
In wide openings frame head should be supported at least every 4 ft. and wood sills anchored down every 4 ft. For suggestions see upper right-hand corner following page.



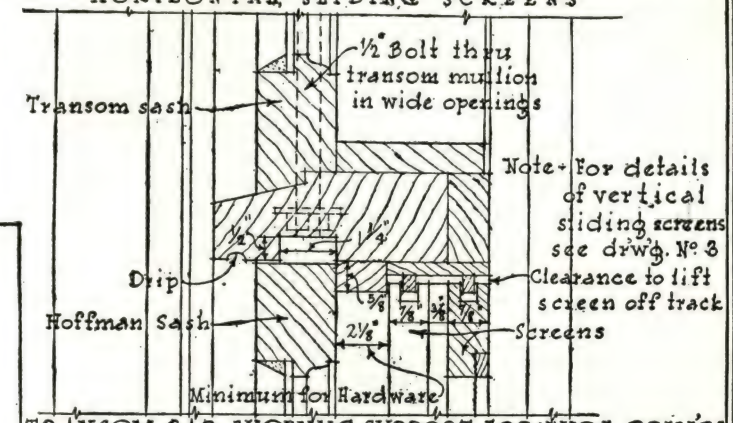
HOFFMAN CASEMENTS INSTALLED IN PORCHES



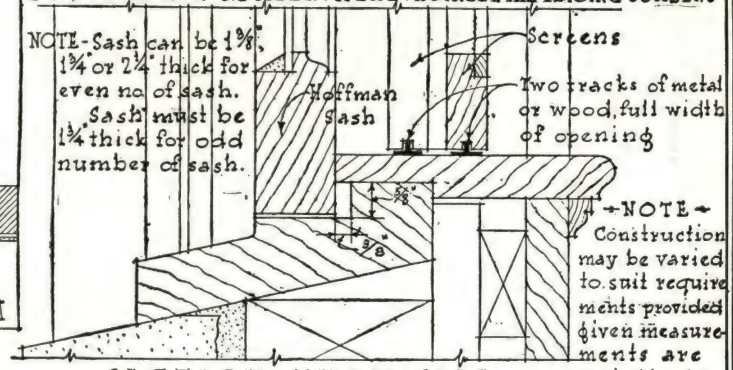
¼" SCALE DETAIL OF FOUR SASH WINDOW WITH MEETING STILE & TRANSOM



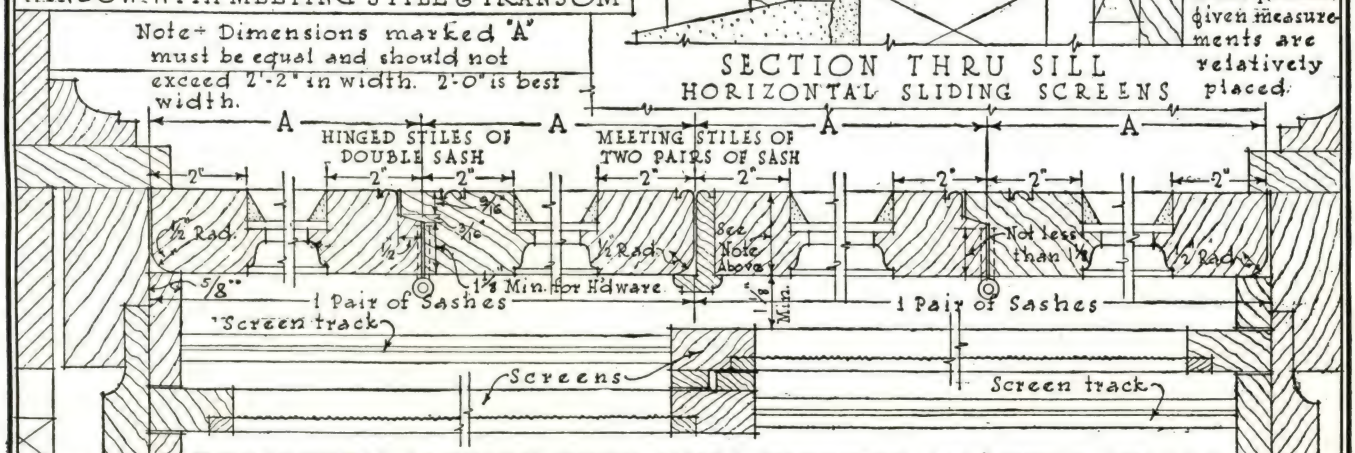
HEAD SHOWING SUPPORT FOR WIDE OPENINGS HORIZONTAL SLIDING SCREENS



TRANSOM BAR SHOWING SUPPORT FOR WIDE OPENGS & ALTERNATE SCREEN HEAD-HORIZONTAL SLIDING SCREENS



SECTION THRU SILL HORIZONTAL SLIDING SCREENS

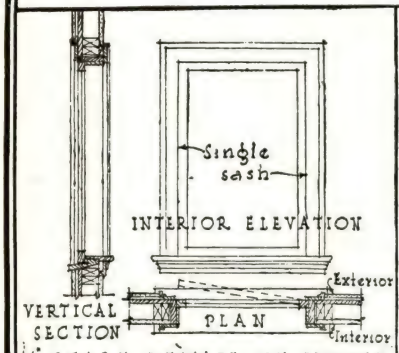


HORIZONTAL SECTION THRU JAMBS SHOWING MEETING STILES

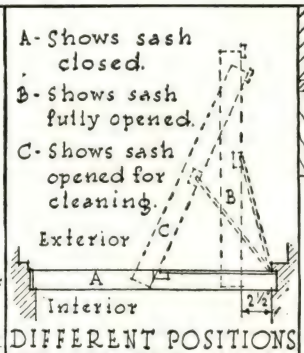
THESE DETAILS FOR EVEN NUMBER OF SASH ONLY. SEE DRWG. #3 FOR ODD NO. OF SASH

DRAWN BY SWEET'S CATALOGUE SERVICE, INC.	DETAILS OF MILLWORK FOR HOFFMAN CASEMENTS AS INSTALLED IN MASONRY WALL	SCALE ¼" & 3" EQUALS 1'-0" DATE-JULY-20	DRWG. 2

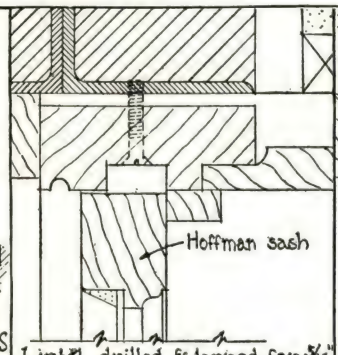
In wide openings frame head should be supported as shown at right—or equivalent. In wide openings wood sills should be anchored down every 4 ft.



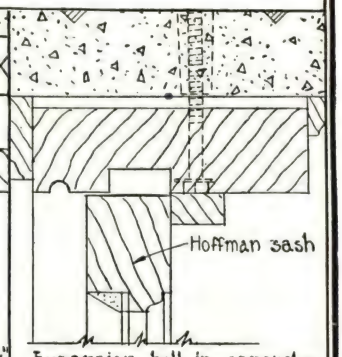
¼ SCALE DETAIL OF SINGLE SASH WINDOW



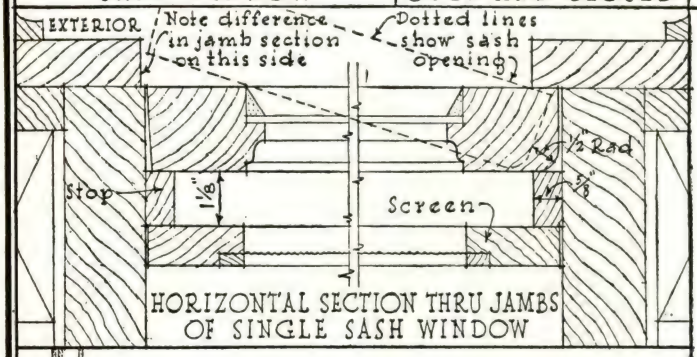
DIFFERENT POSITIONS OF SINGLE SASH OPEN AND CLOSED



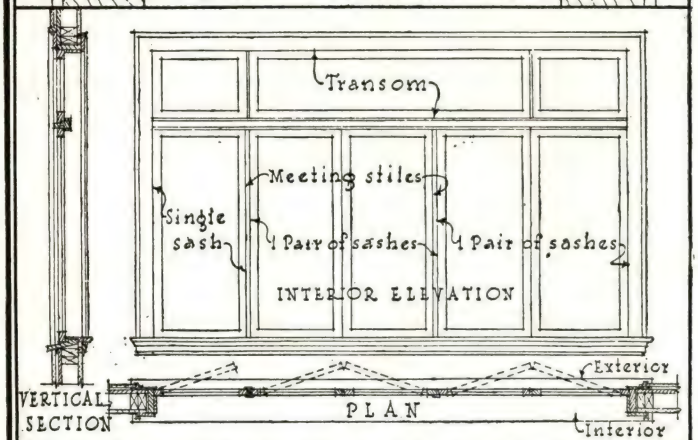
Lintel drilled & tapped for 5/16" flat head stove bolts.



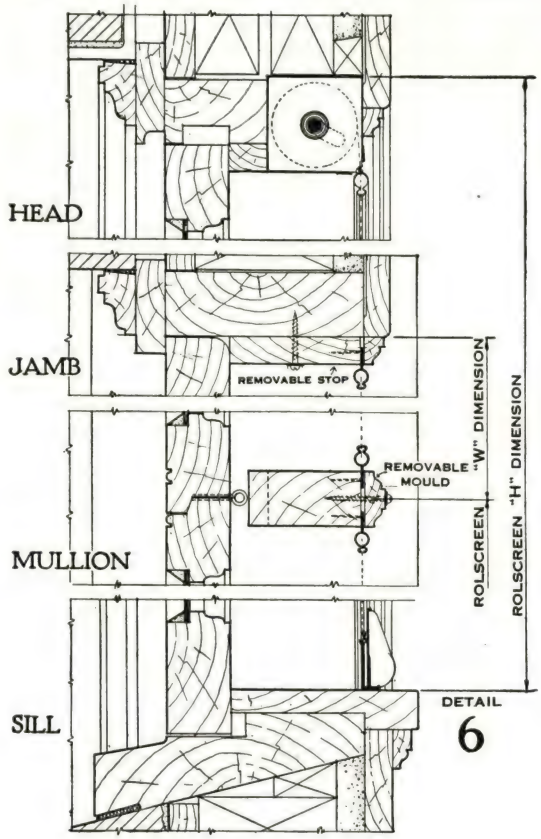
Expansion bolt in concrete.



HORIZONTAL SECTION THRU JAMBS OF SINGLE SASH WINDOW



¼" SCALE DETAIL OF FIVE SASH WINDOW WITH MEETING STILES & TRANSOM

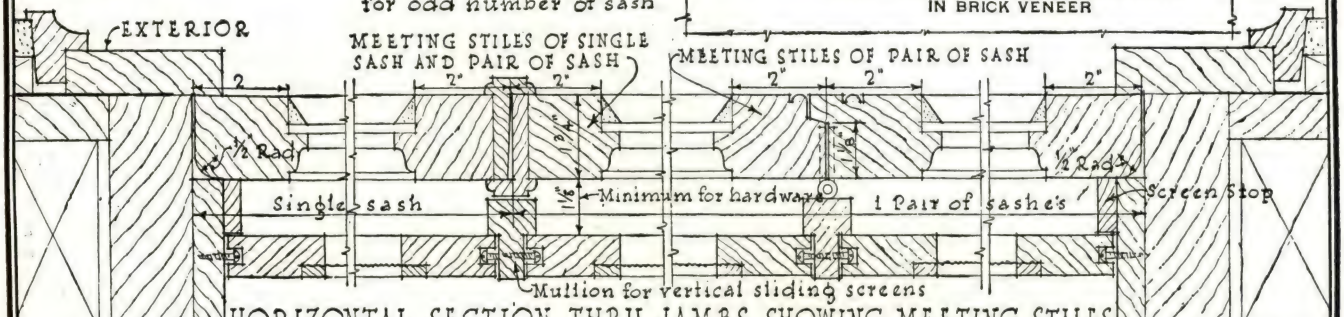


ROLSCREEN

WITH "HOFFMAN" WOOD CASEMENTS IN BRICK VENEER

NOTE - For detail of meeting stiles of two pairs of sash see drawing #2.

Sash can be 1⅜", 1¾ or 2¼" thick for even number of sash. Sash must be 1¾ thick for odd number of sash



HORIZONTAL SECTION THRU JAMBS SHOWING MEETING STILES

THESE DETAILS FOR ODD NUMBER OF SASH ONLY. SEE DRWG. #2 FOR EVEN NO. OF SASH

DRAWN BY SWEET'S CATALOGUE SERVICE, INC.	DETAILS OF MILLWORK FOR HOFFMAN CASEMENTS AS INSTALLED IN FRAME WALL	SCALE ¼" & 3" EQUALS 1'-0" DATE-JULY 20	DRWG 3

COMBINATION CREMONE BOLT

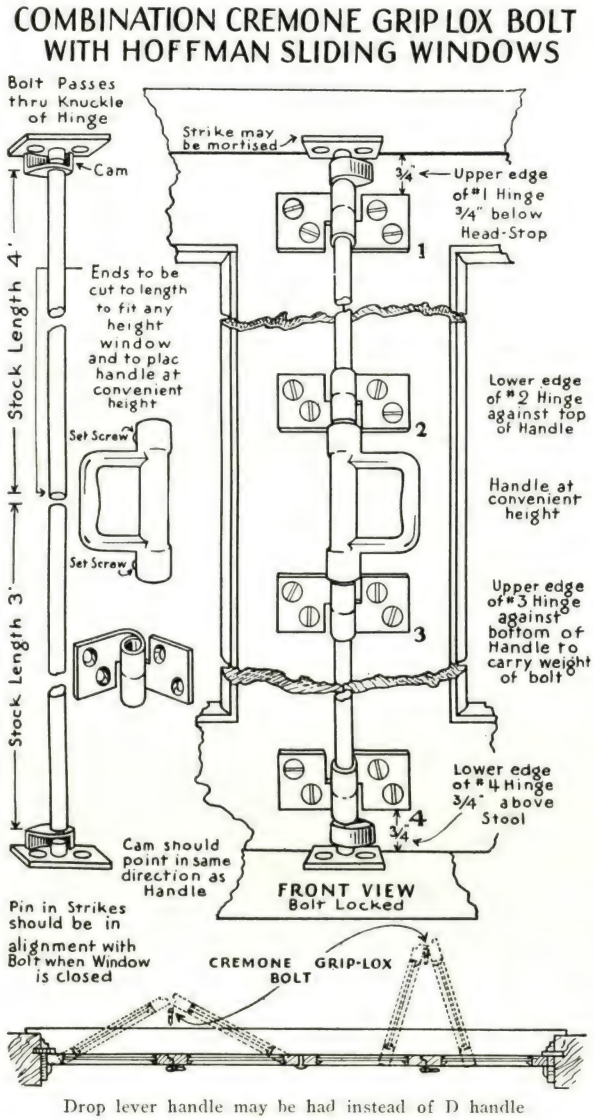
For Hoffman Sliding Casement Windows—Used on Outswinging Only

The Hoffman Combination Cremone Bolt combines the functions of hinges, fasteners, and pull handle, and is especially designed for use with outswinging Hoffman Sliding Casement Windows, in pairs only. Single sash and inswinging sliding casements should be equipped with the GripLox Cremone Bolt as shown on the following page.

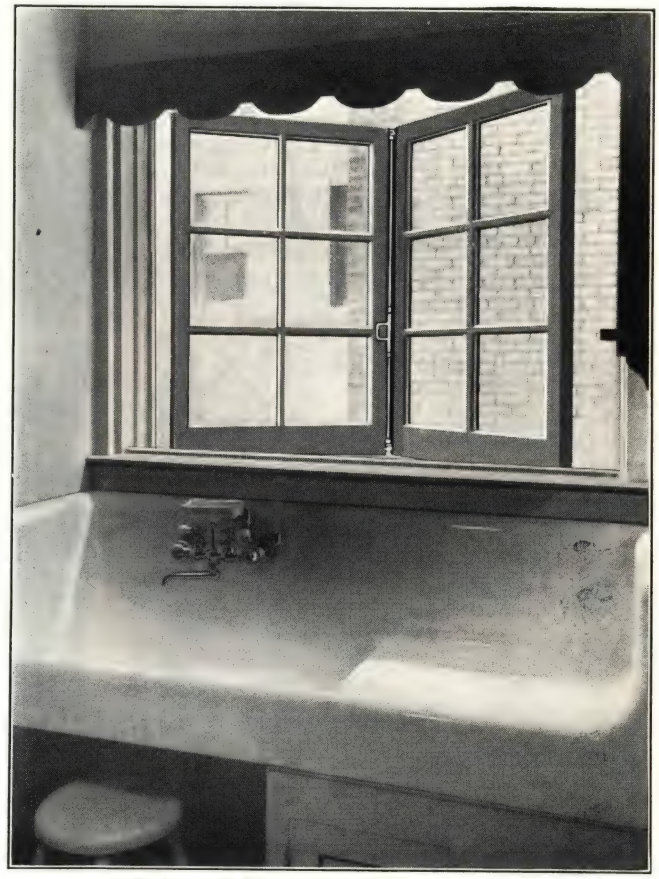
The Hoffman Sliding Casement Windows, when equipped with this combination cremone bolt, are drawn in tightly and locked top and bottom in one operation by a quarter turn on a handle located at a convenient height above the floor.

This combination bolt consists of cams, operating on the GripLox principle, at the top and bottom of rods which are joined in a cast bronze handle, the whole assembly being supported by brackets which also act as hinges for the casements.

The use of this full length bolt makes the window easy to open or close, simplifies ventilation control, and closes the window so tightly as to make it weatherproof even in exposed positions.



Drop lever handle may be had instead of D handle



A Pair of Outswinging Sliding Casements

Especially when windows are difficult to reach, as over a sink (see illustration) or over a radiator, is the unique ease of operation of the Hoffman Sliding Casement Window and combination bolt appreciated. Cremone bolts should be used when the top of the sash is more than 7 ft. from the floor.

The advantages realized by the use of the Hoffman Combination Cremone Bolt are summed up in these points:

(1) A positive horizontal force is applied to the sash, drawing them in tightly, even though they may be warped or heavily weather-stripped.

(2) The mechanism is simple and positive with no gears to wear or get out of order.

(3) There is no disfiguring wear on visible surfaces due to the fact that the bolt does not slide vertically through sleeves.

(4) The bolt is stocked in 7-ft. lengths and may be cut down on the job to any size, to fit even the shortest windows. The installation is very simple; there is no mortising necessary and the hack-sawed ends of the rods are concealed within the handle.

(5) The price is very moderate.

The Hoffman Combination Cremone Bolt is made of solid brass or plated steel. The bolts are stocked with a 4-ft. upper section and a 3-ft. lower section. The stock bolt therefore may be used on casements up to 7 ft. high, and the handle may be placed as much as 4 ft. below the top of the sash.

GRIPLOX CREMONE BOLTS

For Single and Double Casements

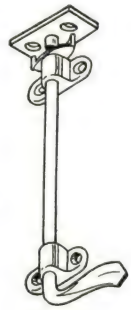
Hoffman Cremone Bolts overcome the usual obstacles to easy closing and secure locking of inswinging or outswinging casements by use of the Grip-Lox principle. Cremone bolts should be used when the top of the sash is more than 7 ft. from the floor. For sash or doors less than 7 ft. the surface bolt in 6 or 9-in. length as shown at the right-hand margin of this page should be used.

On Double Outswinging Casements—With rabbeted meeting stiles—see upper illustration—the cremone bolt is applied to the sash that has the outer rabbet projection. When the other sash is closed first, the cremone bolt draws both sash tightly shut, top and bottom at once, by a quarter turn of a handle at a convenient height above the floor.

On Double Inswinging Casements—With rabbeted meeting stiles, one bolt applied to the sash that has the inner rabbet projection will clamp both sash shut. If, as in the lower right illustration, the meeting stiles are not rabbeted or fitted with an astragal, a bolt is applied to each sash. Notice that the unlocked sash is warped at the top. This warped sash is easily and tightly closed with the Hoffman Cremone Bolt.

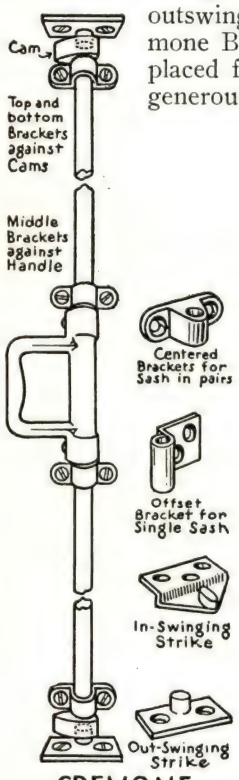


Double Outswinging Casements



GRIP LOX SURFACE BOLT for Casements, In- and Out-Swinging, French Doors and Bed Closet Doors 6" and 9" long

On Single Casements—Inswinging or outswinging. By attaching the Hoffman Cremone Bolt with offset brackets, the handle is placed far enough from the side jamb to give generous clearance for the fingers.



CREMONE GRIP LOX BOLT



Single Outswinging Casements



Above:

Double Inswinging Casements

Note: The stock length of the bolt is 7 ft. It is easily cut down on the job to fit any window. Installation is simple and no mortising is required

G. F. S. ZIMMERMAN CO., INC.

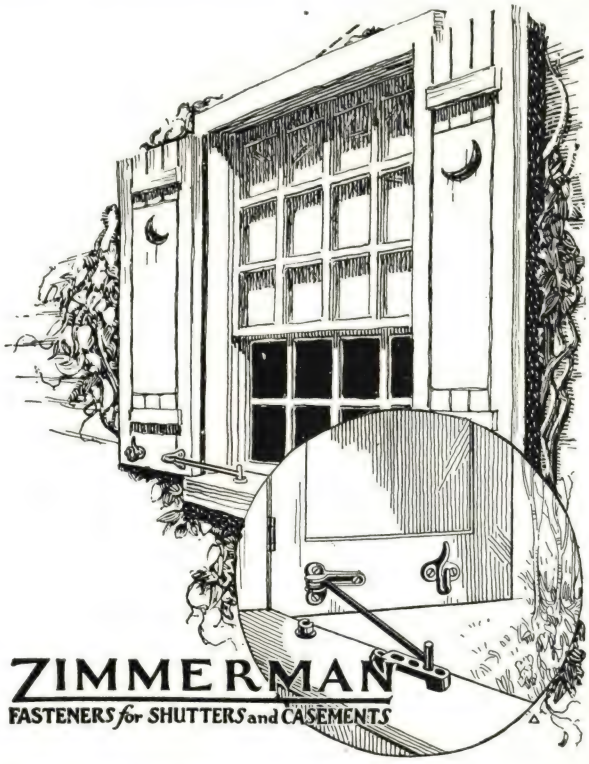
Manufacturers of Fasteners for Shutters and Casements

FREDERICK, MARYLAND

ZIMMERMAN FASTENERS MAKE SHUTTERS USEFUL AS WELL AS ORNAMENTAL

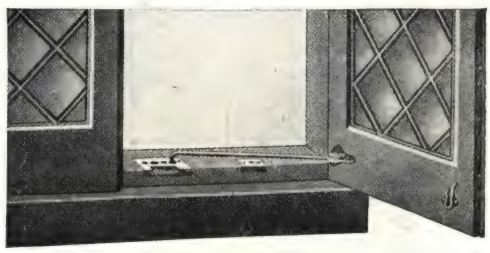
Zimmerman Fasteners make shutters conveniently useful by locking them positively, without rattle, in the closed position as well as wide open back against the wall, and in various intermediate positions. And they can be changed from one position to another quickly and conveniently.

With the head of the adjusting bar in the single hole sill cup, the shutter is held back against the wall with no possible rattle. The holes of the sill plate permit holding the shutter in various



bowed positions. Placing the adjusting bar through the C-loop on the shutter with the head of the bar in one of the holes in the sill plate locks the shutter closed so that it can not be opened from without.

Made of iron and steel, they do their work efficiently for the lifetime of the house.



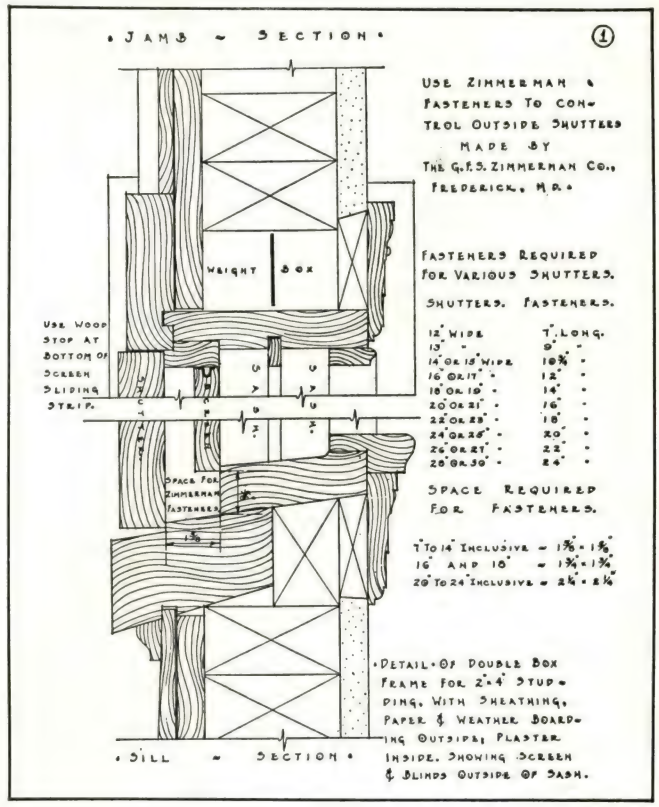
Furnished either galvanized or in black enamel. They are often painted to match the shutters.

Simple in construction and operation.

Inexpensive, strong and efficient.

Zimmerman Fasteners are often used as casement operators. Sill fixtures to mortise flush into the sill are supplied specially for this purpose when specified.

Zimmerman Shutter Fasteners, by a special detail, can be used with full length outside screen or storm sash. Full-size detail will be sent upon request.

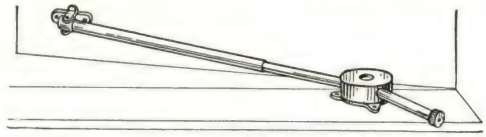


RETAIL PRICE LIST, ZIMMERMAN FASTENERS, PER DOZEN PAIRS

Width of shutter, in.	Size of bar length required, in.	Shutter fasteners	
		Black	Galvanized
12 or less	7	$ 9.00	$12.00
13	9	10.00	13.00
14 or 15	10¾	11.00	14.00
16 or 17	12	12.00	15.00
18 or 19	14	13.00	16.00
20 or 21	16	14.00	17.00
22 or 23	18	16.00	20.00
24 or 25	20	17.00	21.00
26 or 27	22	19.00	23.00
28 or 30	24	20.00	24.00

ZIMMERMAN IMPROVED CASEMENT ADJUSTORS

Zimmerman Improved Casement Adjustors, made of strong brass tubing and brass castings, operate on the sill, through inside screens where desired. A slight turn of the locking nut on the end of the handle releases or engages the friction cap and permits movement of the window by swinging the handle.



Zimmerman Improved Casement Adjustor
Retail price, $2.00 each. Solid brass

ANDERSEN FOUNDRY COMPANY

SASH PULLEY DIVISION of the ANDERSEN FRAME CORPORATION

Manufacturers of Andersen Noiseless Sash Pulleys

BAYPORT, MINN.

Product

NOISELESS SASH PULLEYS.

TRADE-MARK

Noiseless Andersen Sash Pulleys

The exclusive features of the Andersen Noiseless Sash Pulley include the patented noiseless, wearproof axle bearing—an exclusive feature of the pulleys with which all Andersen Double Hung Window Frames are fitted; a specially designed housing to prevent the cord from slipping off the wheel, and reduce air leakage around the cord; and a tongue on the face of the pulley to reduce air leakage through the groove under the wheel.

Unlimited Guarantee

Every Andersen Noiseless Sash Pulley is guaranteed to be noiseless in operation and to function perfectly for an unlimited period.

Laboratory Tests

Tests made at the University of Minnesota of various makes of pulleys resulted as follows:

After tests equivalent to 186 years of ordinary wear, this Andersen pulley was in excellent condition. The engineer in charge stated that "at the end of the test, the bearing appeared to be as good as new" and "the pulley ran very quietly throughout." Of six other types of pulleys in this test, the most enduring operated perfectly less than a year and stopped at about 33 years. Copies of this test will be gladly furnished on request.

Absolutely Noiseless

The axle bushing of the Andersen Noiseless Sash Pulley is of hard white maple permanently saturated with a non-drying lubricant. This lubricant prevents swelling and shrinking with variations of temperature or humidity and it will not ooze or evaporate under 125° F.

Specifications

Material—Cast gray iron.

Wheel—Machine turned.

Groove—Combination U-groove for cord or chain.

Axle—$\frac{5}{16}$-in. diameter. Polished steel.

SIZES AND FINISHES

Diameter of wheel....	2 in.	2¼ in.	2½ in.	3 in.	Finish
Face plate..	1x4⅝ in.	1⅛x5½ in.	1¼x5¾ in.	1¼x6½ in.	
No.....	101	201	301	401	Face polished and entire pulley lacquered.
No.....	102	202	302	402	Electro brass plated housing; polished face; lacquered wheel.
No.....	103	203	303	403	Electro plated bower-barff housing; polished face; lacquered wheel.
No.....	104	204	304	404	Electro nickelplated housing; polished face; lacquered wheel.
No.....	105	205	305	405	Electro bronze plated housing; polished face; lacquered wheel.
No.....	106	206	306	406	Electro cadmium plated housing; polished face; lacquered wheel.
No.....	107	207	307	407	Polished sheet bronze face plate attached to lacquered housing. Lacquered wheel.
No.....	108	208	308	408	Polished sheet brass face plate attached to lacquered housing. Lacquered wheel.
No.....	109	209	309	409	Jet black lacquered housing and wheel; polished face.

Solid bronze, brass or plated wheels furnished on special order.

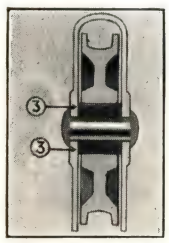
Pulleys individually wrapped and packed in boxes with screws to match finish.

The 100 Series will be furnished in any of the Andersen Master Window Frames except Frame No. 670. Any one of the 300 Series will be furnished in the No. 670 frame if desired.

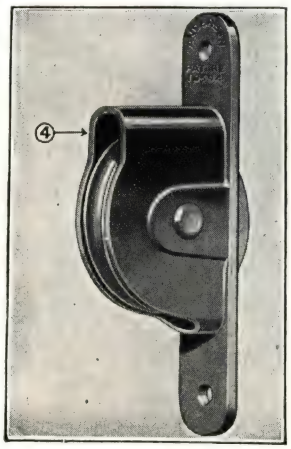
See Manufacturers' Index for catalogue of Frames.

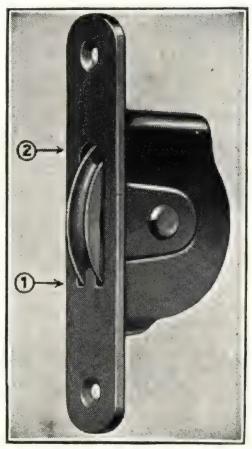
Sample Pulleys Supplied

A sample pulley will be mailed on request.

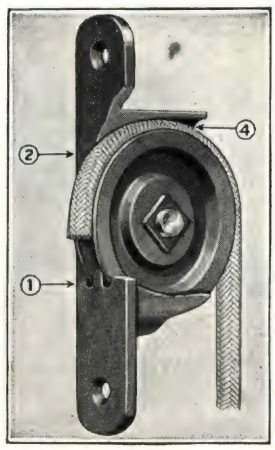


Cross Section of Wheel

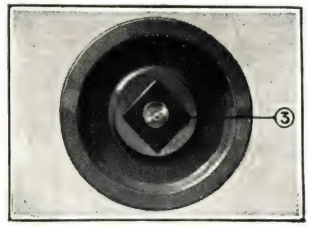




At Right and Center—
Views of Pulley to Show Special Housing Design



At Left—
Cutaway View Showing Housing Features



Pulley Face Showing Maple Bushing

Distinctive Features of Andersen Noiseless Pulleys

(1) Tongue to reduce air leakage through groove under wheel. Patent applied for.

(2) Specially designed housing to reduce air leakage above cord. Patent applied for.

Other patents pending.

(3) Hard maple noiseless and wearproof bushing. Patent re-issue No. 16594.

(4) Specially designed housing to prevent the sash cord from slipping off the wheel or catching.

CALDWELL MANUFACTURING CO.

Sash Balances and Door Holders

MAIN OFFICE AND FACTORY
56 Industrial Street, ROCHESTER, N. Y.

BRANCH OFFICES
CHICAGO, ILL., 155 No. Union Street
PHILADELPHIA, PA., 525 Commerce Street

Products

Manufacturers of CALDWELL SASH BALANCES; VERTICAL, JUNIOR and EMPIRE DOOR HOLDERS.
Also other Hardware Specialties.

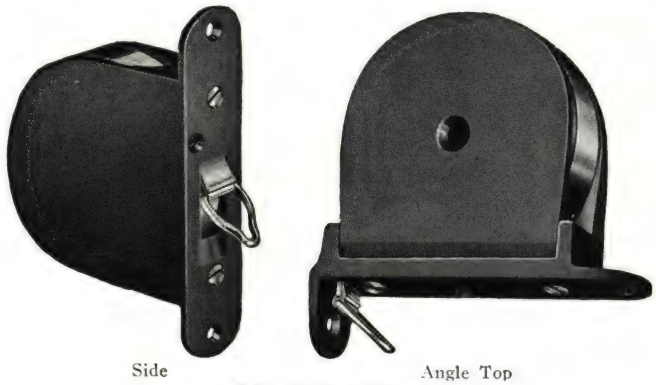
Caldwell Sash Balances

Have been made by us for the past 42 years. They are made of the best material, by workmen thoroughly experienced in the art of producing sash balances with uniform tension, insuring a perfect counterbalance at all points of the sash.

Top Balances—Enable the architect to make the narrowest possible mullion, allowing the use of narrow trim, giving the effect of casements in rows of double hung sash.

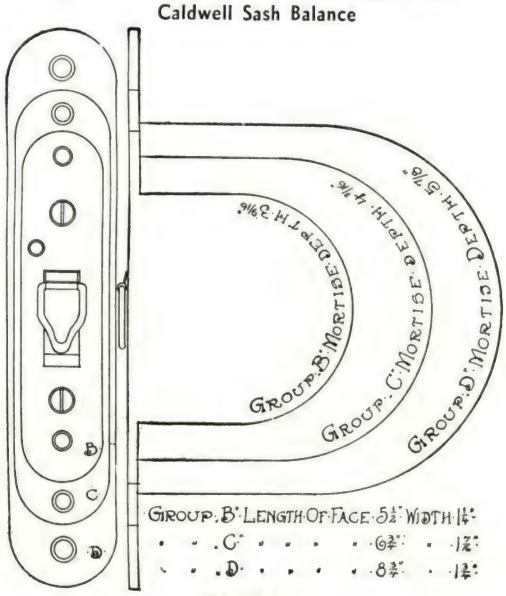
Uniform Mortises—Cut at the mill, reduce cost of installing.

Quality and Durability—Proved by years of satisfactory service.



Side Angle Top

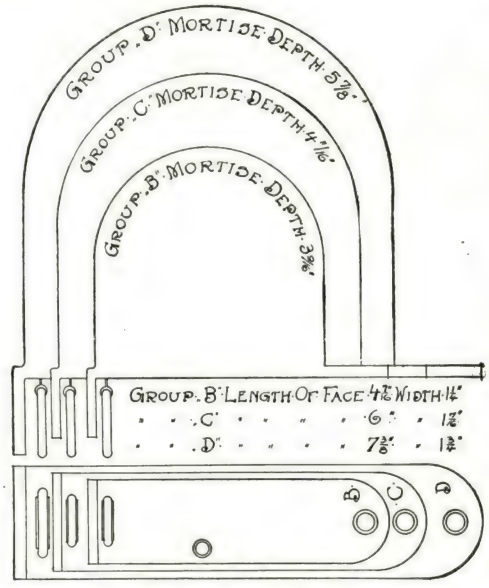
Caldwell Sash Balance



Side Balance
Measurements on outline are full size

Guarantee—Caldwell sash balances are guaranteed for 15 years.

Literature—Send for catalogue, "Suggestions for the Present Day Architect."



Top Balance for Mullion Windows
Measurements on outline are full size

Caldwell Vertical Door Holders

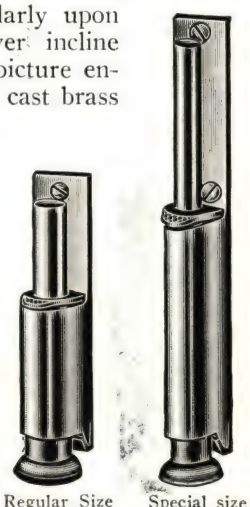
Of strongest construction; made in all finishes; have no screw ears.

A bracket affixes the holder immovably to the door, and gives strength at the base of holder where it is most required. Our *special large vertical door holder* with 4¼-in. drop is recommended for use on heavy outside doors, particularly upon vestibule doors, which open over incline floors, such as theaters, moving picture entrances, etc. Large size made in cast brass and bronze metal only.

Pressers are made of cold rolled rods, ⅝-in. diam. The rubbers are the *original cup shape,* reinforced with hard leather gaskets, which prevent the rubbers from being cut and torn.



Rubber for Caldwell Vertical Door Holders
(Full size)



Regular Size 1¼-in. Drop Special size 4¼-in. Drop

Caldwell Vertical Door Holders

CLEVELAND LOCK WORKS

FORMERLY COLUMBIAN LOCK DIVISION

Manufacturers of Sash Pulleys

1290 East 53rd Street, CLEVELAND, OHIO

EASTERN REPRESENTATIVE: Sargent Building Specialties Co., 16 Warren Street, NEW YORK, N. Y.
SOUTHERN REPRESENTATIVE: John C. Brill Co., 1508 Masonic Temple Building, NEW ORLEANS, LA.

OFFICES OF AGENTS IN PRINCIPAL CITIES

CLEVELAND QUALITY PULLEYS

The design, material and workmanship of Cleveland Pulleys is of the best. That is why they are unqualifiedly guaranteed to give satisfactory service wherever installed. Made in two general styles—Side Sash and Overhead Sash (removable type). When ordering, state the finish, bearing and groove desired.

CLEVELAND SIDE SASH PULLEYS

Case—Made of cast gray iron.

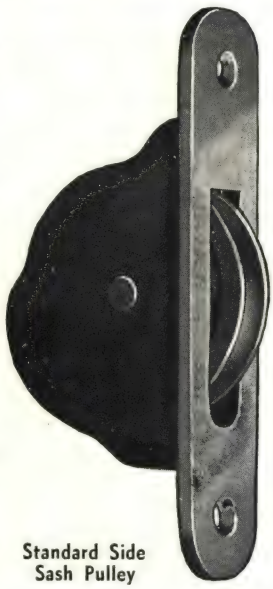
Wheels—Made of cast gray iron, accurately machine turned. They may also be made of cast bronze or brass when so ordered. The wheels run true.

Grooves—Combination rounded grooves, suitable for either cord or chain, are regularly furnished on all side pulleys. Double-square grooves, suitable for chain only, can be furnished when so ordered.

Axles—Cold rolled steel is standard. Brass or gunmetal axles can be furnished when so ordered.

Bearings—Plain axle, roller bearing or ball bearing. Bronze, steel or noiseless wood bushing.

Faces—Cast iron, finished to exact size. Cast or wrought bronze metal faces can be furnished if desired spun through screw holes, making it impossible for the face to become loose.



Standard Side Sash Pulley

Washers—The roller bearing type have antifriction washers and are noiseless.

Mortises—On account of the design, mortises are quickly and easily made.

Standard Finishes—

0—No finish—plain.
01—Lacquered only—not finished.
02—Polished and lacquered.
12—Bright brass.
13—Dull brass, electro-plated.
1D—Dull size, electro-plated.
1ST—Statuary bronze (furnished only on wrought bronze metal faces).
33—Dead black (imitation bower barff).
5—Stainless steel metal face.

Specification Data—

2 -in. wheels for up to 40-lb. sash—100 series.
2¼-in. wheels for up to 100-lb. sash—200 series.
2½-in. wheels for up to 150-lb. sash—300 series.
3 -in. wheels for up to 150-lb. sash—400 series.

CLEVELAND SASH PULLEYS FOR DOUBLE HUNG WINDOWS

Cast Iron Faces				Wrought Brass or Bronze Metal Faces			
Catalog No.	Wheel size, inches	Axle size, inches	Face size, inches	Catalog No.	Wheel size, inches	Axle size, inches	Face size, inches
100	2	3/8	1⅛ x 5	D—106	2	3/8	1⅛ x 5
*200	2¼	3/8	1⅛ x 5	*D—206	2¼	3/8	1⅛ x 5
*220	2¼	3/8	1⅛ x 5½	*D—226	2¼	3/8	1⅛ x 5½
300	2½	3/8	1¼ x 5¾	D—306	2½	3/8	1¼ x 5¾
320	2½	3/8	1¼ x 6	D—326	2½	3/8	1¼ x 6
400	2½ x ½	3/8	1¼ x 6	D—406	2½ x ½	3/8	1¼ x 6
420	3 x ½	3/8	1¼ x 6½	D—426	3 x ½	3/8	1¼ x 6½

*2½-in. wheel furnished at slight extra cost.



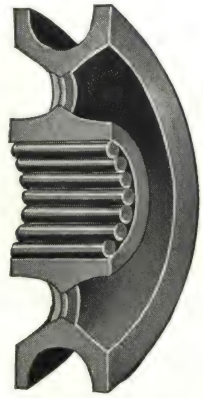
Combination Groove for Cord or Chain



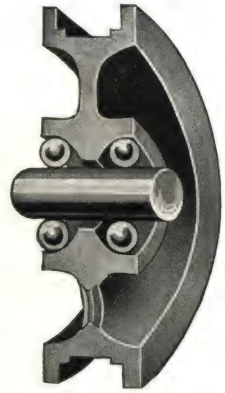
Double Square Groove for Chain only



Plain Axle



Roller Bearing



Ball Bearing

CLEVELAND OVERHEAD SASH PULLEYS (REMOVABLE TYPE)

Used in mullion windows where insufficient space is provided between windows to take care of weights; also where a large area of glass is desired and reduced width of mullion. Weights are carried at sides of windows.

Cleveland Overhead Sash Pulleys have been installed by contractors in various buildings erected under the control of the Supervising Architect's Office of the Treasury Department, Washington, D. C.

Case—Made of cast gray iron.

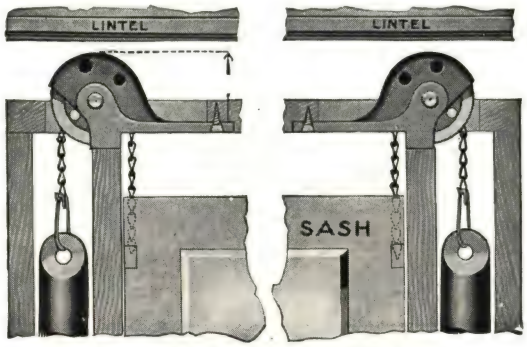
Wheels—Made of cast gray iron, accurately machine turned. Cast bronze or brass when so ordered.

Grooves—Regularly furnished with double square grooves, *suitable for chain only.* Combination rounded groove wheels suitable for cord or chain can be furnished if so ordered.

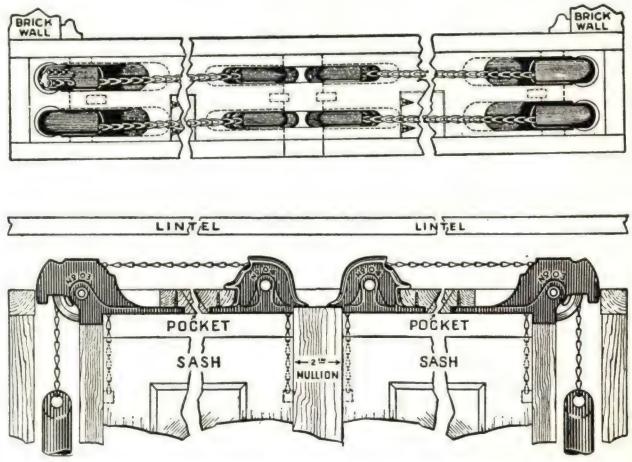
Axles—Cold rolled steel is standard. Brass or gun-metal axles can be furnished when so ordered.

Bearings—Furnished in either plain axle, roller or ball bearing; bronze, steel or noiseless wood bushing.

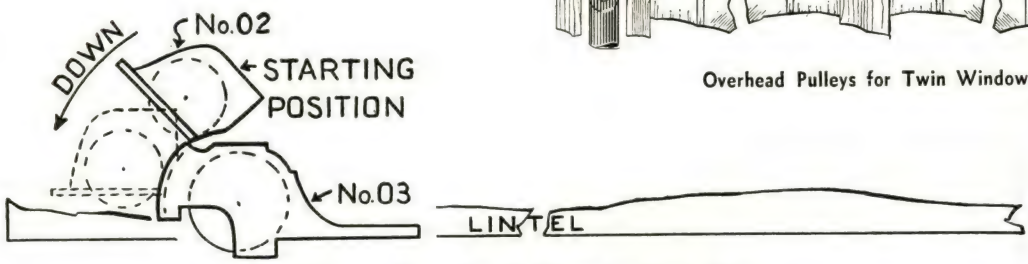
Faces—Cast iron. Cast or wrought bronze metal if so ordered, or electro-plated.



Overhead Pulleys for Single Windows

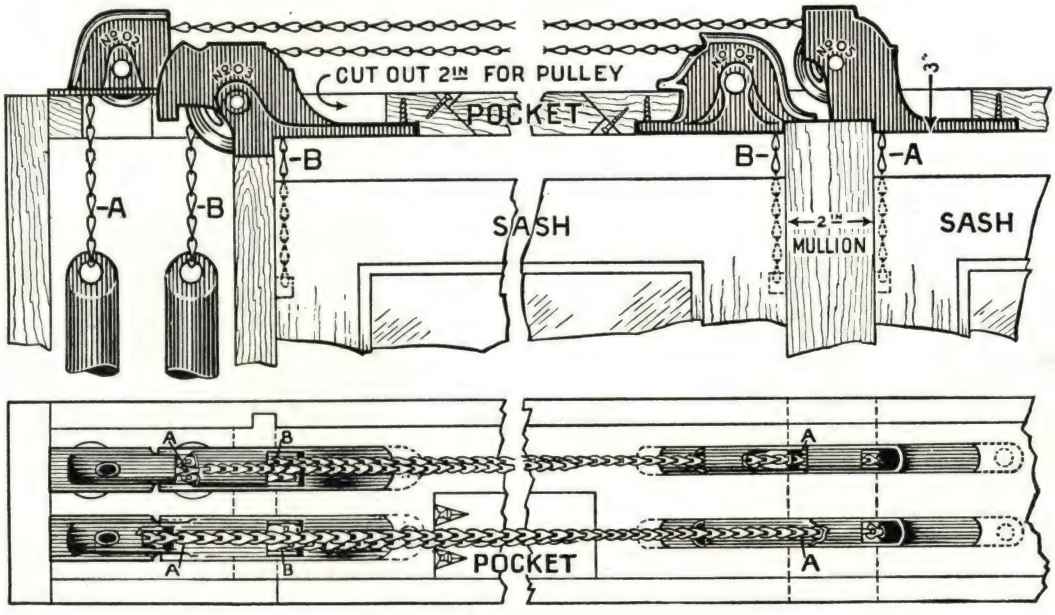


Overhead Pulleys for Twin Windows



Installation of Outer Pair of Pulleys for Triple Windows

Take pulley marked "02" and hook same to pulley marked "03," then take the assembly and set in place where they will automatically right themselves. "02" pulley will be held firmly in place with the sliding groove of "03"



Overhead Pulleys for Triple Windows

GRANT PULLEY AND HARDWARE COMPANY

Sash Pulleys and Casement Window Hardware

TELEPHONE CONNECTION

33-36 Fifty-seventh Street
WOODSIDE, LONG ISLAND, N. Y.

CALIFORNIA REPRESENTATIVES, Grant Products & Hardware Co., 912 E. 3rd Street, LOS ANGELES

Agents in all the principal cities of the United States and Canada, and our Name will be found listed in the Telephone Directories

Products

Manufacturers of SASH PULLEYS; ANTIFRICTION VERTICAL PIVOT LIFTS; TABOR REVERSIBLE WINDOW FIXTURES.

Also Antifriction Inward Opening Casement Window Hardware, Casement Window Adjusters, Sliding Window Hardware, Wood Rolling Partitions, Standard Safety Window Cleaning Devices.

For Ball Bearing and Antifriction Drawer Slides, see Manufacturers' Index.

For Door Hangers and Bar Locks, see page of Grant Elevator Equipment Corp. in Manufacturers' Index.

Selling Agents for

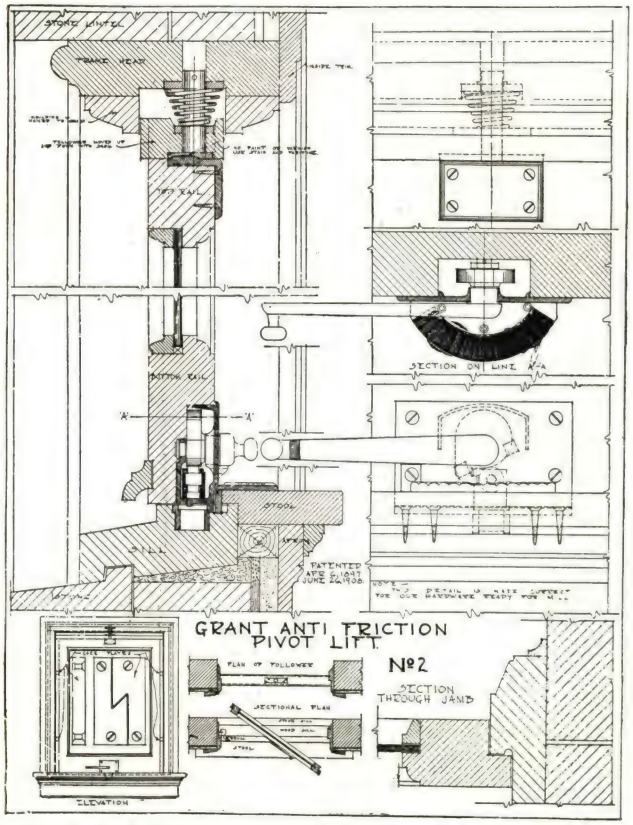
"Gem" Ball Bearing Door Hangers.

Details

Full size details of all our specialties will be sent on request.

"Grant" Antifriction Vertical Pivot Lifts

The "Grant" antifriction pivot lift, when applied to sash pivoted top and bottom, can be quickly and easily opened for ventilation.

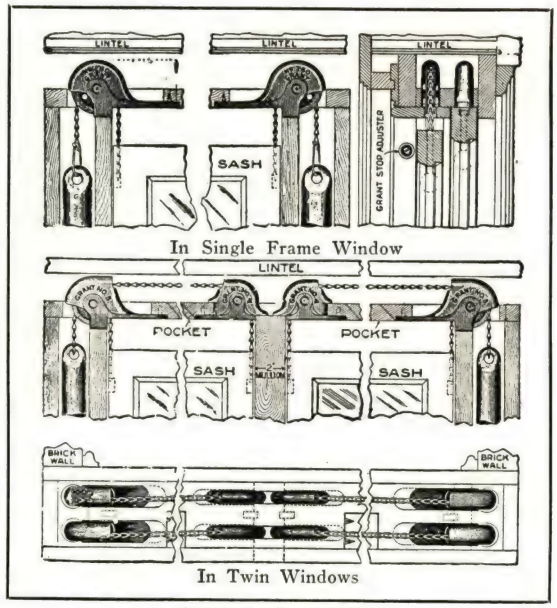


Details Pivot Windows Equipped with "Grant" Antifriction Lifts

"Grant" Overhead Pulleys

On account of additional pocket room gained by the use of "Grant" pulleys, iron instead of lead weights can be used for the heaviest plate glass windows, thus materially reducing cost. Frames are cut for "Grant" pulleys by a regular pulley machine.

"Grant" overhead pulleys are also made for triple, quadruple and quintuple windows.



Grant Overhead Pulley

Tabor Reversible Window Hardware

Tabor Reversible Hardware is made for double hung windows, weightless windows, transom bar windows and pivoted sash.

Style "A" equipment in illustration makes it possible to pivot an ordinary double hung window, thus giving 100% ventilation when needed; also eliminating the danger and use of window cleaning equipment. All cleaning is done from the inside of the building. Send for catalogue, full size details, specification data and prices.



Tabor Reversible Window Hardware

THE STANLEY WORKS

Member of the Producers' Council

Manufacturers of Stanley Dillon Jam-proof Sash Pulleys

NEW BRITAIN, CONN.

NEW YORK, N. Y., 100 Lafayette Street
CHICAGO, ILL., 61-67 West Kinzie Street
PHILADELPHIA, PA., 617 Filbert Street
LOS ANGELES, CAL., 1202 Washington Building
SAN FRANCISCO, CAL., 576 Monadnock Building
SEATTLE, WASH., 619 Mutual Life Building
CLEVELAND, OHIO, 1404 Builder's Exchange Building

For "Roll-Up" Garage Doors, Electric Door Operators, Wardrobe and Other Stanley Hardware, see Manufacturers' Index

STANLEY DILLON HEAVY DUTY JAM-PROOF SASH PULLEYS

No. 7001—Wrought Steel—No. 7002—Wrought Bronze or Brass

For office buildings, public buildings, schools, hospitals, apartment houses, etc.

(1) Jam-proof. Cord or chain cannot climb wheel and jam—no frayed cords or broken chain.

(2) Rugged construction. Extra heavy, insures greater rigidity and long life.

(3) Enclosed—keeps out the cold. Avoids the necessity of special housings to prevent drafts.

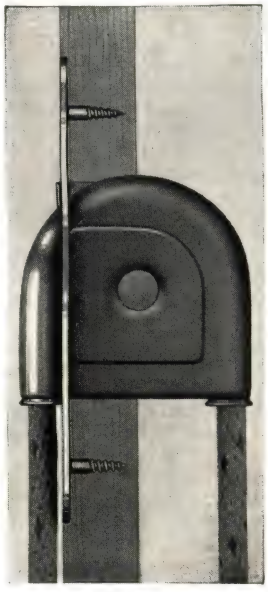
(4) Noiseless operation. New type journal bearing gives quiet, dependable operation.

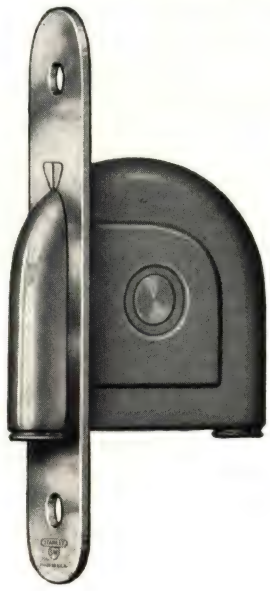
(5) Finished appearance. Wheel fully enclosed—no unsightly openings.

Wheel—2½ ins.

Wheel Groove—Combination for cord or chain. Number 10 cord and Type A or No. 250 chain maximum.

Sash Plow or Groove in Sash—The ½-in. deep by ⅝ in. wide nose will clear plows furnished in detail sash.





Construction—

Face Plates—1¼x5¾ ins. scant, to fit 1¼x 5¾ ins. mortise. .095 gauge.

1⅛x5 ins. scant, to fit 1⅛x5 ins. mortise. .095 gauge.

Housing—Enclosed unit housing.

Wheel—Made of two identical halves, securely riveted. Will withstand strains up to 1500 lbs.

Bearings—New type Journal bearing. Extra heavy steel bushing, bronze sleeve, and extra heavy steel pin.

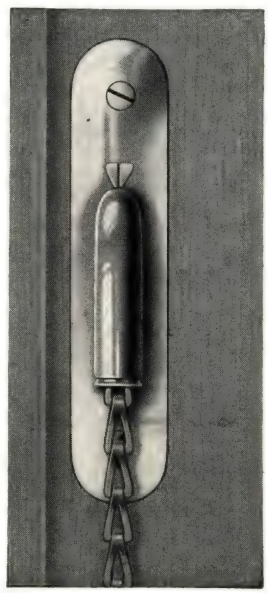
Bearing Action—The full floating bronze sleeve being free to turn between both bushing and pin minimizes friction and gives improved roller bearing action.

Finishes—No. 7001 wrought steel pulleys are regularly furnished in the standard plated finishes over a rust-resisting base finish of cadmium. Also furnished cadmium plated only, and with a baked oil finish.

No. 7002 wrought bronze metal pulleys are regularly furnished in the standard finishes.

Special finishes can be furnished to order.

Mouse Tape—Due to the tubelike construction, cord can be easily pushed through pulley to frame pocket without a mouse. A mouse tape is furnished for use with chain.



How to Specify

All frames for double hung sash having pulley stiles $1\frac{1}{16}$ or 1⅛ ins. thickness are to be equipped with 2½-in. Stanley Dillon Jam-proof Sash Pulleys (specify Class No. and Finish).

For Use on Residences

2-in. Stanley Dillon Jam-proof Sash Pulley, No. 7000. Same design as size 2½ in.

PULLMAN MFG. COMPANY, INC.

Manufacturers of Unit Sash Balances

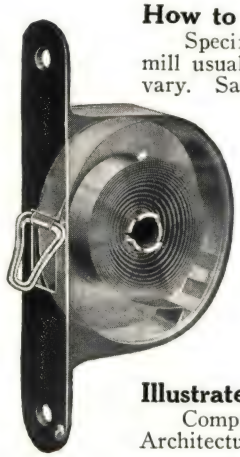
ROCHESTER, N. Y.

Products

PULLMAN UNIT SASH BALANCES for wood, hollow metal, steel or kalamein double hung sash.

Also Special Balances: Tandem, for extra heavy windows; Cabinet, for show and wall cases; Pressed brass, for marine work; Midget Balance, instantly adaptable to the pulley mortises and sash grooving in standard stock frames and sash.

Unit Sash Balances®
TRADE-MARK



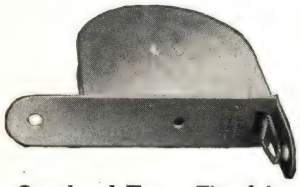
Pullman Sash Balances More Economical Than Weights and Cords

Expensive box frames, weights and cords are eliminated. Pockets for reaching weights are unnecessary—a big saving. Sash are grooved in one operation instead of two. Less lumber and labor required throughout. In some sections mill savings have been as high as $2.00 per frame. In any location, however, this saving should be at least 95c.

Pullman Balances are installed at the rate of 10 to 15 minutes per window as compared with 30 to 45 minutes for weights and cords, shown by time tests on actual jobs. Experienced carpenters can install in 6 to 10 minutes.

Guaranteed for the life of the building against imperfect workmanship or material. Purchasers are fully protected. They are not penalized for breakage due to inexperienced workmen. Durable, the spring remains uniform in tension and does not require oiling. Installations of 40 years ago are working satisfactorily. Tight construction. No leakage of air as with pulley opening. Saves fuel bills.

Substantial savings are effected in freight and cartage and in handling to and on the job. Labor costs reduced to a minimum. Tonnage reduced 90%.



Overhead Type, Fitted in Head of Frame



Side Type, Fitted in Jamb

An ordinary nail inserted in Balance holds spring while tape is being attached to tape hook on the sash

Finishes

All units have special rustproof finish. No additional protective coating is necessary. Finishes last indefinitely.

Brass, nickel, bronze, bower barff, verd antique or other architectural finishes can be readily obtained at a nominal additional cost. Special finishes should be clearly specified and sample of similarly finished hardware submitted if possible.

Types and Sizes

There are two types of Balances. Side pattern for standard use on jamb and Overhead or Top pattern for narrow mullions (see drawings on following page). Each pattern is made in three sizes, Units A, L and M, for the various weights of sash. Standard tape lengths are adequate for usual conditions. The longer tape of next size unit handles unusually long, narrow sash, i. e., use Unit L instead of A, or Unit M instead of L. (See table on following page.)

***Note:** Two Pullman Balances are required for each sash.*

Principle of Construction

The Pullman Balance consists of a pressed steel casing enclosing a rustproof steel tape, wound on a revolving drum. Inside this drum is a spring of the finest clock steel, uniform in tension and temper.

Can be instantly installed or removed without disturbing stops, sash or frame by means of the loop in the end of the tape, which is hooked into the tape hook on the sash.

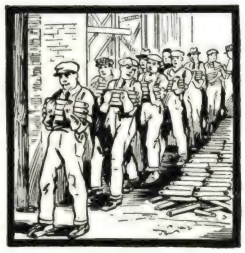
All parts are fitted accurately, run smoothly and are almost noiseless. Non-breakable, light in weight, and all moving parts are entirely encased. Phantom cut at left shows interior construction.

How to Order

Specify exact weight by scales of each individual sash. The mill usually so marks the sash. Upper and lower sash often vary. Sash of the same dimensions likewise differ in weight. Therefore, never give weight of entire window. Be sure sufficient space is left for Balances. Use overhead type if no room in side jamb. Note the regular run of tape on following page for each size of Pullman Balance. If additional run of tape (i. e., travel of sash within a given opening) or extra length is required in order to locate balances higher up or further away from the sash than usually, or for unusually long, narrow sash, please consult us before ordering. Always send for dummy Balances for mortising purposes, supplied free of charge.

Illustrated Catalogue

Complete illustrated catalogue, "Standard Specifications and Architectural Details," may be had upon request.



Ten tons of weight replaced by one ton and ten men's work done by one man where Pullman Sash Balances are installed



Guaranteed for the Life of the Building

When each sash is accurately weighed and our instructions are followed for putting them in, we guarantee our standard Balances to carry the sash perfectly during the life of the building, and we will repair or replace at our factory, free of charge, any broken or imperfect Balances.

Specifications

Insert the following clause in the Millwork section of the specifications:

All double hung windows are to be operated by Unit Sash Balances as manufactured by the PULLMAN MFG. COMPANY, INC., Rochester, N. Y. The stiles of sash shall be grooved at the mill in accordance with the PULLMAN MFG. COMPANY'S details. All boxings and weight pockets for window weights shall be eliminated and frames provided as detailed.

Insert the following clause in the finish Carpentry specifications:

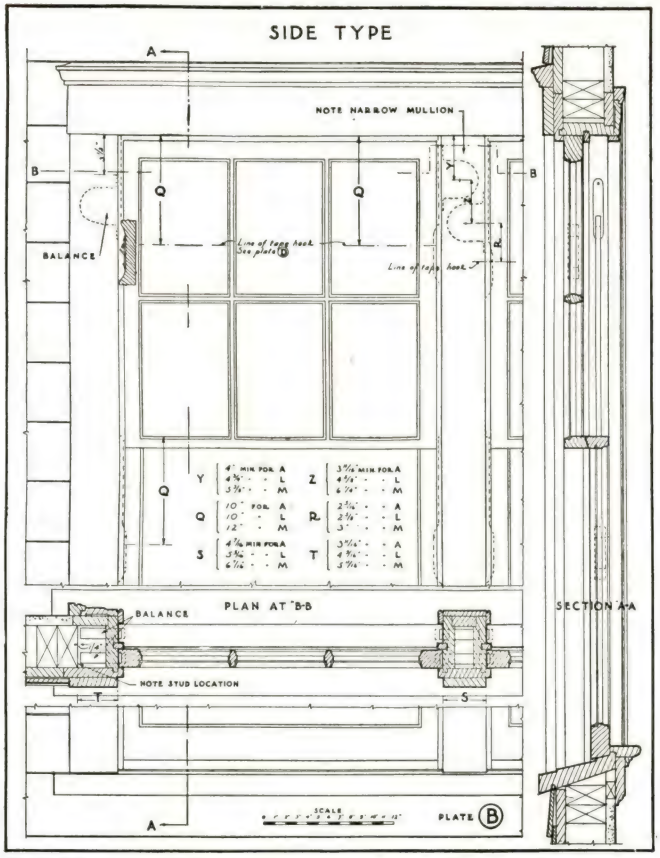
This contractor shall provide and install Unit Sash Balances as manufactured by the PULLMAN MFG. COMPANY, INC., Rochester, N. Y., on all double hung windows throughout.

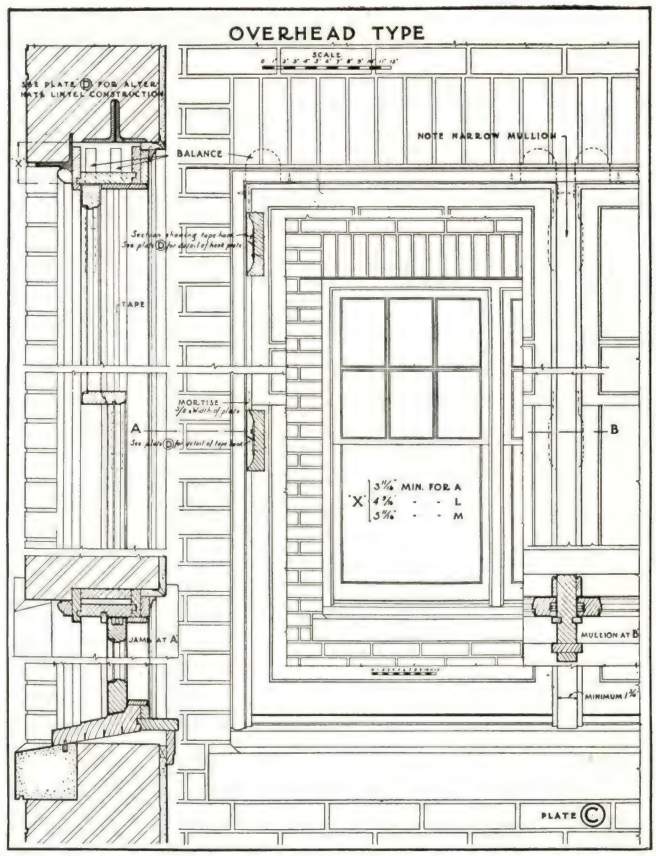
The manufacturer's standard metal housing shall be provided by this contractor to the mason where frames are surrounded by poured concrete.

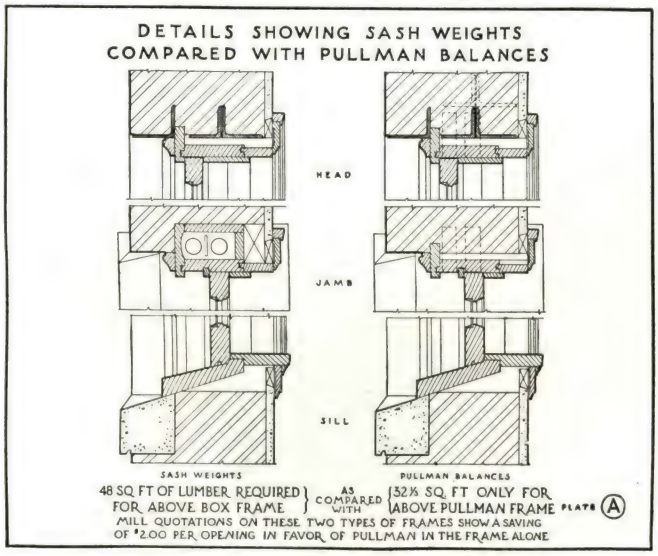
All Balances for windows throughout (state location) shall be Side Type and all Balances for windows throughout (state location) shall be Overhead Type.

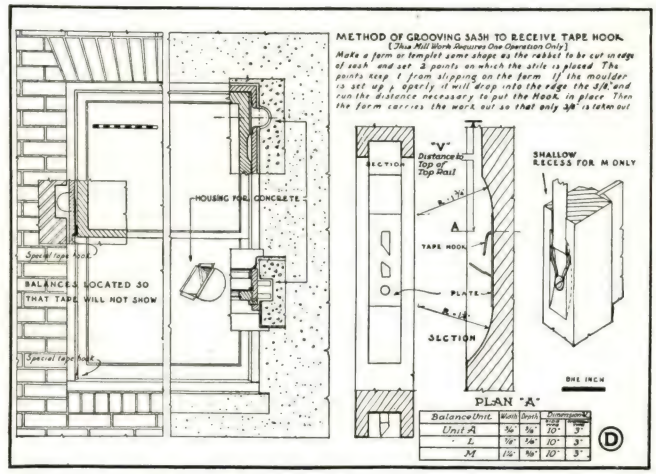
All sash shall be accurately weighed by scales as soon as completed, and the correct size and tension of Balances shall be provided for the sash of varying weights as required by the manufacturer's guarantee so as to balance the sash perfectly at all points.

All face plates shall have manufacturer's standard finish, except those for windows (state location), which shall be (state finish required).









Center Installation, Metal Housing for Concrete Construction and Method of Grooving Sash to Receive Tape Hook

PRICES, ETC., OF PULLMAN UNIT SASH BALANCES

Unit "A," for 4-lb. to 29-lb. Sash. Depth of Unit "A" Balance 3 7/16 in.					Unit "L," for 10-lb. to 48-lb. Sash. Depth of Unit "L" Balance 4 3/8 in.				
Balance No.	Weight of each sash, pounds	Length of tape, inches	Code word	Per set of 4 Balances for 2 sash	Balance No	Weight of each sash, pounds	Length of tape, inches	Code word	Per set of 4 Balances for 2 sash
2-A	4 to 5	46	Aback	$2.25	3-L	10 to 11	54	Label	$3.65
3-A	5 to 7	46	Abel		4-L	12 to 13	54	Labor	
4-A	7 to 9	46	Abhor		5-L	14 to 15	54	Lace	
5-A	9 to 11	46	Abide		6-L	16 to 17	54	Lack	
6-A	11 to 13	46	Abject	2.65	7-L	18 to 19	54	Lactic	4.05
7-A	13 to 15	46	Abjure		8-L	20 to 21	54	Lacona	
8-A	15 to 17	46	Abkari		9-L	22 to 23	54	Lacteal	
9-A	17 to 19	46	Ablaze	2.80	10-L	24 to 26	54	Laddie	
10-A	19 to 21	46	Ably		11-L	27 to 29	54	Lade	4.60
11-A	21 to 23	46	Aboard		12-L	30 to 32	54	Lading	
12-A	23 to 25	46	Aboon	3.15	13-L	33 to 35	54	Ladle	
13-A	25 to 27	46	Abox		14-L	36 to 38	54	Lady	
14-A	27 to 29	46	Abrade		15-L	39 to 41	54	Lag	4.90
					16-L	42 to 44	54	Laggard	
					17-L	45 to 48	54	Lagging	

*Unit "M," for 24-lb. to 105-lb. Sash. Depth of Unit "M" Balance 5 7/16 in.				
Balance No	Weight of each sash, pounds	Length of tape, inches	Code word	Per set of 4 Balances for 2 sash
10-M	24 to 26	60	Mace	$7.35
11-M	27 to 29	60	Machine	
12-M	30 to 32	60	Mackerel	
13-M	33 to 35	60	Madam	
14-M	36 to 38	60	Madly	
15-M	39 to 41	60	Madonna	7.70
16-M	42 to 44	60	Magic	
17-M	45 to 48	60	Magnate	
19-M	49 to 52	60	Magnet	
21-M	53 to 56	60	Magnify	8.80
23-M	57 to 60	60	Magnolia	
25-M	61 to 64	60	Magpie	
27-M	65 to 68	60	Mahogany	
29-M	69 to 72	60	Maiden	10.20
31-M	73 to 76	60	Mail	
33-M	77 to 80	60	Maintain	
35-M	81 to 84	60	Majestic	
37-M	85 to 88	60	Major	11.20
39-M	89 to 92	60	Maker	
41-M	93 to 96	60	Malady	
43-M	97 to 100	60	Malice	11.90
45-M	101 to 105	60	Malign	

Overhead Type Balances are priced same as Side Type.
Side Type is always sent unless Overhead Type is specified.
For details of special finishes, see paragraph on preceding page.
**Tape hook* is not used with *Unit* "M."

AMERICAN CHAIN COMPANY, INC.

GENERAL SALES OFFICE
BRIDGEPORT, CONN.

IN CANADA: Dominion Chain Company, Limited, NIAGARA FALLS, ONT.

DISTRICT SALES OFFICES
NEW YORK, N. Y. PITTSBURGH, PA. BOSTON, MASS. CHICAGO, ILL. PHILADELPHIA, PA. SAN FRANCISCO, CAL.

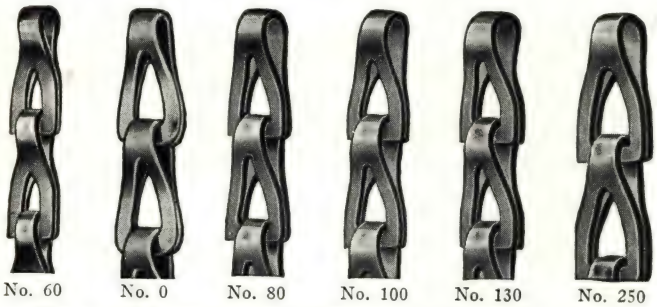
American Sash Chain

Ease of Operation—

American Sash Chain links are flat, giving a strap-like action, which is strong and flexible. Will run freely and noiselessly over the pulley, and will not kink.

Made of Copper-bearing Steel—

Copper-bearing steel, highly rust-resistant, is used exclusively for the manufacture of American Sash Chain, assuring life as long as the sash.



No. 60 No. 0 No. 80 No. 100 No. 130 No. 250

No. 60 for double-hung sash not weighing over 100 lbs.
No. 0 for double-hung sash not weighing over 100 lbs.
No. 80 for double-hung sash not weighing over 150 lbs.
No. 100 for double-hung sash not weighing over 250 lbs.
No. 130 for double-hung sash not weighing over 300 lbs.
No. 250 for double-hung sash not weighing over 400 lbs.

American Sash Chain Finishes

American Sash Chain is regularly furnished in the following finishes—coppered, galvanized, Hercules. These finishes are applied to the chain by special equipment which coats each link thoroughly and evenly.

Hercules finished chain is first hot galvanized, then coppered, giving the appearance of bronze. It is an excellent substitute for bronze chain, at a considerable saving in price.



American Bronze Sash Chain

Made from our own special mixture of hard bronze, adopted only after exhaustive tests proved it was the best alloy possible to produce for the purpose. It is positively non-corrosive.

Standard Size Fixtures for American Sash Chain

American Sash Chain Fixtures are quickly and easily adjusted. Made in copper finish only.



Coil Springs

Coil springs provide a strong grip which cannot work loose. They are used in either one or two-hole sash. Furnished in three sizes: for ¾-in., ⅞-in., and 1-in. bores.



No. 178 Hook

No. 178 sash weight hooks eliminate cumbersome knots. They are easy to install and cannot loosen.

The type of fixture shown at right consists of four weight hooks, four sash rings, and four "U" pieces. No. 60 fixture should be used for No. 60 sash chain. No. 80 fixture is satisfactory for all the other sizes.



Packing

American Sash Chain is furnished on our own substantial steel reels, 500 feet to reel, two reels to case.



American Sash Chain

Acco No. 8 Sash Chain for Residences and Apartments

Operates Perfectly Over Any Cord Pulley—

Carpenters prefer Acco No. 8 Sash Chain because it is easy to install.

The same type of coil spring and weight hook is used as for American Sash Chain.

Home owners and prospective home buyers quickly recognize the advantages of Acco Sash Chain—it will not rot, nor will it cut on sharp pulley edges.

Acco No. 8 Finishes—

Furnished in three finishes—coppered, S.R.P., and hot galvanized.

Packing—

Acco No. 8 Sash Chain is packed in bags of 100 feet, with necessary attachments, enough for seven average double-hung windows.

Acco No. 8 Sash Chain can also be purchased in hardware stores in cartons, each carton containing sufficient chain with attachments for one double-hung window.

THE SMITH & EGGE MFG. CO.

Manufacturers of Chain

BRIDGEPORT, CONN.

REPRESENTATIVES

CHICAGO, ILL., E. C. Knudson, 40 So. Clinton Street
PHILADELPHIA, PA., K. G. Kredell, 527 Commerce Street
ST. LOUIS, MO., Seidel Mfg. Co., 2665 Washington Avenue

Products

SASH CHAIN; CABLE CHAIN.

Sash Chain and Fixtures

Steel Sash Chain—Seven sizes. Made of the best cold rolled steel, which gives it the finest appearance, great strength and wearing qualities.

This chain can be copper plated or sherardized as desired.



Steel Sash Chain—No. 1, Actual Size

Size	Gauge, in.	For sash weighing, lb.
A	.054	400
A30	.049	300
1	.042	250
2	.035	150
0	.028	100
00	.035	100
35	.035	100



No. 00 Steel Sash Chain, Actual Size



No. 35 Steel Sash Chain, Actual Size

Chains for Light Weight Sash—Nos. 00, 000 and 35 sash chains are made in steel, "Red Metal," and brass and, while primarily designed for light weight windows, are also adapted for many other purposes where a strain of 100 lbs. or less is required.

Steel chains can be furnished in any finish desired.

The steel chains are put up in bags containing 100 ft. each, and seven sets of fixtures (consisting of 28 No. 00 hooks and 28 No. 44-3 spirals) for attaching chain to weight and sash.

Four hooks and four spirals are required for a window of two sashes. Attached as shown.



Method of Attaching Chain to Weight



Method of Attaching Chain to Sash with Spiral

"Red Metal" Sash Chain—Seven sizes. Composed of a special solid bronze mixture. This is a universally accepted bronze sash chain used in modern construction.

"Red Metal"
REGISTERED TRADE-MARK



"Red Metal" Sash Chain—No. A, Actual Size

Size	Gauge, in.	For sash weighing, lb.
A	.054	300
A30	.049	250
1	.042	225
2	.035	150
0	.028	100
00	.035	80
35	.035	80

Brass Sash Chain—Seven sizes. This chain in brass has been put on the market by us through popular demand and is proving extremely popular for many uses other than for hanging sash. We recommend it as a very serviceable type of chain.



Brass Sash Chain—No. 2, Actual Size

Size	Gauge, in.	Size	Gauge, in.
A	.054	0	.028
A30	.049	00	.035
1	.042	35	.035
2	.035		

Fixtures—Various types, easily attached. Nos. 1, 22, 33 and 44 fixtures are for our regular sash chains.



No. 1 Hook
4 ins. long



Nos. 33 and 44 Fixtures
No. 33 fixture for ⅞-in. hole in sash
No. 44 fixture for ¾-in. hole in sash



Correct Method of Attaching No. 1 Sash Fixtures

Cable Chain

Various sizes. Made in both copper and steel, these chains are especially recommended for use where a heavy weight is required, and are especially adapted for use on elevator or fire doors, safety gates, etc. Tensile strengths vary according to size of chain.



Cable Chain

Catalogues and Specification Sheets

Our latest catalogues or samples of chains will be mailed on request.

SAMSON CORDAGE WORKS

89 Broad Street
BOSTON, MASS.

Products

Manufacturers of BRAIDED COTTON CORD in all sizes and colors for all purposes, including SAMSON SPOT CORD, SAMSON WIRE CENTER CORD and other SASH CORDS.

Also manufacturers of Clothes Line, Ventilator Cord, Curtain and Shade Cord, Awning Line, Masons' Line, Dumbwaiter Rope, Arc Lamp and Trolley Cord, Signal Cord, Cotton Twine, etc.



TRADE-MARK

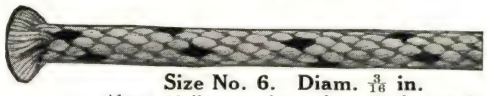
Samson Cord

All cord bearing the trade-mark of Samson and the Lion is made of extra quality stock; is carefully inspected, and is guaranteed free from the rough braiding and finishing which destroy common cords so quickly.

The SAMSON CORDAGE WORKS manufactures several grades of sash cord, but the lower grades, made for competing trade in cheap work, do not bear the Samson trade-mark. They do not fill specifications for Samson cord, which is much more economical in the end.

Samson Spot Sash Cord

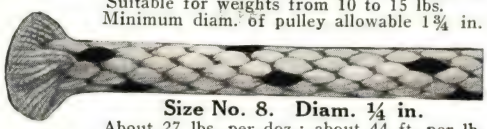
The number indicates the diameter in 32nds of an inch. Usually put up in 100 ft. hanks, 1 dozen hanks in a package.



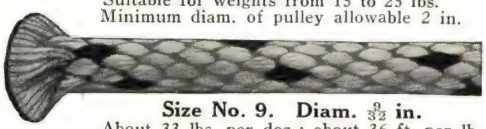
Size No. 6. Diam. $\frac{3}{16}$ in.
About 18 lbs. per doz.; about 66 ft. per lb.
Suitable for weights of less than 10 lbs.
Minimum diam. of pulley allowable 1½ in.



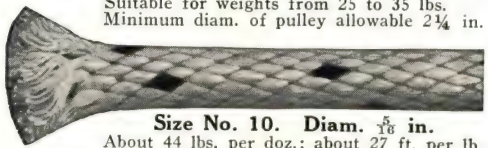
Size No. 7. Diam. $\frac{7}{32}$ in.
About 22 lbs. per doz.; about 55 ft. per lb.
Suitable for weights from 10 to 15 lbs.
Minimum diam. of pulley allowable 1¾ in.



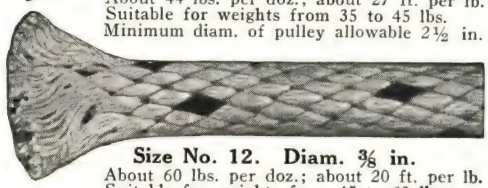
Size No. 8. Diam. ¼ in.
About 27 lbs. per doz.; about 44 ft. per lb.
Suitable for weights from 15 to 25 lbs.
Minimum diam. of pulley allowable 2 in.



Size No. 9. Diam. $\frac{9}{32}$ in.
About 33 lbs. per doz.; about 36 ft. per lb.
Suitable for weights from 25 to 35 lbs.
Minimum diam. of pulley allowable 2¼ in.



Size No. 10. Diam. $\frac{5}{16}$ in.
About 44 lbs. per doz.; about 27 ft. per lb.
Suitable for weights from 35 to 45 lbs.
Minimum diam. of pulley allowable 2½ in.



Size No. 12. Diam. ⅜ in.
About 60 lbs. per doz.; about 20 ft. per lb.
Suitable for weights from 45 to 60 lbs.
Minimum diam. of pulley allowable 3 in.

Samson Spot Sash Cord

Samson Spot Cord is made in one quality only, the best sash cord we can produce after forty-eight years' experience. The colored spots are our trade-mark, used only with this extra quality. They serve as a means of identification after the label is removed.

Spot Cord will wear many times longer than the common cord, so often found on the market, made of inferior yarn roughly braided and poorly finished, causing early destruction by abrasion on the pulley.

Specifications—Architects' specifications should read:

"Windows to be hung with Samson Spot Cord; size of cord and size of pulleys to agree with manufacturer's list." (See lower left-hand corner of this page.)

Sample Cards—Sample cards, showing proper sizes for use with different weights and pulleys, will be gladly sent to architects and builders.

Samson Wire Center Sash Cord

Recommended for use in hanging heavy windows or where for any reason a metallic device is desired.

The cover is made of the same extra quality cotton yarn as used in Samson Spot Cord, with special steel wire center, manufactured under specifications for running over pulleys and of entirely different quality from ordinary wire.

The weight of the window is borne chiefly by the wire center, the cotton cover merely acting as a cushion, thus avoiding contact of metal with metal which causes wear and makes an unpleasant noise.

It is carried in mahogany color in two sizes: Nos. 8 and 10.

No. 8 is suitable for weights up to 30 lbs. if used with pulleys not less than 2 in. in diameter, or for weights up to 50 lbs. with pulleys not less than 2½ in. in diameter.

No. 10 for weights up to 75 lbs. if used with pulleys not less than 2½ in. in diameter, or for weights up to 100 lbs. with pulleys not less than 3 in. in diameter.



Samson Wire Center Sash Cord

Special Cords

Cords made to order for any purpose, in special braid, finish or color.

Territory

Samson Spot Cord and this company's other goods are sold all over the world, and are carried by dealers in all parts of the United States.

Catalogues

Send for catalogues and sample cards.

SILVER LAKE COMPANY

Manufacturers of Sash, Bell and Signal Cord

NEWTONVILLE, MASS.

FACTORIES, CHATTAHOOCHEE, GA.

BRANCH OFFICES

NEW YORK, N. Y., 76 Reade Street
PHILADELPHIA, PA., 508 Market Street
CHICAGO, ILL., 20 West Kinzie Street
HOUSTON, TEX., 2409 Commerce Avenue
LOS ANGELES, CAL., 606 American Bank Building
SAN FRANCISCO, CAL., 604 Mission Street
SEATTLE, WASH., L. C. Smith Building
CHATTAHOOCHEE, GA.

Products

Manufacturers of "Silver Lake" Solid Braided Window Sash Cord.

Also Railroad Bell, Trolley, Signal, Curtain and Shade Cord; Arc Lamp, Dumbwaiter and Transmission Rope; Mason's Lines and Clothes Lines, and all kinds of Solid Braided Cordage.

Description of Solid Braided Cordage

We are the pioneer manufacturers of solid braided cordage. "Silver Lake" cords have been used for the best work since 1868 and have become known as the standard. "Silver Lake" solid braided sash cord is made of the best quality of selected cotton yarn; twice doubled and twisted, and then braided on solid braiding machines of our own design.

Advantages—"Silver Lake" cord costs less per pound than linen and other fine fibers, and its weight is so much less that it costs less per foot than cords that are cheaper per pound. Cotton is the only fiber that will stand constant bending over a pulley; consequently a cotton cord is more durable than one made of linen or hemp. It varies in diameter by thirty-seconds of an inch, and is adapted to all styles and sizes of weights and pulleys. Our process of finishing takes up all the stretch, so that "Silver Lake" cords do not lengthen as they wear, but maintain the weight at its original height.

Ordinary twisted cords kink badly in unwinding from the hank, and a great deal of time is required to straighten them out. "Silver Lake" braided cord comes out smoothly and makes it possible to hang more sash in a given time than when ordinary cords are used. "Silver Lake" cord is smooth in finish and can not work in between pulley wheel and case, a fact that precludes all possibility of broken sash cords. Our shade cords are extremely handsome in appearance and do not fray and break.

Guarantee—Furthermore, we issue a certificate of guarantee protecting every architect who specifies "Silver Lake" sash cord against the breakage of same for a period of 20 years after installation.

Special Cords

All colors of wire center cord and a great variety of other braided cords for special purposes manufactured to order. Estimates promptly furnished on any sample sent to us. Anything in the way of a solid braided cord, in any color or design, may be had.

Sizes, Weights, etc.

The table gives the sizes and weights of cords, and the weight which each size will safely carry.

Territory

Our cords are in use the world over, and are carried by dealers throughout the United States.

Orders of any size promptly filled.

Trade-marks

All hanks of genuine "Silver Lake" cord are bound with our label, bearing our trade-mark. As an additional protection and means of identification, every foot of cord is stamped with our name. Cord not so marked is not genuine "Silver Lake."



Reproduction of "Silver Lake" Cord with Trade-mark and Name

SIZES, WEIGHTS, LENGTHS, ETC., OF "SILVER LAKE" CORD

Size No.	Diameter, in.	Weight per dozen hanks, lb.	Feet per pound, approximate	Minimum diameter, of pulley allowable, in.	Suitable for weights, lb.
6	3/16	18	66	1½	up to 10
7	7/32	22	52	1¾	10 to 15
8	¼	27	44	2	15 to 25
9	9/32	33	36	2¼	25 to 35
10	5/16	44	27	2½	35 to 45
12	3/8	60	20	3	45 and up

Prices on application.

NOSLIP COMPANY, Inc.

BLOOMFIELD, N. J.

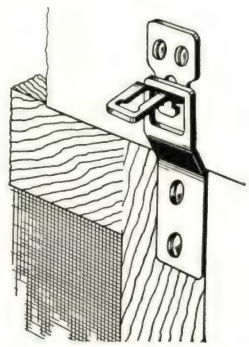
"NOSLIP"—A SCREEN AND STORM SASH HANGER WHICH CANNOT SLIP OR PUSH OFF BECAUSE IT LOCKS

The "Noslip" was designed to provide a hanger which would make it impossible for screens or storm sash to blow off or slip out of the hanger. The cost of repair to screens damaged by falling accidentally and the inconvenience of having screens or sash pushed off at the slightest disturbance are eliminated. By means of a unique design in construction the "Noslip" hanger locks when the screen is in a swinging position. The only way screen or sash can be removed is to lift it out of the hanger at will.

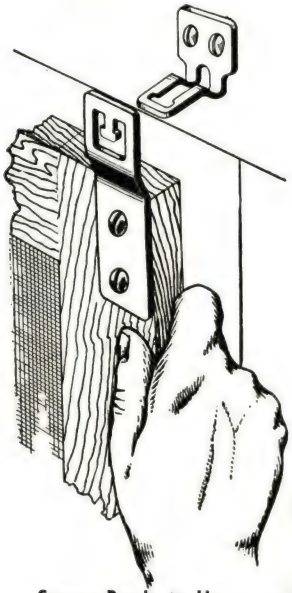
Easily Installed from Inside or Outside

The "Noslip" is extremely simple to hang either from inside or from outside. The casing fixture is easily seen from the inside of window when hanging, and no back breaking positions are required to adjust the screen in the hanger. It can be applied to wood or steel casing.

Screen hanging in position fits perfectly tight when fastened at bottom casing with hooks and eyes.

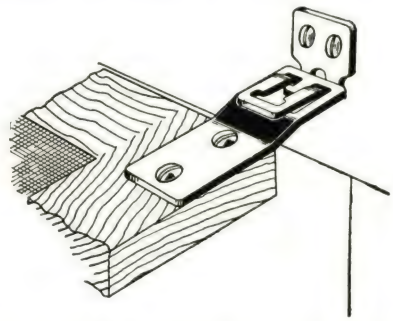


Screen Hanging in Place Fits Perfectly Tight



Screen Ready to Hang

Convenient for Awnings and Window Washing



Hanger in Locked Position with Screen at Right Angle to Window Frame

The locking device permits screen to be swung out at right angle to window frame without slipping, allowing perfect convenience for manipulating awnings and for washing windows.

One can walk right out of a window to a porch or roof without removing screen or sash.

Enduring

The "Noslip" hanger is made of galvanized stock and is weatherproof.

There are no movable parts to get out of order and when painted it will last a lifetime.

The sash member is sold separately if both members are not required.

Eliminates Cost of Repair and New Screens

By eliminating the possibility of screens or sash becoming damaged by falling from windows the cause of a very considerable amount of repair and replacement expense is done away with.

This represents a distinct saving compared with which the slight difference in price of the "Noslip" over ordinary hangers is negligible.

References

Following is a partial list of architects and users who have specified or are using "Noslip" and who testify to its efficient operation and advantages.

W. Orrin Bartlett, Architect	Newark, N. J.
Sutton & Sutton, Architects	Newark, N. J.
C. Willard Wands, Architect	Caldwell, N. J.
Fred L. Pierson, Architect	Bloomfield, N. J.
Henry H. Berg, Supt. of Plants and Structures for Essex County, N. J.	Newark, N. J.
Borough of North Caldwell	North Caldwell, N. J.
Essex County Bldg. Dept.	Newark, N. J.
Overbrook Hospital for Insane	Cedar Grove, N. J.
Aroostook Co-operative Co.	Presque Isle, Me.

ACKMAN, INC.

Standard and Approved Window Cleaner's Safety Devices and Equipment
Brass, Bronze and Monel Metal, Drop Forged or Cast

TELEPHONE
WAtkins 9-4994

257 West 19th Street
NEW YORK, N. Y.

Adaptability

All types of Ackman devices are made for the 2 or 4-bolt system as required.

Architect's Specifications

All windows, which are to be cleaned from the outside, and which are 6 ft. or more above grade, roof, balcony or fire escape, shall be equipped with Ackman Window Cleaner's Devices, as manufactured by ACKMAN, INC., New York, N. Y.

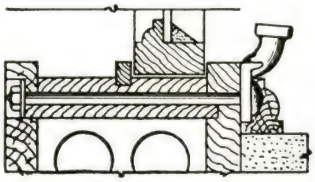
Install two (2) to each window, 46 to 51 ins. above sill.

Select the type from illustrations to suit type of construction.

Our devices are listed by Underwriters' Laboratories, Inc.

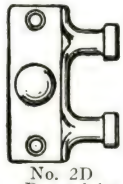
Recent Installations

NEW YORK—Court Square Building; Public Schools; American-Pacific Bank; Bank of Canada Building; Fifth National Bank; General Motors Building; United Cigar Stores Co. Building; Fire Department Buildings; Loft Candy Buildings.
HARTFORD—Ætna Life Insurance Building.
PHILADELPHIA—Warwick Hotel.
NEW BRUNSWICK—Johnson & Johnson Buildings.
JOHNSTOWN—Garfield Junior High School.
PATERSON—Paterson General Hospital.
NEWARK—Military Park Building; Presbyterian Hospital.
ELIZABETH—St. Elizabeth's Hospital.
PITTSBURGH—Lauer-Magee Hospital.
ATLANTA—Rhodes Haverty Building.
WASHINGTON, D. C.—Agricultural Building

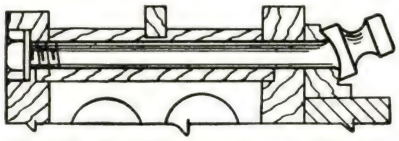


No. 2—For Wood or Kalamein Frames and Mullions

Can be installed at mill by framemaker or at job by carpenter contractor



No. 2D Double Head or 4-bolt system type



No. 2A—For Wood or Kalamein Frame and Mullions

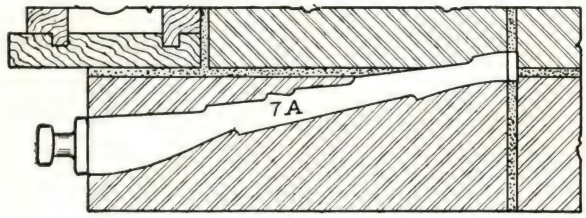
Undersurface of shoulder is made concave, flat or convex to match staff bead or pilaster. Pat., Nov. 23, 1927

Through Bolt Devices
Types No. 2, No. 2A, No. 2D



Fig. 14. Four-bolt System Anchor

Specification same as No. 6



No. 7A. Brick Anchor

For masonry jambs installed by mason contractor

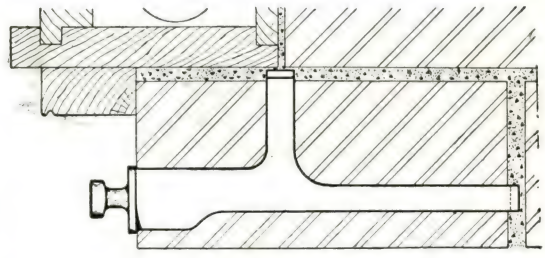


No. 10. Mullion Device



No. 11. Jamb Device

For solid steel sash of the Fenestra, Truscon, Lupton, William Bailey and similar type windows, holes drilled on 1⅝-in. centers, or other dimensions to suit sash manufacturer



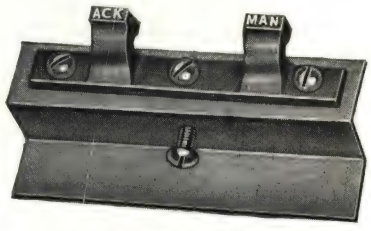
No. 7 Brick Anchor

For installing in the masonry during construction installation by mason contractor



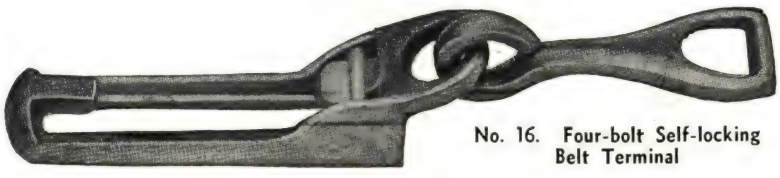
No. 8. Hollow Metal Frame and Mullion Device

Reinforcing plates are attached by framemaker during fabrication of frames



No. 12. Hollow Metal Frame Device, Four-bolt System

Made to conform to contour of all window frames



No. 16. Four-bolt Self-locking Belt Terminal



No. 18. Ackman Window Cleaner's Safety Belt

Made of canvas or leather

AINSWORTH BUCK, INC.

Manufacturer of "Whitner" Window Cleaners' Safety Devices

TELEPHONE
COrtlandt 7-3852, 3853

20 Vesey Street, NEW YORK, N. Y.

SALES REPRESENTATIVES

BALTIMORE, MD., Wm. H. Cole & Sons, 40 South Charles Street
BUFFALO, N. Y., Weed & Company, Genesee Building
BUTTE, MONT., D. E. Fryer & Co.
CLEVELAND, OHIO, The W. Bingham Co.
DALLAS, TEX., W. L. Macatee & Sons
DENVER, COLO., Colorado Builders Supply Co., 1534 Blake Street
DETROIT, MICH., The Rayl Company, 1233 Griswold Street
HOUSTON, TEX., W. L. Macatee & Sons
INDIANAPOLIS, IND., Van Camp Hardware & Iron Co.
LOS ANGELES, CALIF., Repal Casement Co., 2852 W. Tenth Street
PHILADELPHIA, PA., Murta, Appleton & Co., Samson at 12th Street
PITTSBURGH, PA., Joseph Woodwell Co.
PORTLAND, ME., Marston-Wade, Inc., Masonic Building
PORTLAND, ORE., D. E. Fryer & Co., 410 Exchange Building
SEATTLE, WASH., D. E. Fryer & Co.
SPOKANE, WASH., D. E. Fryer & Co.
SYRACUSE, N. Y., Burhans & Black, 136 No. Salina Street
TACOMA, WASH., D. E. Fryer & Co., Provident Building

Absolute Safety for Window Cleaners—Also for Those on the Sidewalk

Absolute safety and practicability are essential features embodied in "Whitner" window cleaners' safety devices, which are made of the best materials obtainable.

They are offered as high quality products that will outlast the building in which they are installed.

These devices are approved by the Labor Departments of New York, New Jersey and Pennsylvania Industrial Commissions.

Special devices made to meet architects' requirements.

Blue prints giving installation details will be sent on request.

Specifications for Architects

Figs. 10, 700A, 800A and 800—
Furnish and install on jambs of wood windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system bronze rod bolt No. [10, 700A, 800A or 800] to go entirely through pulley stile with nut and washer on the inside, as manufactured by AINSWORTH BUCK, INC.

Fig. 300—
Furnish and install on jambs of wood windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system bronze wing bolt No. 300 with screws, as manufactured by AINSWORTH BUCK, INC.

Figs. 28A and 28—
Furnish and install on jambs and mullions of hollow metal (or steel) windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system bronze hollow metal frame fitting No. [28A and 28] with reinforcing plate and screws, as manufactured by AINSWORTH BUCK, INC.

Fig. 37C—
Furnish and install on jambs and mullions of hollow metal (or steel) windows 51 in. above the sill, "Whitner" 2 bolt system bronze hollow metal frame fitting No. 37C with reinforcing plate and screws, as manufactured by AINSWORTH BUCK, INC.

Fig. 7—
Furnish and install on jambs and mullions of wood or kalamein windows 51 in. above the sill, "Whitner" [2-bolt or 4-bolt] system bronze lag bolts No. 7, as manufactured by AINSWORTH BUCK, INC.

Fig. 400—
Furnish and set in masonry jambs, 51 in. above the sill, "Whitner" 2-bolt system bronze special anchor No. 400 (which extends in the backing) as manufactured by AINSWORTH BUCK, INC.

Fig. 102—
Furnish and set in masonry jambs 51 in. above the sill "Whitner" 2-bolt system bronze anchors No. 102, as manufactured by AINSWORTH BUCK, INC.

Fig. 92—
Furnish and set in masonry jambs 51 in. above the sill, "Whitner" 4-bolt system bronze anchors No. 92, as manufactured by AINSWORTH BUCK, INC.

Fig. 660—
Furnish and install bronze hollow metal frame fitting with patented reinforcing plate [2-bolt or 4-bolt] system, as manufactured by AINSWORTH BUCK, INC.



Fig. 1. Leather Safety Belts for Window Cleaners 2 or 4-Bolt Systems

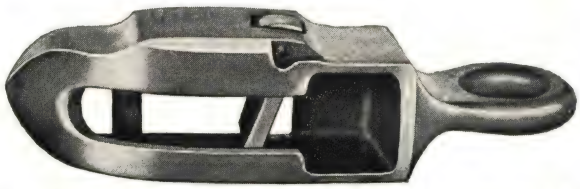


Fig. 12. 2-Bolt Belt Terminal—Locks on Head of Bolt or Anchor
Can not slip off



Fig. 8. Canvas Safety Belt for Window Cleaners 2 or 4-Bolt Systems



Fig. 3. 4-Bolt Belt Terminal—Locks on Head of Bolt or Anchor
Can not come off

Belts and Terminals



Fig. 10. Two-piece Rod Bolt
Made in 2 or 4-bolt systems



Fig. 300. Wing Bolt
Made in 2 or 4-bolt systems

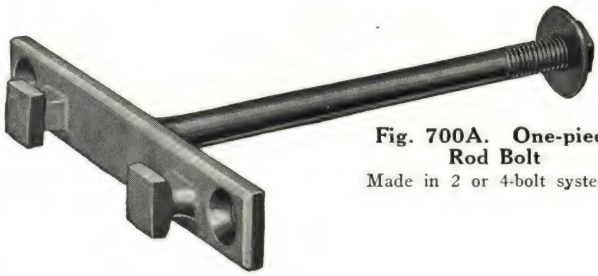


Fig. 700A. One-piece Rod Bolt
Made in 2 or 4-bolt systems

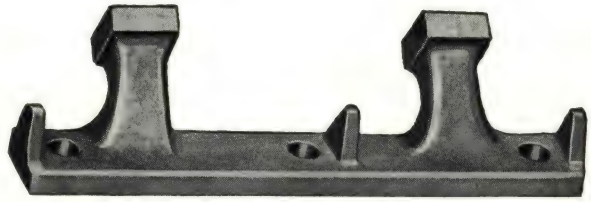


Fig. 28A. 4-Bolt Hollow Metal Frame Fitting



Fig. 800A. One-piece Rod Bolt
Made in 2 or 4-bolt systems

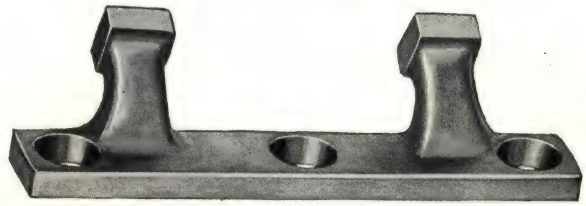


Fig. 28. 4-Bolt Hollow Metal Frame Fitting

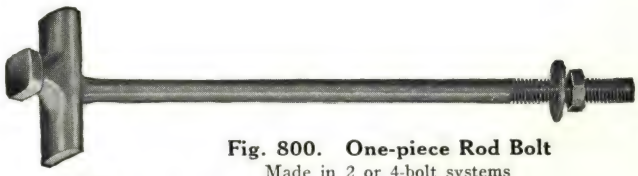
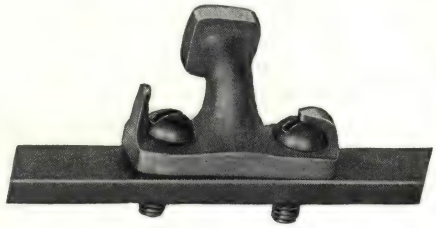


Fig. 800. One-piece Rod Bolt
Made in 2 or 4-bolt systems



Left:
Fig. 37C. 2-Bolt Hollow Metal Frame Fitting





Fig. 92. Bronze 4-Bolt Anchor
Set in brick or stone jambs by mason contractor



Fig. 7. Lag-screw
Made of bronze or galvanized steel. One placed on each side of wood or kalamein window for 2-bolt system—two for 4-bolt system

Fig. 660. Bronze Hollow Metal Frame Fitting with Patented Reinforcing Plate



Fig. 400. Special Bronze 2-Bolt Anchor
(Patent pending)
Specially adapted to veneer brick, stone or terra cotta jambs. Leg extends into the backing. Set by masonry contractor. Also for 4-bolt system

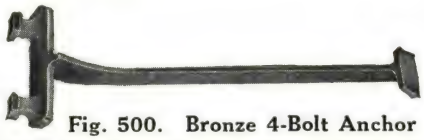


Fig. 500. Bronze 4-Bolt Anchor
Special type for use in brick, stone or terra cotta. Made also in 2-bolt system

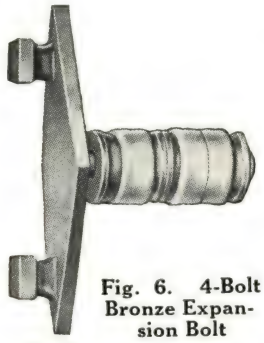


Fig. 6. 4-Bolt Bronze Expansion Bolt
Cinch system of expansion. Made in 2 or 4-bolt systems



Fig. 102. Bronze 2-Bolt Anchor
Set in brick or stone jambs by mason contractor

Anchor Types

R. J. DICKEY & SONS, INC.

SUCCESSORS TO
ROYAL SAFETY ANCHOR CO., CHICAGO, ILL.
NATIONAL SAFETY WINDOW DEVICE CO., CHICAGO, ILL.
EVERFAST WINDOW CLEANING SAFETY DEVICE CO., CHICAGO, ILL.

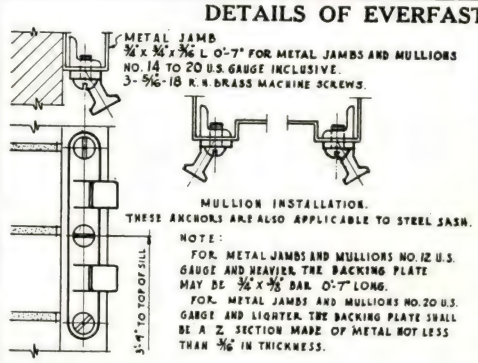
Manufacturers of Everfast Window Cleaning Safety Devices

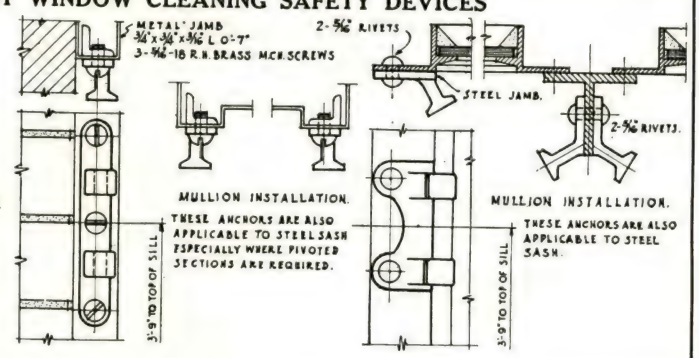
COLUMBUS, IND.

DISTRICT OFFICES

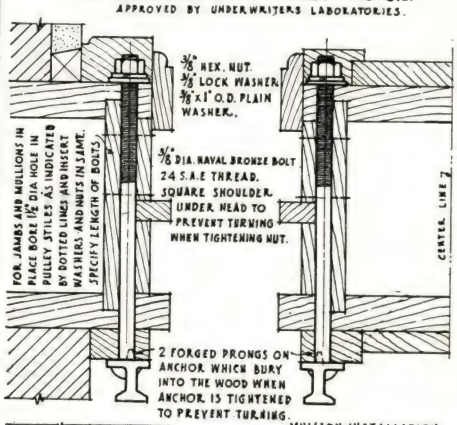
CHICAGO, ILL., Frank Flaherty & Co., First National Bank Bldg.
CLEVELAND, OHIO, Gesing Bros., Terminal Tower
DETROIT, MICH., R. C. Nagle, David Stott Building
FORT WORTH, TEX., W. J. McCandless, Capps Bldg.
PHILADELPHIA, PA., Shields & Bro., 521 Market Street
PORTLAND, ORE., Cress & Co., 283 Oak Street—Telephone, Atwater 9648
ST. PAUL, MINN., R. E. Stanton Co., 2694 University Avenue
ST. LOUIS, MO., Z. G. Shaw, Maryland Hotel
SAN FRANCISCO, CAL., D. A. Pancoast Co., 605 Market Street

DETAILS OF EVERFAST WINDOW CLEANING SAFETY DEVICES





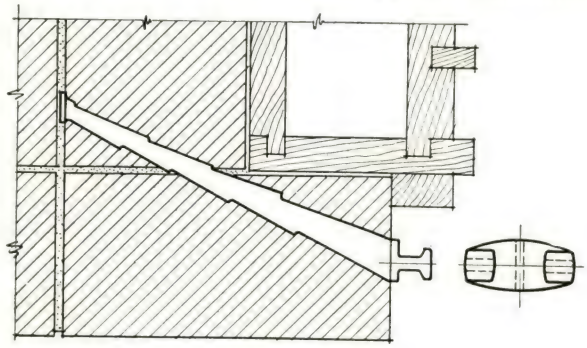
NO **1FLD** BRASS DROP FORGED ANCHOR.
APPROVED BY UNDERWRITERS LABORATORIES.

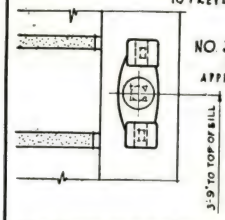


NO. **1PD** BRASS DROP FORGED ANCHOR.
APPROVED BY UNDERWRITERS LABORATORIES.

NO. **16D** BRASS DROP FORGED ANCHOR
APPROVED BY UNDERWRITERS LABORATORIES.

NOTE: ANCHORS MOST COMMONLY USED ARE HERE SHOWN BUT WE HAVE OTHER TYPES TO SUIT ANY CONDITIONS. OUR ENGINEERING DEPARTMENT IS AT YOUR SERVICE.



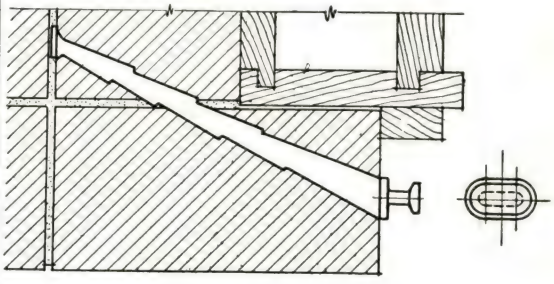


NO **3CD** BRASS DROP FORGED ANCHOR.
FOR WOOD JAMBS AND MULLIONS.
APPROVED BY UNDERWRITERS LABORATORIES.
THESE ANCHORS CAN BE EASILY INSTALLED ON BUILDINGS ALREADY ERECTED.



NO **2A** CAST BRONZE ANCHOR
FOR BRICK AND CONCRETE JAMBS

3'-9" TO TOP OF SILL





NO **1** CAST BRONZE ANCHOR.
FOR BRICK AND CONCRETE JAMBS.



FRONT VIEW



REAR VIEW

THE EVERFAST SAFETY BELT
EQUIPPED WITH SOLID BRASS DROP FORGED TERMINALS AND CAST BRONZE FITTINGS THROUGHOUT
APPROVED BY UNDERWRITERS LABORATORIES.

THE IMPERIAL BRASS MFG. CO.

Window Washing Devices, Safety Belts and Building Hardware

1222 West Harrison Street, CHICAGO, ILL.

Products

DOUBLE SAFETY EXTRA HEAVY WINDOW WASHING DEVICES; SAFETY BELTS; PUSH and PULL BARS and PLATES; THRESHOLDS; KICK PLATES and NAME PLATES.



No. H-425
No. H-426 without shoulder straps



No. H-427
No. H-428 without shoulder straps

Window Washers' Belts with Shoulder Straps



At Left:

No. H-419-F Brass Forged Rope Eye

Correctly designed and trimmed to give proper metal thickness to compensate for rope wear. Furnished with all Imperial Belts

At Right:

No. H-420-F Forged Brass Belt Terminal

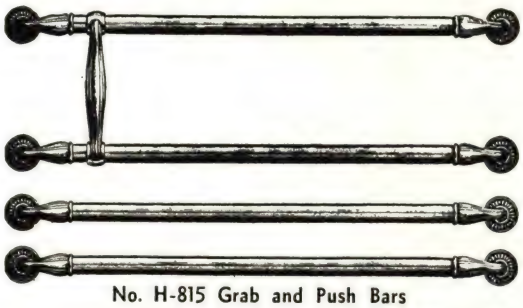
Has detachable spring. New finger grip makes attachment and removal easy. Fits single and double head bolts. Furnished with all Imperial Belts



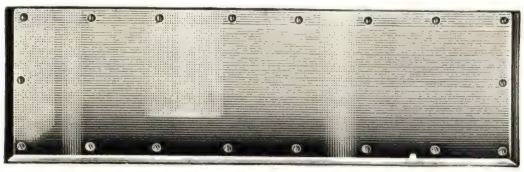
Specifications for Window Washing Devices

Furnish and install Imperial Extra Heavy Double Safety Devices manufactured by THE IMPERIAL BRASS MFG. CO. of Chicago, Ill.

Install Nos. ....., one on each side of window with anchor heads in vertical position, placed at a height of 45 to 50 in. above sill.



No. H-815 Grab and Push Bars



Standard Style Kick Plate—Brass or Bronze



No. H-687



Also manufacturers of Brass and Bronze Railings; Special Builders' Hardware; Outdoor Signs, etc.

For Watrous Flush Valves and Liquid Soap Fixtures, see Manufacturers' Index.



Nos. H-401-F and H-401 Anchor

The angle of inclination and height of head make it universal for all types of belt terminals, all positions on the window jambs and for new and old buildings. Brass wedges can be furnished with angles of 15°, 30° and 45°.



No. H-400 Anchor
For wood jambs and mullions

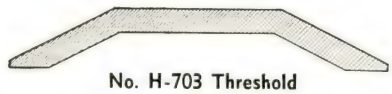


Nos. H-406-F and H-406

Device No.	Type for	Furnished and installed by	Material	General
H-401-F	Wood jambs or mullions	Carpenter contractor	Brass forging	Bolt ⅜-in. in diam. Furnished in 8½ and 10½-in. lengths.
H-401	Wood jambs or mullions	Carpenter contractor	Manganese bronze casting	Same as H-401-F.
H-400	Brick, concrete and stone wall	Mason contractor	Manganese bronze casting	Furnished in extra heavy type.
H-406-F	Hollow metal jambs	Metal window contractor	Brass forging	3 holes 2⅛-in. centers use 5/16-18 round head machine screws and reinforcing plate.
H-406	Hollow metal jambs	Metal window contractor	Manganese bronze casting	Same as H-406-F, except in manganese bronze casting.
H-408	Steel frames	Metal window contractor	Manganese bronze casting	2 holes 11/32-in. diam., 2⅛-in. centers. Use 5/16-18 round head machine screws.
H-425 and H-426	Safety belt	Contractor	Extra strong webbing, reinforced with leather 3½-in. wide, brass forged rope eyes, and terminals	Terminals fit single and double head anchors.
H-427	Safety belt	Contractor	All leather (oak-tanned) brass forged rope eyes, terminals, and buckle	Terminals fit single and double head anchors. Has metal grommets and double tongue buckle.



No. H-735 Push Bar



No. H-703 Threshold



No. H-706 Threshold

JAMES W. YOUNG

WHITNER 2-ROPE SAFETY COMPANY

TELEPHONE
Harrison 6337

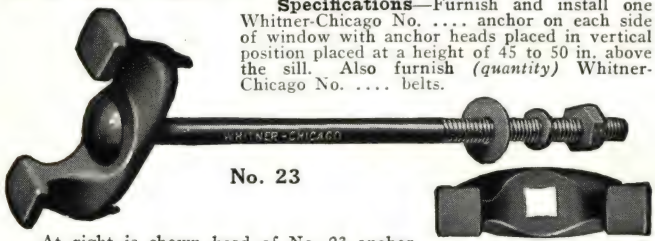
638 South Clark Street, CHICAGO, ILL.

Originator and Manufacturer of 4-Head System Devices

Whitner-Chicago safety devices for window washers in specifications mean real safety. Our record of thirty-nine years without a casualty is ample proof. This record warrants recommending the 4-head system, assuring doubled safety through two heads on either side.

Description of Fixtures—In addition to using only the highest quality of virgin bronze, the fixtures are designed to eliminate breaking points. The heads are built close to the body on every fixture but still allow plenty of room for easy operation of the terminal. A "wrestler's" neck is used on Whitner-Chicago fixtures, being exceptionally thick. This eliminates snapping of heads. Right angle construction in places where a strain will exist is eliminated. Additional metal has been used to round out the sharp angles. The rounding connection where the neck is built upon the body will be noticed in particular.

Specifications—Furnish and install one Whitner-Chicago No. .... anchor on each side of window with anchor heads placed in vertical position placed at a height of 45 to 50 in. above the sill. Also furnish *(quantity)* Whitner-Chicago No. .... belts.



No. 23

No. 23

At right is shown head of No. 23 anchor illustrating width of face, large sized heads and square seat for bolt head on horizontal and perpendicular plane insuring strength on sides



No. 9A (Three Perspectives)







No. 17M



No. 24

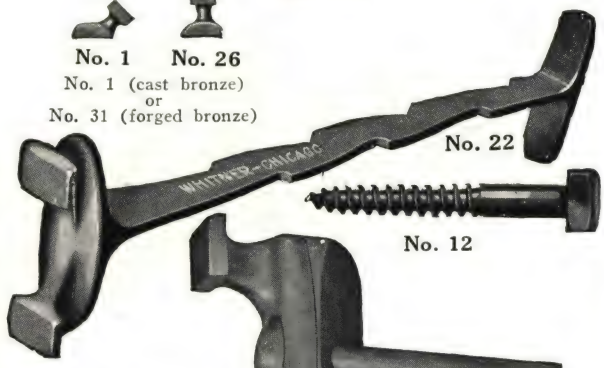


No. 1



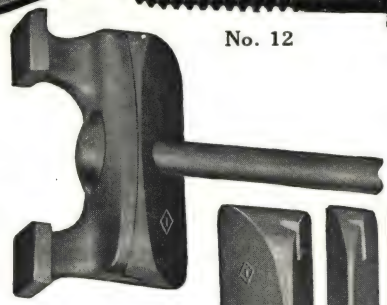
No. 26

No. 1 (cast bronze)
or
No. 31 (forged bronze)



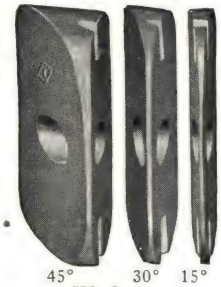
No. 22

No. 12



No. 33 (Forged Bronze) Anchor Showing Application with Wedge for Angled Mouldings

This anchor can be used without wedge, also just as No. 23 (cast) is used



45° 30° 15°

Wedges

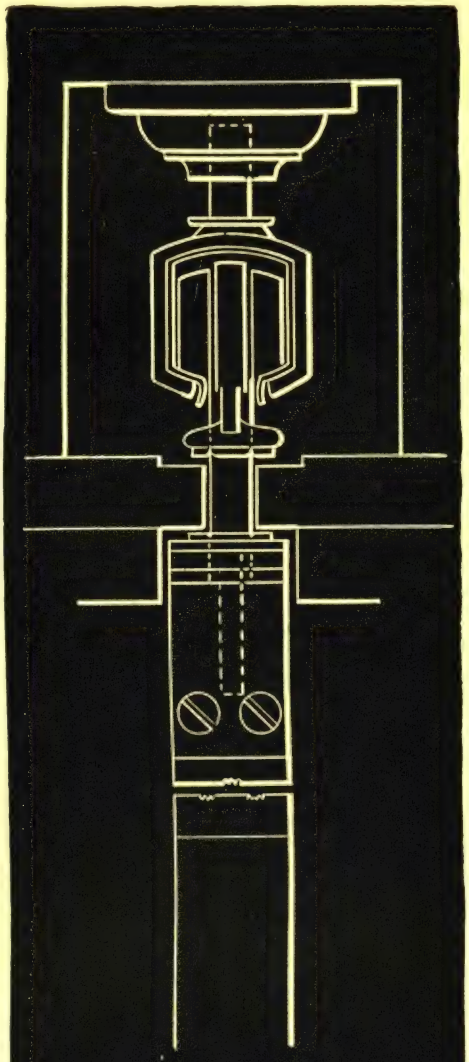
For use with No. 33 anchor on angled mouldings

SUMMARIZED TABLE OF WHITNER-CHICAGO FIXTURES

Anchor No.	Use	Length, in.	Height, in.	Width, in.	Weight, oz.	Detailed specifications
33 (10¼" bolt) 33 (8¼" bolt)	One anchor in each wood frame jamb and two in each mullion.	11⅛ 9⅛	2⅞ 2⅞	1 1	10⅛ 9⅛	Carpenter contractor bore 7/16-in. hole through staff bead and pulley stile in each jamb and mullion for each anchor.
45° Wedge 30° Wedge 15° Wedge	One wedge with each No. 33 anchor when anchor head seat is on a 45° or 30° or 15° angle.	1 9/16 5/16	2½ 2½ 2½	15/16 15/16 15/16	3 1¾ 1½	Carpenter contractor fit on back of No. 33 anchor head.
23 (10¼" bolt) 23 (8¼" bolt)	One anchor in each wood frame jamb and two in each mullion	11⅛ 9⅛	2⅞ 2⅞	1 1	10½ 9½	Carpenter contractor bore 7/16-in. hole through staff bead and pulley stile in each jamb and mullion for each anchor.
9A (10" bolt) 9A (8" bolt)	One anchor in each wood window frame jamb and two in each mullion where the anchor head seat is on a 45° angle	11 9	2¾ 2¾	1⅛ 1⅛	11¼ 10¼	
12	Two anchors in each wood frame jamb and four in each mullion where building code permits use of this rather than No. 23, No. 9M or No. 9A	3⅜	9/16	9/16	1½	Carpenter contractor bore two holes vertically for each two anchors 2½ in. deep, 2⅛ in. center to center in each jamb and mullion using ¼-in. bits.
22	One anchor in each masonry jamb; brick reveal	10	2¾	¾	10¼	Mason contractor install in masonry wall engaging joint back of second brick.
31 forged	One anchor in each metal window frame jamb	13/16	5 1/16	1⅜	4⅜	Metal window contractor drill three holes vertically for each anchor, 2⅛-in. centers for No. 1420 flat head machine screws. With hollow metal windows use ⅜x1x10-in. mild steel reinforcing bar drilled and tapped to fit anchor holes. When installing on steel frames, tap the frames, no reinforcing bar being necessary.
1 (cast)		13/16	5 1/16	1⅜	4¾	
26	One anchor in each metal window frame jamb where anchor must be placed in a recess and No. 1 is not usable	13/16	5 1/16	15/16	4¾	
17M	One anchor in each steel window mullion	1½	2 15/16	2 7/16	11	Metal window contractor drill and tap two holes horizontally for each anchor, for 5/16-in. round head brass machine screws, 1⅜-in. centers for Lupton and 1⅝-in. centers for Fenestra and Truscon Sash.
24	One anchor in each steel window jamb	1	2 15/16	2	5¼	Metal window contractor drill and tap two holes vertically for each anchor for 5/16-in. round head brass machine screws, 2¼-in. centers.

Belt No. 1—Heavy webbing reinforced with leather.....
Belt No. 2—All leather with shoulder straps.....
Belt No. 3—All leather without shoulder straps.....

All belts 3½x36 in. and equipped with best yacht silk manila rope with minimum average breaking point of 2,695 lb. All belts provide double safety rope feature of top service rope and bottom safety rope. All are adjustable as to waists, shoulder straps, and rope length..... Furnished by contractor who furnishes and installs anchors



McCABE Door Hangers



McCABE HANGER MANUFACTURING CO.

THE McCABE HANGER MANUFACTURING CO.

Manufacturers of Sliding Door Hangers and Specialties

MAIN OFFICE AND FACTORY
425-427 West 25th Street
NEW YORK, N. Y.

McCABE
TRADE-MARK

Products

All types of SLIDING DOOR HANGERS, including:
ELEVATOR DOOR HANGERS.
PARLOR DOOR HANGERS.
ACCORDION DOOR HANGERS.
FOLDING DOOR HANGERS.
BARN DOOR HANGERS.
BRACKETS for Hangers.
SLIDING AND RECEDING WARDROBE DOOR HANGERS.

Also manufacturers of Combination Floor Guide and Weatherstrips, Vertical Bar Elevator Door Locks, Overhead Carrying Devices, Expansion Bolts, etc.

Service

Representatives of this Company are qualified and willing to furnish every possible assistance and co-operation to architects and builders.

You are invited to consult with us about your hanger problems. There is no obligation in receiving authoritative information from our Engineering Department. We are advising constantly how to meet various conditions which arise.

The Company and Its Responsibility

Specialization in the manufacture of door hangers for over thirty years has given this company an unsurpassed understanding of hanger problems.

Every hanger we manufacture has been specially designed to meet a particular condition. Our hangers possess features—found in no other makes—which positively insure superior ease of operation, and a long life without repair. In fine homes and well-constructed buildings everywhere in the United States and abroad—you will find McCabe Hangers silently and efficiently performing their duty. You may be sure that the first cost will be the last when the installation is a *McCabe* product.

Distribution

Our products can be obtained through any hardware dealer.

Disappearing Inter-wall Doors

The use of the disappearing inter-wall door is now becoming more general than ever before.



Partial View of Executive Offices, Chase National Bank, New York, N. Y.

Saving of space is a most desired feature in conference rooms, offices and apartments, and architects are using the space-saving advantages of the inter-wall door, as is shown in the photograph of the offices of one of the new city bank buildings.

You can have the wide opening between rooms when desired, with no doors standing in the way—or the rooms can be very effectively and completely separated if privacy is essential.

The design of the door can be made to harmonize with the woodwork of your rooms.

A 4-in. pocket in the partition wall is all the space required for the use of the inter-wall doors. The U-plate in the rear of the pocket makes it always possible to take out the doors without disturbing any partition woodwork.

House Door Hangers No. 10 and No. 2



Doors Operate on the McCabe Hangers, Which Are Especially Designed for Doors Which Disappear into Pockets Between Partition Walls

This type of door has a distinct advantage over the hinged door, as it does not take up the floor space needed for the swinging hinged door, and it is not in the way of furniture or draperies, etc.

Construction Details

No. 2 parlor door track is made of 13 gauge steel, the heaviest gauge used in any house door hanger. The carriages have drop-forged case hardened frames with double ball bearing wheels. Header plates, door plates, stops and guides are of malleable steel.

Pocket construction invariably provides a header, and to screw our header plates in position is the simplest form of erection. The pocket U-plate makes it always possible to get at the tracks. Printed instructions for hanging the doors are furnished in the sets.

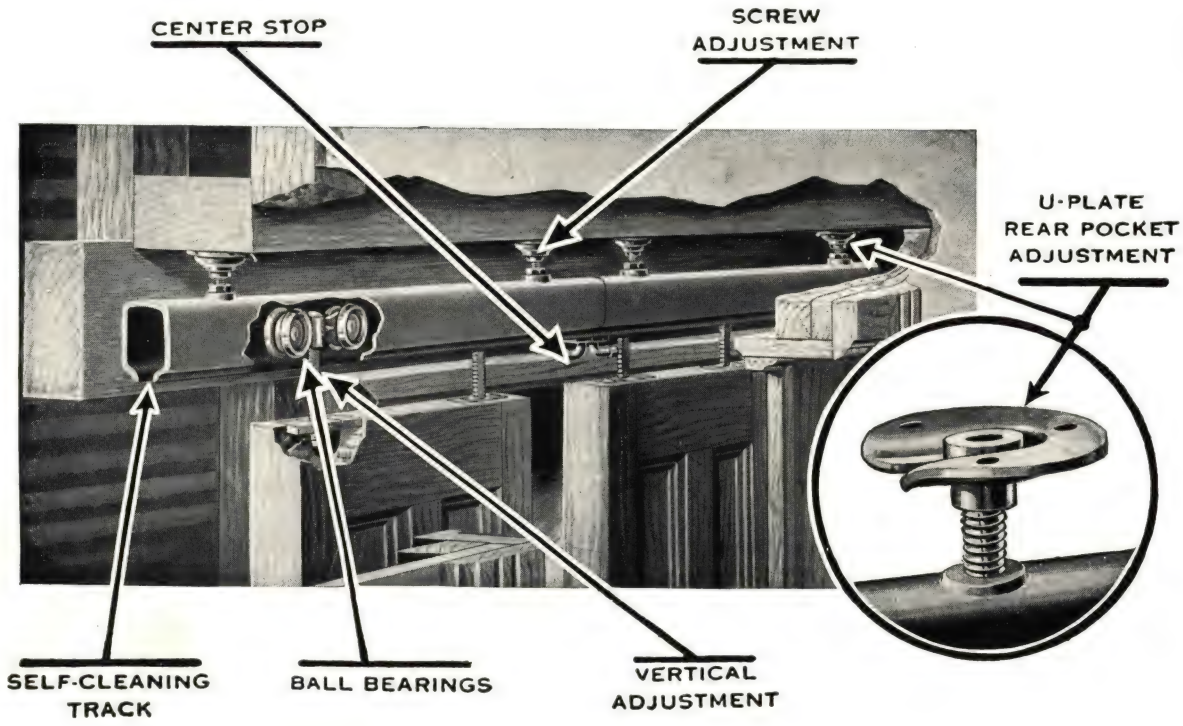
Single and Double Sets—Single sets have the tracks arranged in two pieces, the joint coming at the opening edge of the pocket. The tracks are connected with the No. 104 bracket which screws into header plate. Three screws only are furnished on the tracks for single sets.

Double sets have the tracks arranged in two pieces, the joint coming in the center of the opening. Each piece of track has two ½-inch screws. The end screws are furnished with lifting nuts which slide into U-shaped header plates at the rear of the pockets. Center stops are furnished with the double sets.

Where Used

The No. 10 House Door Hanger is made for the average house door of 150 to 250 pounds. The track is the same as used in the No. 2 Hanger. The carriage frames, header plates and door plates are made of pressed steel.

The No. 2 House Door Hanger is made for the heavier type house door of 300 pounds or over. This hanger has the drop forged carriage frames, header plates and door plates of malleable iron casting.

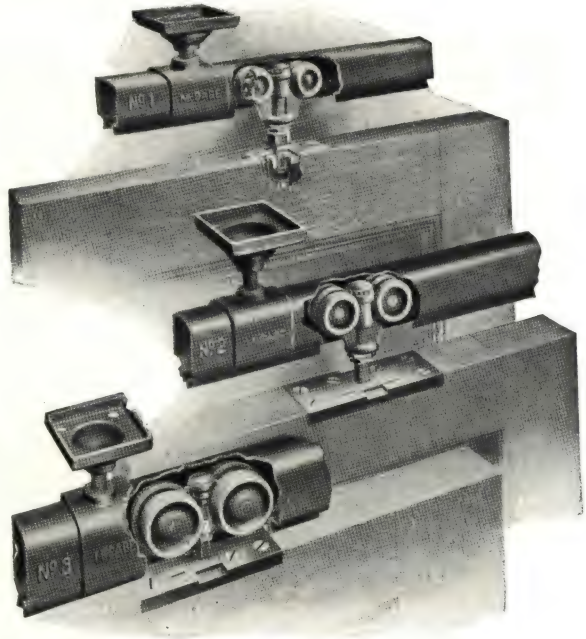


Accordion or Folding Door Hangers for Accordion or Folding Partitions

Ball Bearing Swiveled Carriage

The accordion type hanger is used on partitions where the jamb door is half the width of the other doors. There is no floor track required on this partition, as the doors are centrally hung. Flush bolts at the bottom of every other door will hold the partition firmly in place when closing the opening.

Any number of doors may be used and the average width of doors should not exceed 3 feet. Where an entrance is required through the partition, by using an odd number of doors, the odd door will be without a hanger and can be used as a regular hinged entrance.

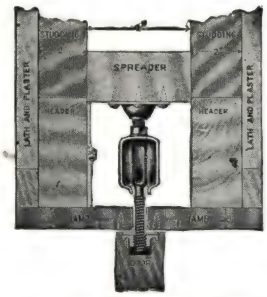


McCabe Accordion Tracks and Hangers

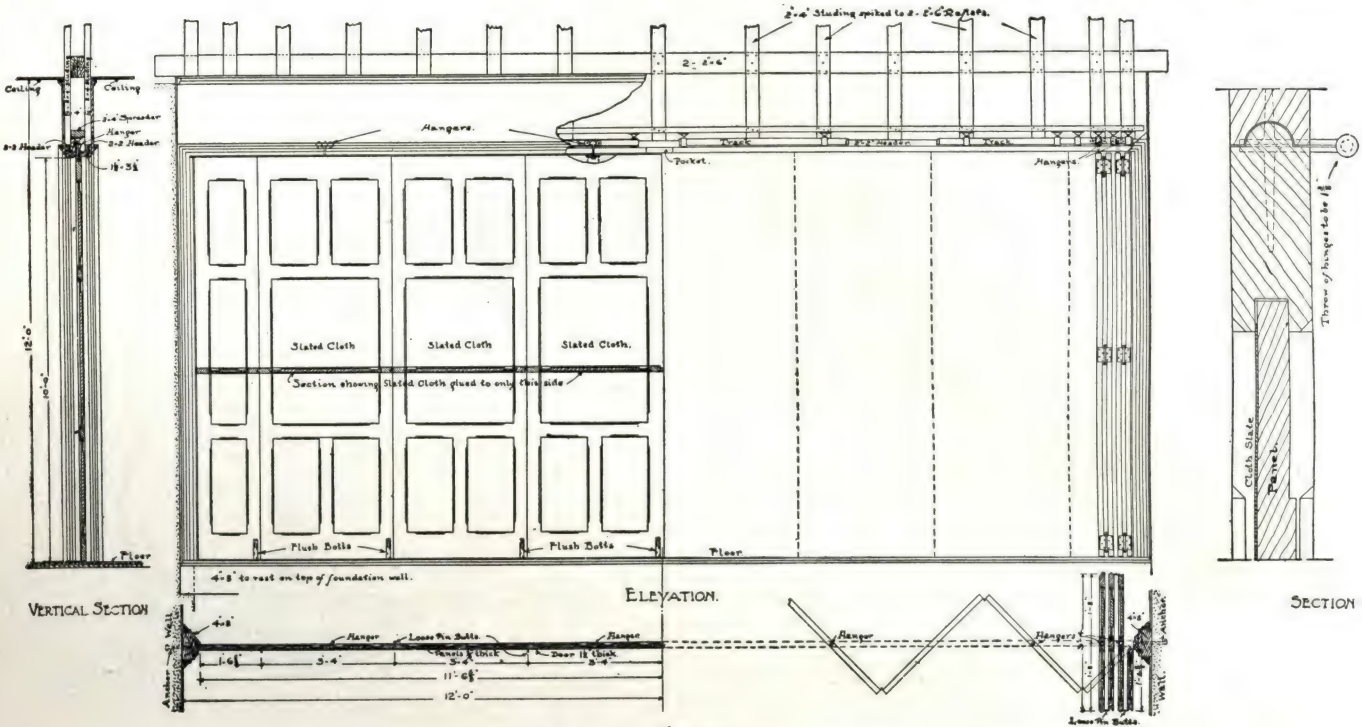


HEADROOM REQUIRED FOR ACCORDION DOOR HANGERS

Carriage No.	Headroom, in.
71	4½
72	4½
73	6½



Section Through Head



VERTICAL SECTION — ELEVATION. — SECTION

HORIZONTAL SECTION

Standard Details of Accordion Doors as Hung with McCabe Hangers

Special Folding Door Hangers Nos. 402 and 405

For Use Where All Doors in Partitions Are of Equal Width

Type No. 402—Used on doors where the regular accordion hanger cannot be used. On this type door the carriage is placed at the end of the door, instead of the center as in the accordion type. The accordion track is used at the top with the accordion carriage; the bottom of the door has a ball bearing guide which runs in special pressed steel channel in the floor.

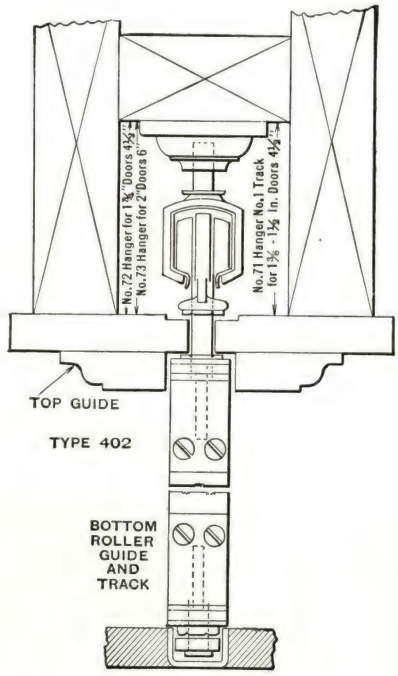
The doors will fold back as noted on plan and elevation sketch at the bottom of the page. It will be noted that all the doors are hinged together, making the opening and closing of the partition much quicker for the reason that the operator stands at the jamb side of the opening where the doors fold up and is able from this position to open and close the doors, saving the extra walking back and forth across the opening.

Type No. 405—Used on doors the same as the No. 402 type with the exception that the doors roll on the floor and guide overhead. This type is used where overhead construction is not strong enough to carry door.

See cross section for headroom on both types.

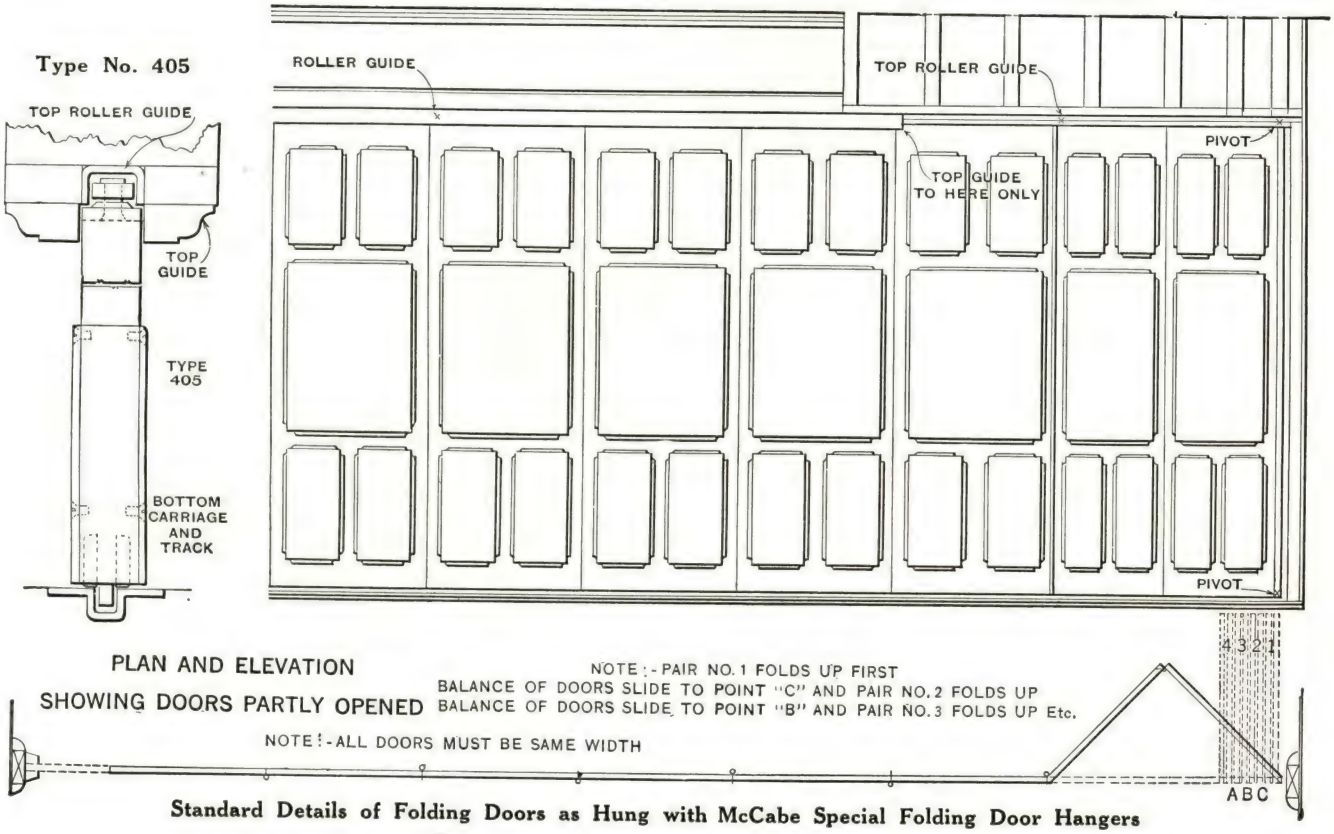
How to Specify—Folding partitions to be hung with McCabe No. 402 or McCabe No. 405 Special Folding Hangers.





Type No. 402

Type No. 405



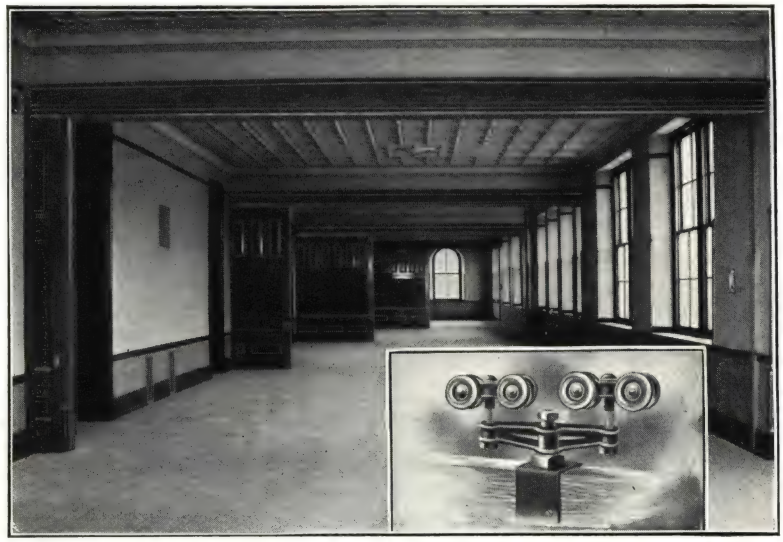
Standard Details of Folding Doors as Hung with McCabe Special Folding Door Hangers

Parallel Partition Sliding Door Hardware for Dividing Large Rooms

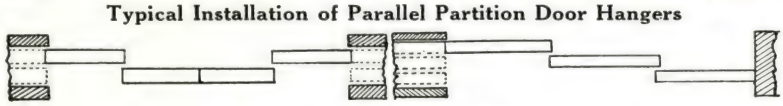
Parallel sliding doors forming movable partitions are used for dividing large rooms into smaller divisions. If the openings are large the doors can be arranged to slide back to each side. If the doors all slide to one side, separate tracks are required for each door.

For doors weighing 500 pounds we supply the No. 2 track with No. 94 carriage. For doors 500 to 1000 pounds we supply the No. 2 track with double-tree hanger. Clevis apron (shown at the right) or the No. 54 plate ($11\frac{1}{2}$x$2\frac{7}{16}$ inches) is furnished with these hangers.

Headroom—Required for double-tree hangers is 7 inches from bottom of header to top of the door. Using No. 94 carriage 5 inch headroom is required.



Typical Installation of Parallel Partition Door Hangers



Sliding Wardrobe Hangers for Use in School Buildings



Typical Installation of Sliding Wardrobe Door Hanger
For use in school buildings

The illustration at the left is a typical installation of McCabe wardrobe door hangers used in school buildings.

One long wardrobe is built, the front of which is closed by alternate stationary and sliding doors. The detail at the bottom of this page shows the sliding door mounted on hangers overhead.

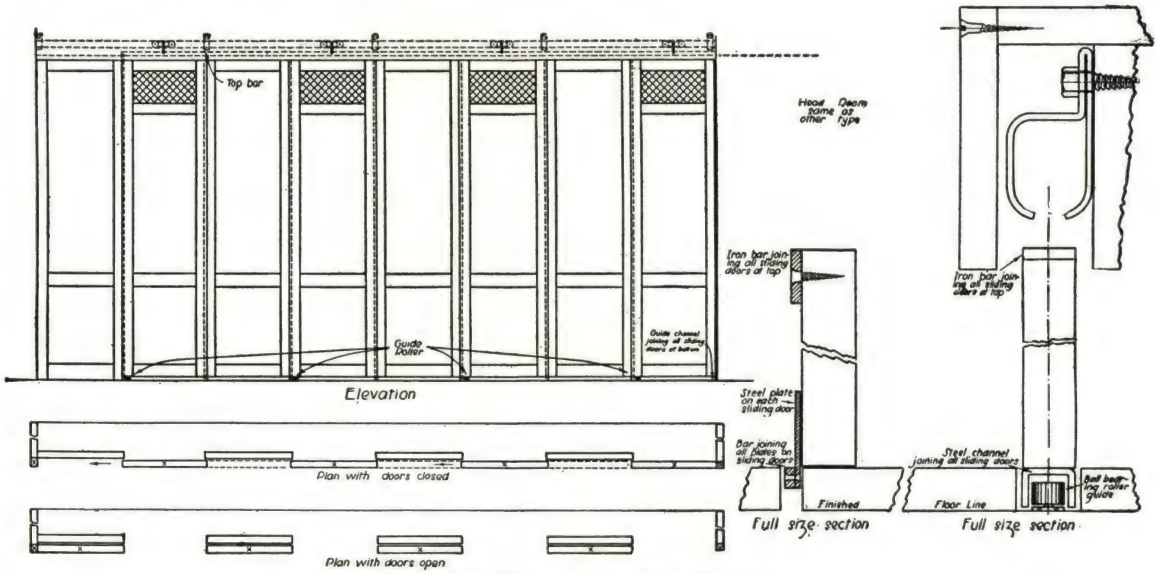
It is advisable to have the outside line of doors the sliding group, and the inside line the stationary group.

All sliding doors are connected on the top with a steel bar, and on the bottom with a steel channel.

One carriage is used on the top center of each sliding door. A small ball bearing roller guide is screwed to the floor, just inside the edge of the doors. This arrangement leaves the floor of the wardrobe clear.

All the wardrobe doors are opened or closed by the sliding of any one of the doors.

How to Specify—Wardrobe doors to be hung with McCabe Sliding Wardrobe Hangers complete with top bar and bottom channel.



Detail for Sliding Wardrobe Hangers

Stage Curtain Hanger Equipment for Center Parting Curtains

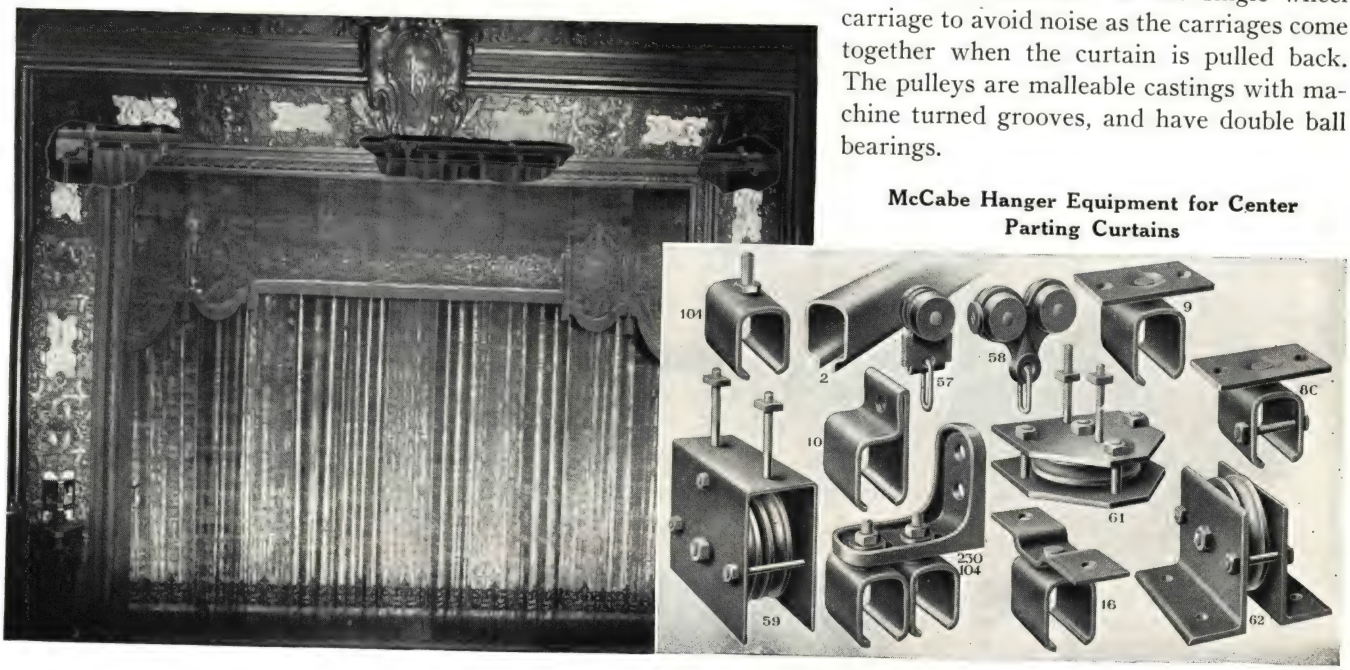
Our curtain equipment as illustrated below is used to the best advantage on center parting velours or plush curtains. The tracks should lap in the center of the opening about one foot. The track is supported on the side wall by brackets No. 230/104 and No. 10; if supported on wooden or iron header use brackets No. 16 or 8C.

At one end of one track we mount a double pulley and at the opposite end of the other a single pulley; over which an endless cord passes. We supply floor pulley if desired but it is not necessary.

Do not try to form the folds of the curtain with the carriages. It is best to arrange the folds as desired, binding off the top with canvas or leather strip, and space the carriages on this binding about 18 inches apart. It is always best to use double carriages with the single ones. The leading carriages on each curtain should be double carriages.

This equipment is used in the leading playhouses, motion picture theatres and school buildings throughout the country.

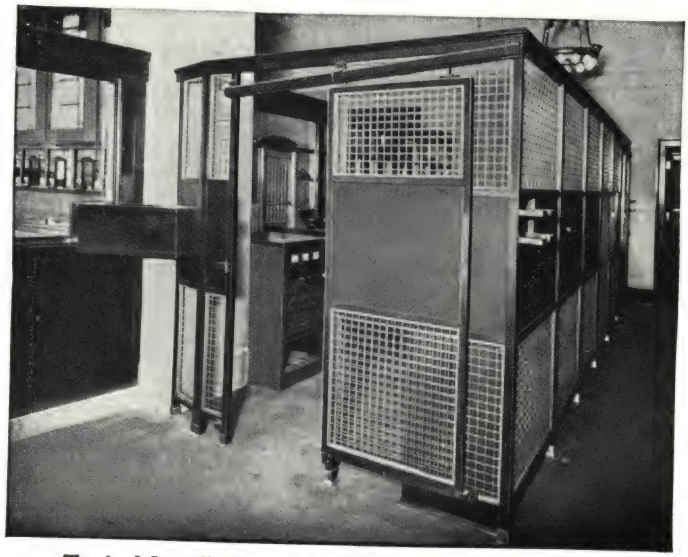
The track No. 2 is of 13 gauge steel. Carriages are ball bearing and have hard fibre wheels. You will note the felt piece in the construction of the single wheel carriage to avoid noise as the carriages come together when the curtain is pulled back. The pulleys are malleable castings with machine turned grooves, and have double ball bearings.



McCabe Hanger Equipment for Center Parting Curtains

Hangers for Sliding Gates

The illustration below illustrates the use of our No. 2 track and No. 10A carriage for self-closing teller cage doors.



Typical Installation of McCabe Sliding Gate Hangers

The No. 2 track is inclined about 2 inches in the average 6-foot length. It is attached with side wall brackets (see third page following). The No. 10A carriage is ball bearing with steel wheels, and has a riveted pendant which allows the pendant to take a vertical position, although carriage wheels are inclined.

Complete sets are furnished with:
Track No. 2, 6 feet 0 inches.
3 Brackets Nos. 10-11A-11B.
2 Carriages Nos. 10A-31G plate.

Hangers for Collapsible Elevator Gates

The No. 2 track and single wheel carriages are used for collapsible gates on elevator cars.

Track is furnished plain or with three ½-inch bolts for the average 6-foot length.

Carriages are ball bearing and have hardened frame, and pendant ½-inch diameter, ¾ inches long, 13 thread. Carriages are furnished with two nuts.

Door Hangers for Doors Weighing Up to 1000 Pounds

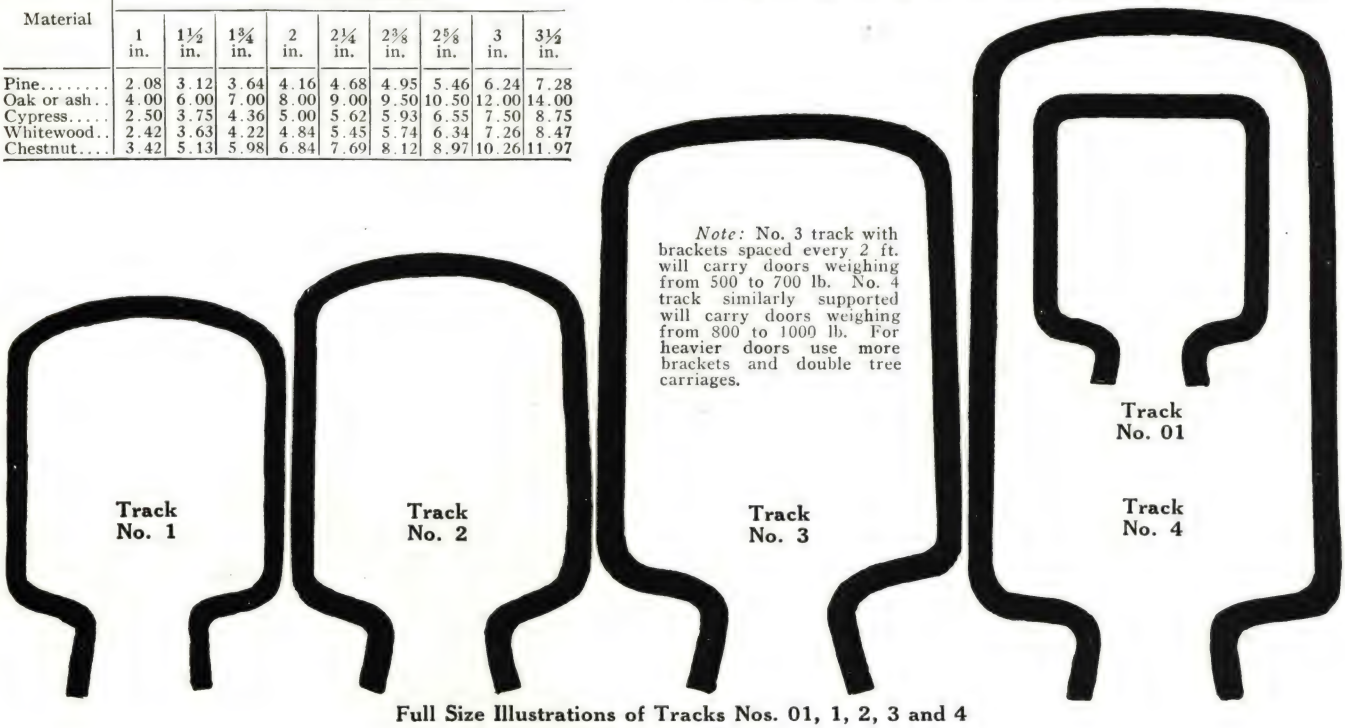
To Determine the Weights of Doors—The table below may be used to determine the weights of doors for the purpose of selecting a hanger of the proper strength. Use full thickness of door regardless of paneling.

Material	Weight in pounds of each square foot of door for various thicknesses								
	1 in.	1½ in.	1¾ in.	2 in.	2¼ in.	2⅜ in.	2⅝ in.	3 in.	3½ in.
Pine.....	2.08	3.12	3.64	4.16	4.68	4.95	5.46	6.24	7.28
Oak or ash..	4.00	6.00	7.00	8.00	9.00	9.50	10.50	12.00	14.00
Cypress.....	2.50	3.75	4.36	5.00	5.62	5.93	6.55	7.50	8.75
Whitewood..	2.42	3.63	4.22	4.84	5.45	5.74	6.34	7.26	8.47
Chestnut....	3.42	5.13	5.98	6.84	7.69	8.12	8.97	10.26	11.97

TRACK WEIGHTS, GAUGES AND STOCK LENGTHS

Track No.	Gauge No.	Weight, lb. per ft.	Stock lengths, ft.
01	13	1½	3, 4, 5, 6, 8, 10
1	13	2	3, 4, 5, 6, 8, 10
2	13	2	3, 4, 5, 6, 8, 10, 12
3	12	3	4, 5, 6, 8, 10
4	12	4	4, 6, 8

Note: No. 3 track with brackets spaced every 2 ft. will carry doors weighing from 500 to 700 lb. No. 4 track similarly supported will carry doors weighing from 800 to 1000 lb. For heavier doors use more brackets and double tree carriages.



Full Size Illustrations of Tracks Nos. 01, 1, 2, 3 and 4

Barn Door Hangers, Nos. 20 and 30

No. 20 Hanger—With No. 2 track is suitable for doors weighing 300 pounds or under. Brackets spaced 4 feet apart. No. 18 malleable apron has adjustment of 1¾ to 2¼ inches (thickness of doors).

Size of opening, in.*	Weight of set, lb.	
	Single doors	Double doors
3	20	..
4	24	..
5	28	33
6	32	37
7	37	42
8	41	46
9	46	51
10	50	55
11	54	59
12	57	62
13	..	69
14	..	74

*Or under.

No. 30 Hanger—With No. 2 track is suitable for doors weighing 300 to 500 pounds. Brackets spaced 2 feet apart. No. 19 malleable apron has adjustment of 2⅜ to 3 inches (thickness of doors).

Size of opening, in.*	Weight of set, lb.	
	Single doors	Double doors
4	28	..
5	33	..
6	38	45
7	44	50
8	47	55
9	57	60
10	57	65
11	62	70
12	67	74
13	71	79
14	76	84
15	..	89
16	..	93

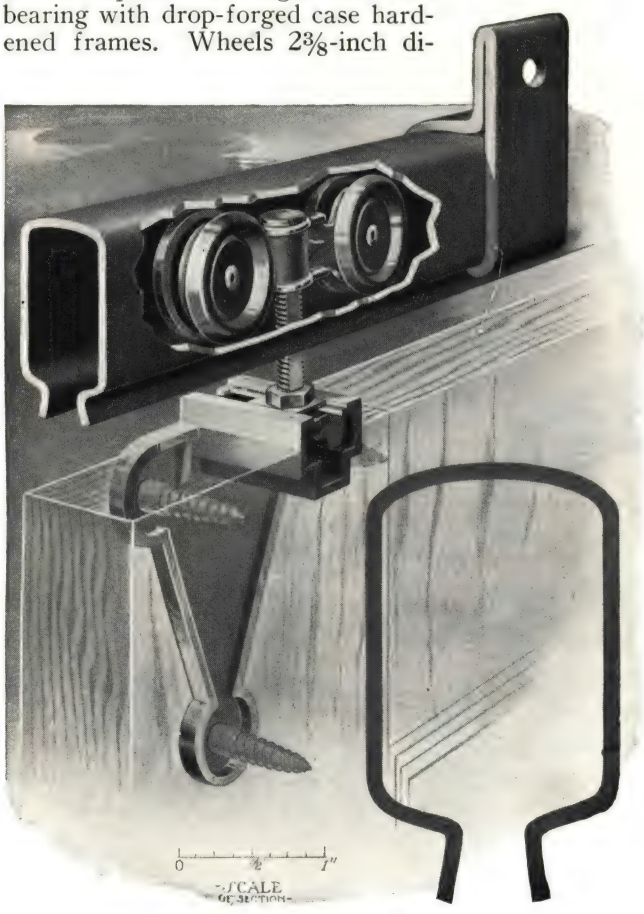
*Or under.



Nos. 20 and 30 Barn Door Hanger

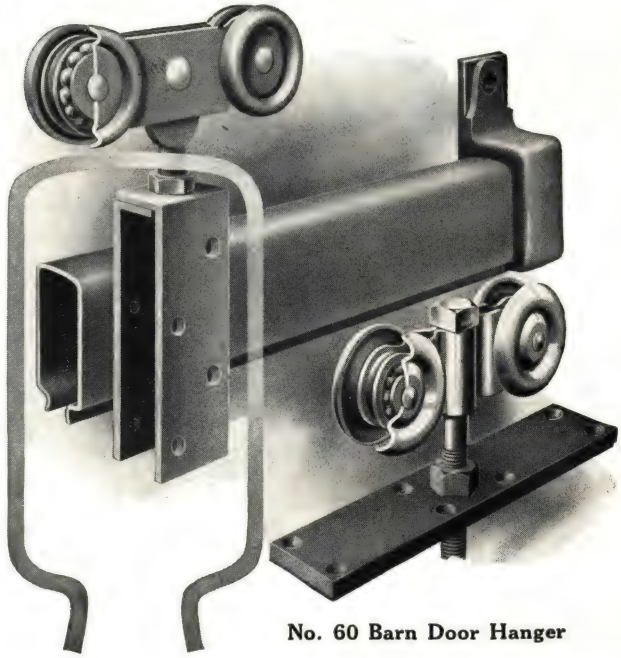
Barn Door Hangers Nos. 3 and 60

No. 3 Hanger—Designed for heavy warehouse and garage doors up to 800 pounds. The No. 3 track is made of 12 gauge steel. Brackets should be spaced 2 feet apart. Carriages are ball bearing with drop-forged case hardened frames. Wheels 2⅜-inch diameter. No. 19 apron 7 inches long, or heavy clevis 9 inches long. Adjustment lateral and vertical. Head room required from top of bracket to top of door is 7 inches.



No. 3 Barn Door Hanger

No. 60 Hanger—For heavy warehouse doors weighing 1,000 pounds per door. No. 4 track self-cleaning is made from 12 gauge steel. Brackets should not be spaced over 2 feet apart. Carriages Nos. 60 and 60A have pressed steel frames, case hardened. Wheels 3-inch diameter with double rows of ball bearings. Adjustable clevis apron (heavy) 9 inches long. Adjustment lateral and vertical. Head room required from top of bracket to top of door is 7½ inches.



No. 60 Barn Door Hanger

Receding Wardrobe and Receding Booth Hardware

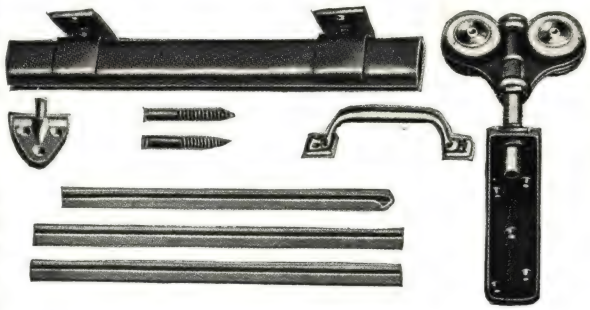
Receding Wardrobe Door Hardware—Used on school buildings where individual compartment wardrobes are preferred. This can be accomplished as shown in illustration. Each wardrobe has two doors, which slide back at right angles and stand parallel to side of wardrobe, allowing full interior to be used. Four channels are used on floor—two parallel to sides of wardrobe and two at 45°. Two tubular, self-cleaning tracks are used at 45° overhead, with two channels parallel to sides of wardrobe. Two ball bearing carriages, one in center of each door, with two pin plates, one at bottom center of each door, carry doors into position at sides of wardrobe. Two pins on rear of each door, top and bottom, guide doors in side channels.



Typical Installation Individual Compartment Wardrobe, Receding Type
For use in school buildings

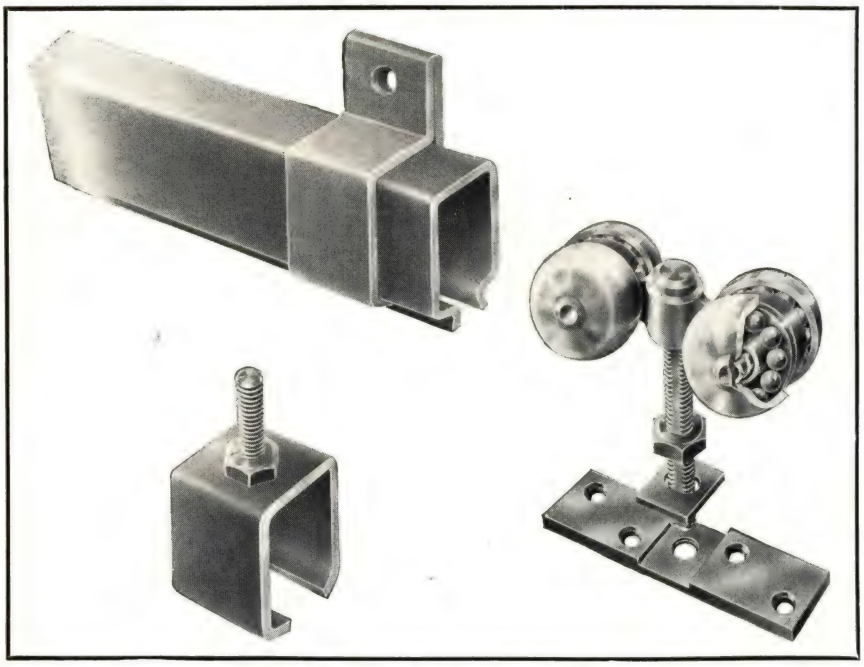
Receding Type of Booth Door Hardware—First manufactured by our Company for telephone booths. The door slides to the side and stands parallel to side of booth when open. Hardware for telephone booth is exactly one half the requirements shown for wardrobe doors opposite.

When ordering state exact width of each opening and width and thickness of each door.





Typical Installation of Receding Booth Hardware



Wardrobe Door Hardware—No. 01 Track

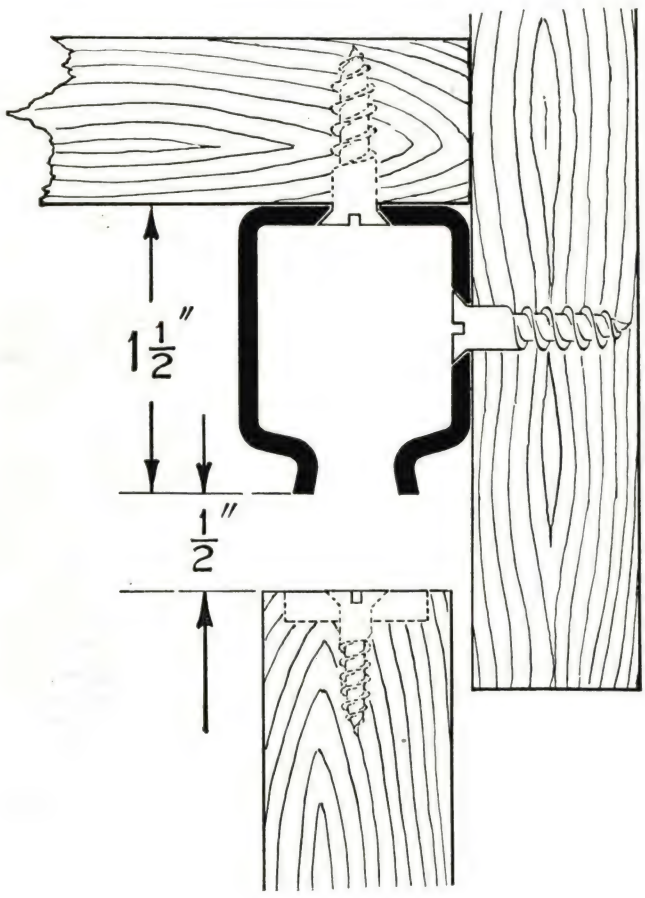
No. 01 Track and Hanger

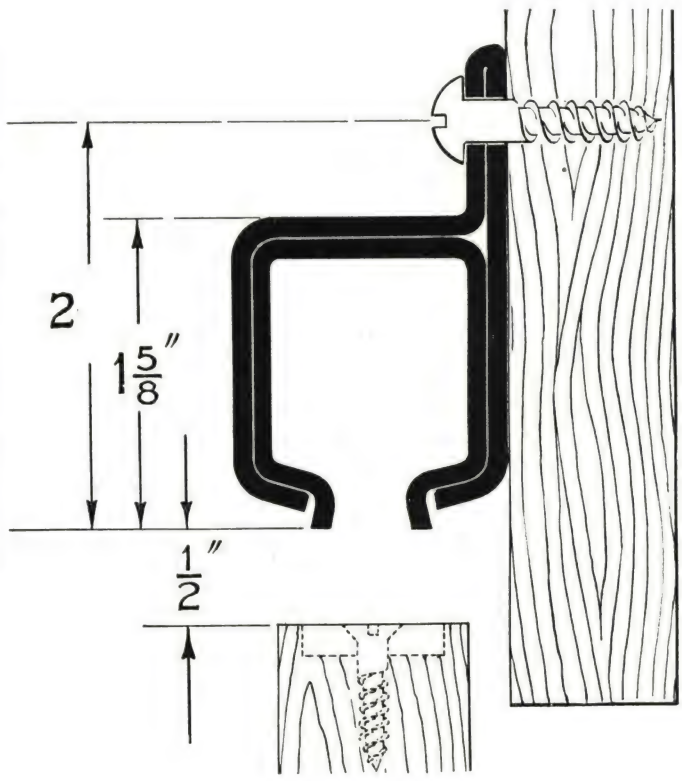
The No. 01 Track and Hanger has been designed for the light sliding doors, for closet, cupboard, wardrobe, or kitchenette, weighing from 50 to 75 pounds per door. It can also be used for light wire gates for bank cages, etc. The track measures 1¼ inches across and 1½ inches in height. It is made from our standard 13-gauge steel, and is of the same self-cleaning design as our other tracks.

The carriage measures 2¼ inches across. It has a drop-forged frame and steel wheels, 1⅛ inch in diameter, with double row of ball bearings in each wheel. The ¼-inch pendant is loose and fastens with nut and check washer into the small plate which is attached to the door.

Details of No. 01 Track and Hanger

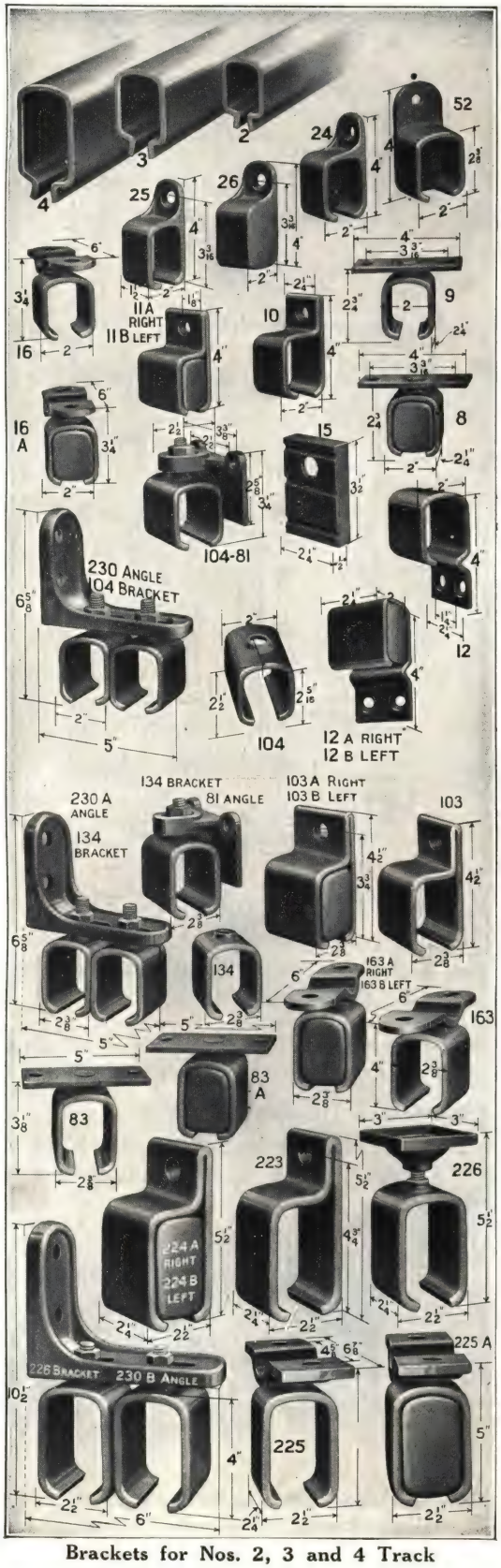
The details below show *full-size* head section of the No. 01 track and hanger (right) using the sidewall bracket attachment. The attachment with brackets is advisable wherever possible as it gives a more rigid and secure fastening of the track. At the left is shown this hanger using countersunk wood screw attachment on the side of overhead, as desired. This arrangement is used on light doors with very limited headroom.





Brackets

The following illustration shows the various forms of brackets used for hanging track to the structural member of door opening. Fittings in upper half of illustration are for Nos. 20 and 30 hangers, No. 2 track; the 6 fittings at bottom are for No. 60 hangers, No. 4 track; and the remaining fittings are for No. 3 track.



Brackets for Nos. 2, 3 and 4 Track

Guide Rollers

Reversible Guide—For doors 3 inches thick, steel angle reversible with adjustable guide wheel 2 inches in diameter. Weight, 1½ pounds.

Lag Screw Guide—⅜-inch lag, 4½ inches long, 2-inch diameter wheel. Weight, ½ pound.

Floor Guide—Malleable floor plate, 3 inches square. Wheel 3 inches in diameter, overall height, 3½ inches. Weight, 1½ pounds.


Reversible Guide

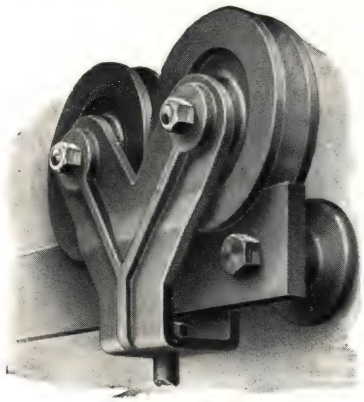

Lag Screw Guide


Floor Guide

Shoe Guide

For doors 1¾ to 2¼ inches thick, 3 inches wide, pressed steel angle, long side 4 inches, short side ¾ inches. Made up for special door thicknesses. Weight, 1 pound.


Shoe Guide


Tandem Trolley

Tandem Trolley

Originally designed for heavy engine house doors, but is used on any heavy door where flat bar track construction is desired. Wheels are 4 inches in diameter malleable cast—double ball bearing—machine turned grooves. They are connected by the Y-shaped malleable bracket which is bolted to the door.

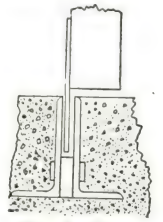
Floor Guide and Weatherstrip

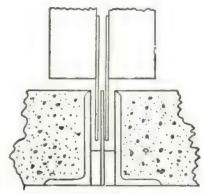
The No. 2 track inverted and anchored in the concrete by the No. 9 bracket forms the floor guide shown in this cut. It extends the full travel of the door. The weather strip which is made of heavy sheet steel, black enamel finish, guides between the lips of the track. This not only holds the door in alignment but makes the construction weatherproof.


Floor Guide and Weatherstrip

Weatherstrip and Floor Guide

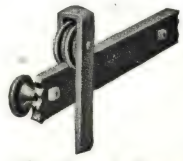
Particularly desirable for parallel door construction. The angle sides form an anchor in the concrete and are held in position by separators. The clear spaces between separators allow water or dirt to drain off. When ordering state width and thickness of doors, and width of opening, or send rough sketch of door layout.


Single Door


Double Door

Strap Hangers for Flat Track

Constructed to run on a ⅜-inch flat bar track, 3 inches wide. Wheels — malleable castings, 5 inches in diameter, double ball bearings—extra heavy steel strap apron 21 inches long. Finish in black enamel.


Flat Track Strap Hangers

No. 5 Elevator Door Hanger

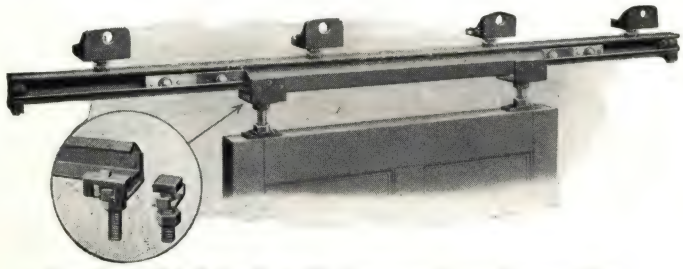
The track is a self-cleaning type, simple in construction, having three working parts, namely: hanger track, carriage track and ball retainer. It is made of No. 10 gage cold rolled steel, has a smooth rolling surface for the bearings and is of sufficient thickness and strength to insure long and efficient service.

The bearings consist of ¾-inch hardened steel balls. These balls are the largest size in any elevator door hangers. Balls are spaced 3-inch centers which gives 17 balls to a 3-foot door. The balls, as noted on full size cross section, having only four points of contact, reduce the friction to a minimum, and easy running and quiet operation is the result.

The length of the hanger track is equal to the full travel of the doors. The carriage track is equal to the width of the door less the distance required for track stops. The ball retainer is three-fourths of the full travel of the door. There is no cantilever action, as the weight is always traveling on the balls. This ball retainer also acts as a cleaner in the track.

These hangers are suitable for doors weighing up to 300 pounds. On doors of heavier weight we supply track of heavier gage steel and 1-inch balls.

Doors may be adjusted laterally or vertically without difficulty.



Detail of "McCabe No. 5" Elevator Door Hanger for Single Door

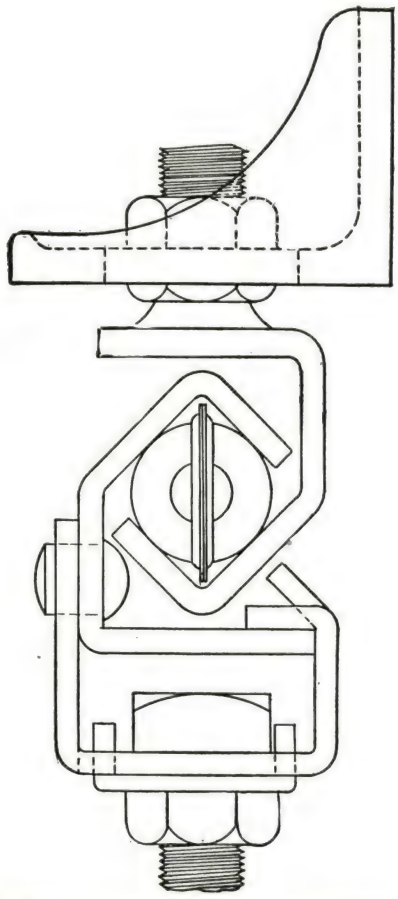
Elevator door hangers and tracks can be furnished for three arrangements of doors, namely: single door type; two-door type with doors sliding in opposite directions; and two-door type with doors sliding in the same direction.

How to Specify—Equip elevator doors with "McCabe No. 5" Elevator Door Hangers and "McCabe" Vertical Bar Locks.

McCabe "Blue Book"—This book on elevator door hangers sent on request.

No. 5 Hanger for Single Door

This arrangement is the most simple and is such that the door can slide in either direction. Angle brackets are furnished with all hangers as illustrated.



Cross Section of "McCabe No. 5" Elevator Door Hanger for Single Door

Scale, full size

Single Bar Swing Device

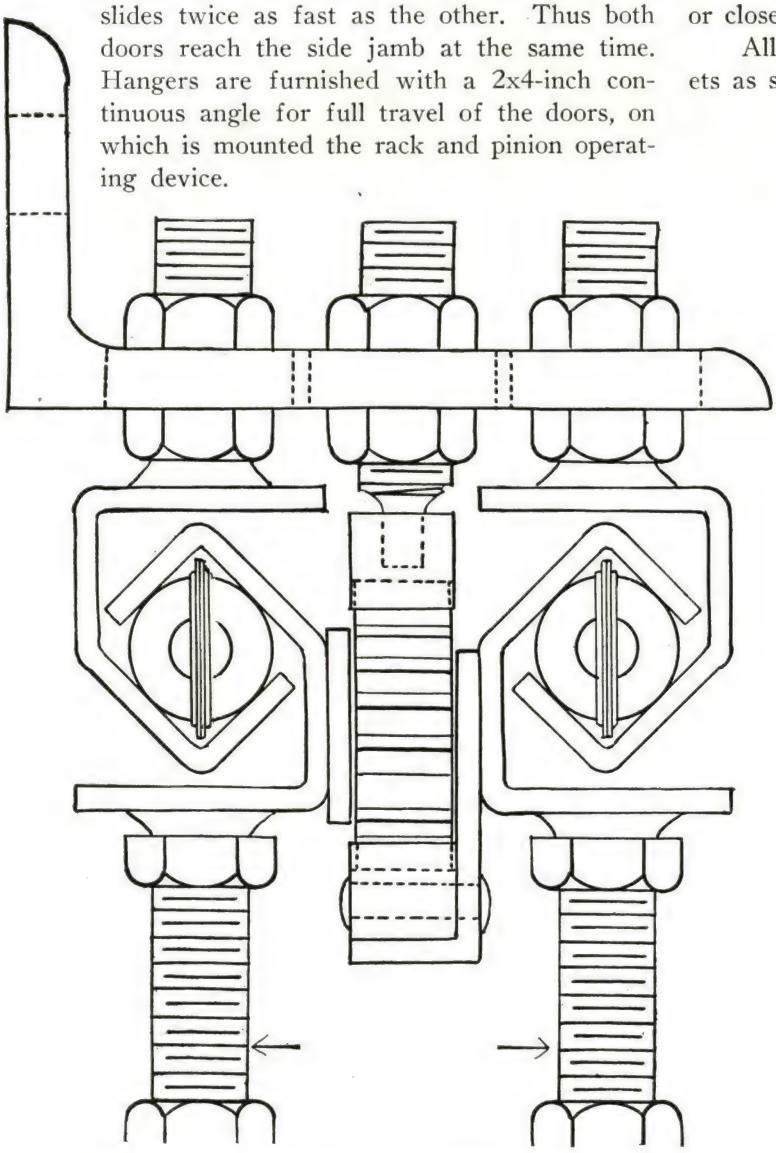
Used for sliding swinging doors in connection with No. 5 single hanger where transom bar is stationary.



Single Bar Swing

No. 5 Hanger with Two Doors Sliding in the Same Direction (Two-speed Type)

Two sets of tracks are required for this arrangement, each door sliding on a separate track. A pinion and two racks are so arranged that one door slides twice as fast as the other. Thus both doors reach the side jamb at the same time. Hangers are furnished with a 2x4-inch continuous angle for full travel of the doors, on which is mounted the rack and pinion operating device.



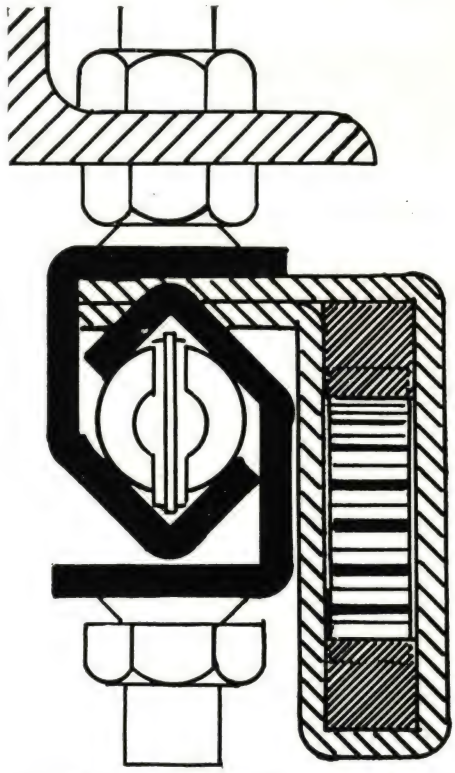
Cross Section of "McCabe No. 5" Elevator Door Hanger with Pinion and Rack Adjustment for Two Doors Sliding in the Same Direction

Scale, full size

No. 5 Hanger with Two Doors Sliding in Opposite Directions

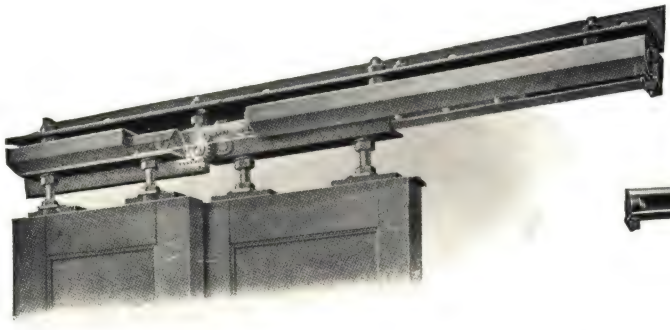
Both doors slide on a single track. A pinion and two racks are so arranged that when either door is opened or closed the other door automatically opens or closes.

All the hangers are furnished with angle brackets as shown.



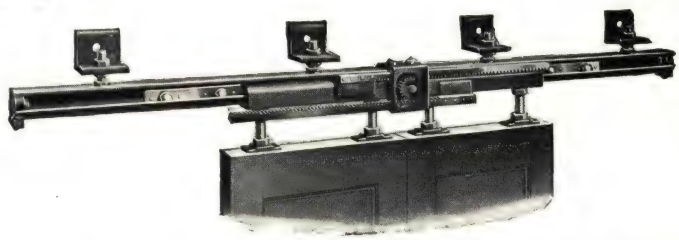
Cross Section of "McCabe No. 5" Elevator Door Hanger with Pinion and Rack Adjustment for Two Doors Sliding in Opposite Directions

Scale, full size



Detail of "McCabe No. 5" Elevator Door Hanger with Two Doors Sliding in the Same Direction

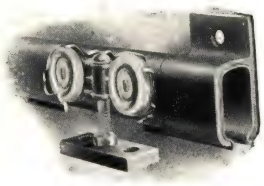
Showing pinion and rack adjustment



Detail of "McCabe No. 5" Elevator Door Hanger with Two Doors Sliding in Opposite Directions

Showing pinion and rack adjustment

Elevator Door Hangers

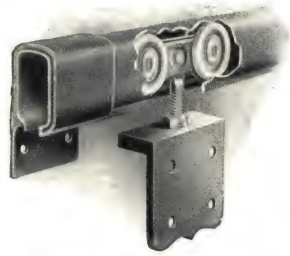


Hanger Equipped with No. 31-G Plate

Track 6 feet, three brackets, two carriages No. 84 with 31-G plates for iron doors or No. 97 apron for metal covered doors.

When ordering give width of doors, thickness and direction of swing of door, and state if hollow metal or wood (metal covered).

Head room required for any of the above sets, 6 inches.



Hanger Equipped with No. 97 Apron



No. 2 Hanger for Bolting Overhead to Angle Construction

	COMPLETE SET
Track No. 2, 6 feet	2 carriages No. 84 with 31-G plate or 97 apron
3 bolts	Weight, 19 pounds

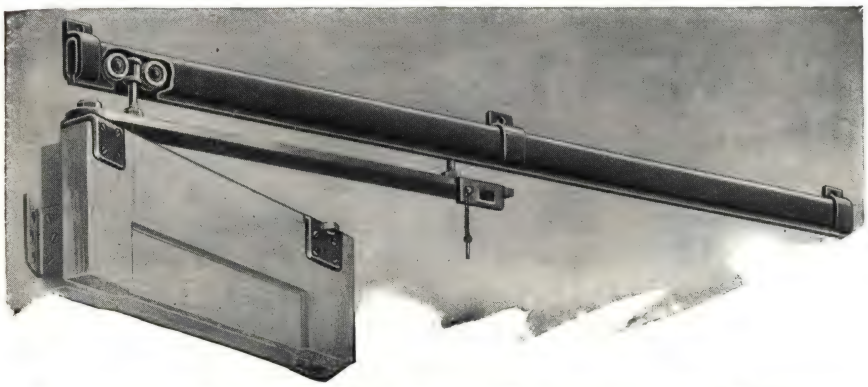
McCabe Bar Lock

Made in spring pattern of steel tube, finished black oxidized. Is simple in its construction and is made strong and durable, to insure long service. Standard length of bar 3 feet 6 inches.



No. 2 Hanger for Combination Swing and Slide Doors when Transom Swings Out

	COMPLETE SET
Track No. 2, 6 feet	2 carriages No. 84, 97 apron
3 brackets	1 shoe guide
	Weight, 25 pounds



No. 2 Hanger with Single Bar Swing Device Where Transom Bar Is Stationary

	COMPLETE SET
Track No. 2, 6 feet	Single bar device
3 brackets	1 shoe guide
2 carriages No. 89, 97 apron	Weight, 30 pounds



Bar Lock



Garage Equipped with Sliding Door Hangers

Sliding Garage Door Hangers

The illustrations below show practical layouts of garage door openings which we feel will be a help to any one planning or designing garages.

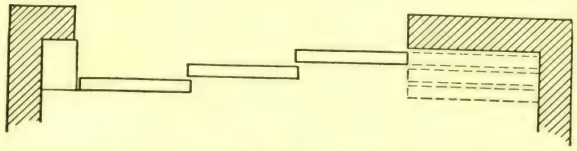
Any number of doors can be used in these openings and our hangers can be applied to any weight of door.

For the average weight of door up to 200 pounds we use the No. 2 size of track, brackets and rollers.

The No. 3 size of track and hanger is furnished for heavier weight doors.

We manufacture sliding door hangers only; therefore locks, hinges or pulls are not included in our sets, but can be purchased from any hardware dealer.

When ordering, state type, width of opening, number, size and thickness of doors.



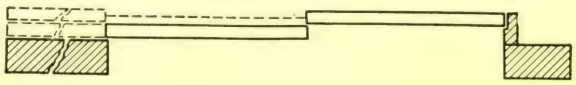
Type G-1

Using No. 16 bracket provide header for bracket over top of door

Head room 5 inches from top of door to underside of header

300-pound doors and under, brackets 4 feet apart

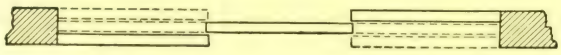
500-pound doors, brackets 2 feet apart



Type G-3

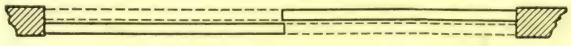
Head room 5 inches from top of door to underside of header

300-pound doors, brackets 4 feet center



Type G-4

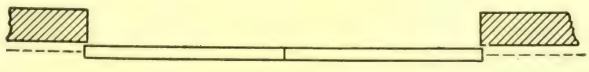
Head room 5 inches from top of door to underside of header



Type G-5

Head room using No. 16 brackets, 5 inches from top of door to underside of header

Head room using No. 230/104 (angle bracket) top of door to top of bracket 9 inches

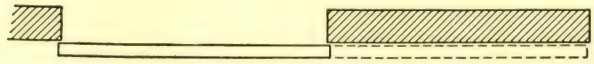


Type G-6

Use No. 20 Barn Door Hangers double, see page 8 for size of opening

Roller guide page 11

Head room 6 inches

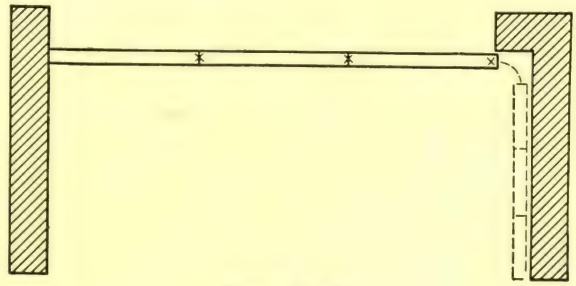


Type G-7

Use No. 20 Barn Door Hangers single, see page 8 for size of opening

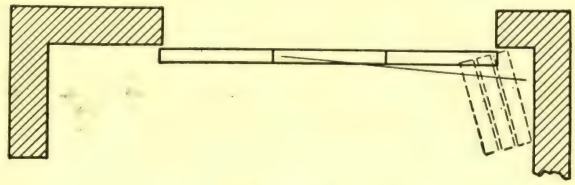
Roller guide page 11

Head room 6 inches



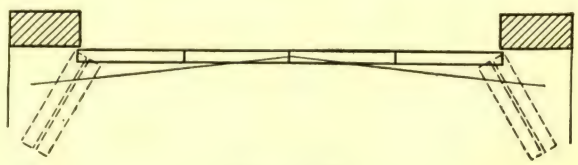
Type G-12

Head room 6 inches



Type G-15

Head room 6 inches



Type G-16

Head room 6 inches


McCABE
DOOR HANGERS
McCABE HANGER MFG. CO.
NEW YORK, N.Y., U.S.A.

ALLITH-PROUTY COMPANY

Manufacturers of Airport, Garage and Fire Door Hardware

DANVILLE, ILL.

Products

OVERHEAD CARRIERS.
DOOR HANGERS and HINGES.
GARAGE and AIRPORT DOOR HARDWARE.
INDUSTRIAL and FIRE DOOR HARDWARE.

TRADE-MARK

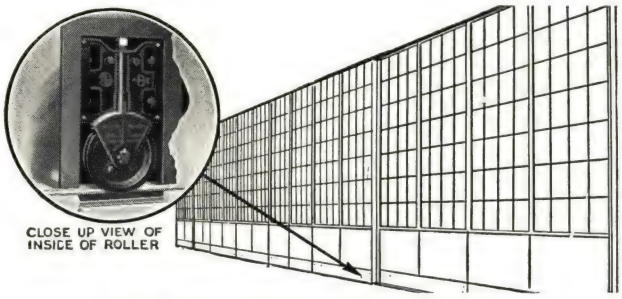
Also manufacturers of:
Rolling Ladders.
Pitching Shoes and Stakes.
Certified Malleable Iron Castings.

For Allith Stadium Seat Brackets, see Manufacturers' Index

AIRPORT DOOR HARDWARE

Straight Sliding Doors on Bottom Rollers

Straight sliding rollers on bottom rail are preferable for extremely large and heavy doors especially where they are over ten feet in width. These doors are carried on industrial rail embedded in concrete to give rigid support. Vertical adjustment is provided to insure weather tight closing. Doors carried on this equipment slide straight back from the center of the opening past the sides of the building, allowing a clear opening. The track may be laid on single or parallel runs. The tops of the doors are guided by rollers between the guides incorporated in the overhead construction. These guides extend past the sides of the building to some form of support provided. In some designs the front piers are of a size to permit stacking door in a pocket within the pier.



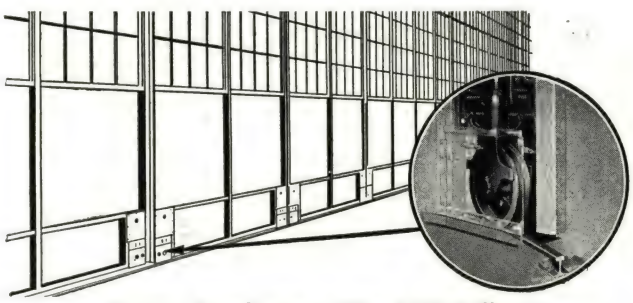
Typical Installation of No. 7090 Roller



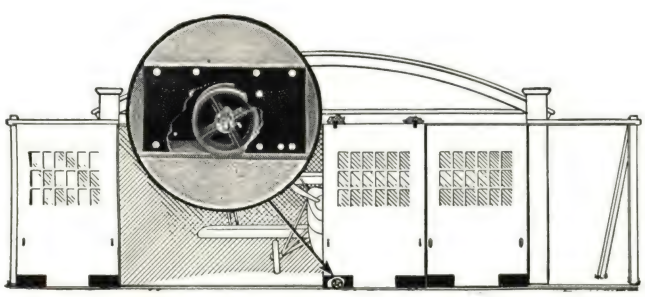
All our bottom rollers are equipped with genuine Timken bearings. Note big rugged axle shaft

Round-a-Corner Doors Carried on Bottom Rail

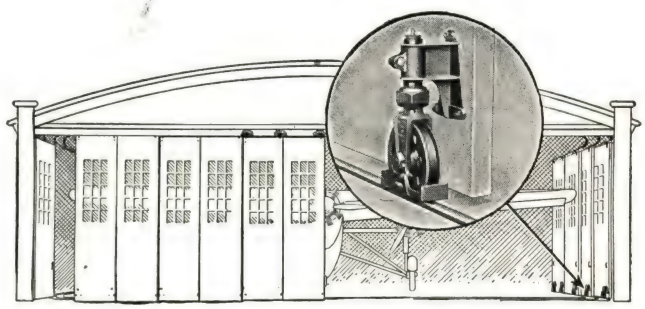
The ideal arrangement for large openings; doors inside out of the wind and weather, when open. When they are in closed position they are under the roof and inside of the walls proper. In operating they are simply pushed around the corner on a curved track and stand along the sidewall. The roller frames for these doors are designed to permit adjustment after installation, for lining up of doors and to take care of unevenness of the track. This feature insures weather tight closing. The wheels rotate on Timken bearings and are machine turned to insure concentric treads. The pivot shafts are in Timken bearings to insure free turning as well as to forestall the possibility of the wheels climbing the rails of the curve. All bearings are equipped with Alemite fittings for easy lubrication.



Typical Installation of No. 7092 Roller



Typical Installation of No. 7050 Roller



Typical Installation of No. 7062 Roller

Airport Door Roller Details

Rollers No. 7090 (without wheel lock) and 7090 WL (with wheel lock) are identical in size and the following details are correct for both.



No. 7090WL

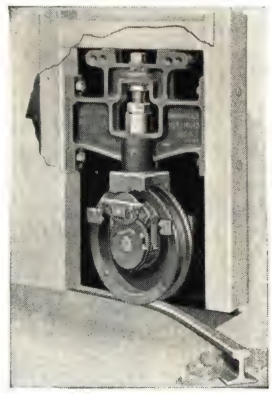
When wheel lock roller is used, provision should be made in the spacing of track centers to allow at least ½ in. more space in order to clear the foot trip.

On straight sliding door installations it is customary to use multi-parallel tracks, in which case each door is then equipped with one roller with the wheel lock (7090 WL) and one roller without wheel lock (7090).

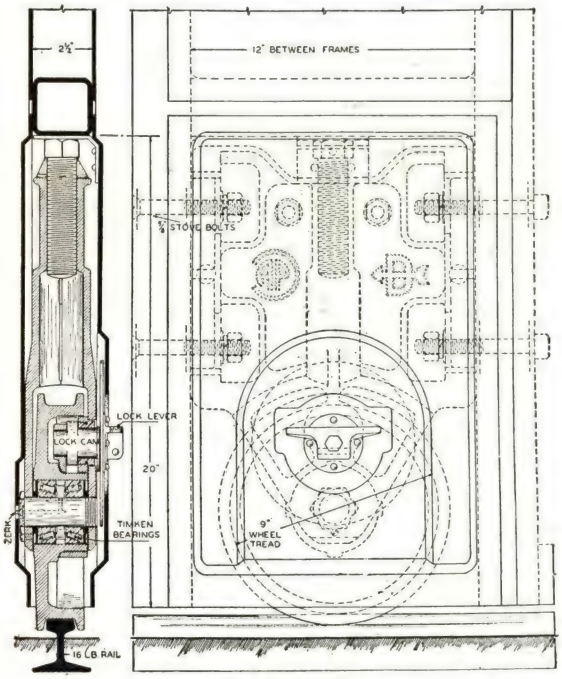
Rollers No. 7092 (without wheel lock) and 7092 WL (with wheel lock) are identical in size, and the following details are correct for both.

For installations with doors rolling round the corner—the placement of floor tracks, curves and top guides calls for special layout data in order to provide proper clearances of all door edges regardless of position and travel. Allith has this data in blue print and will gladly furnish information to interested architects and engineers, or will work out any special problem where door handling is under consideration.

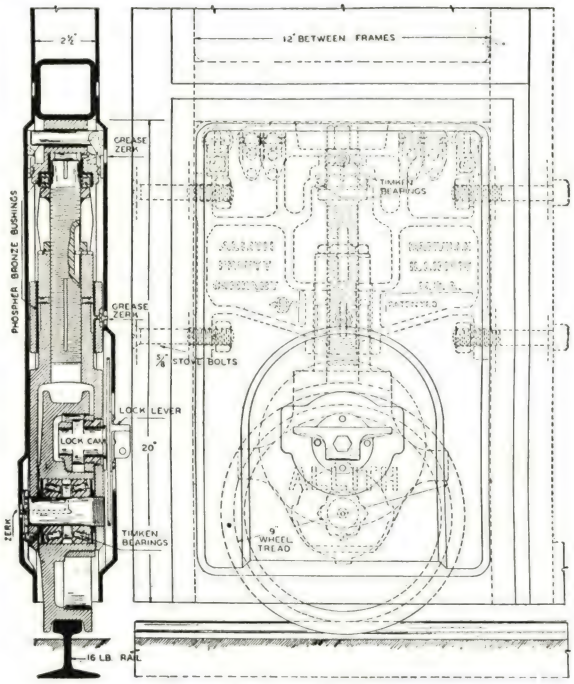
Weathering plates for complete weathertightness around mortise in which bottom rollers are bolted are considered by Allith of as much importance as the rolling action of the wheels. We do not use rubber or fabric that can deteriorate. Allith weathering plates are of embossed steel.



No. 7092WL

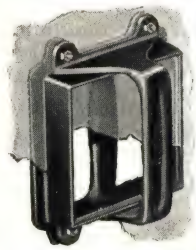


No. 7090WL



No. 7092WL

No. 1306 Flush Door Pull

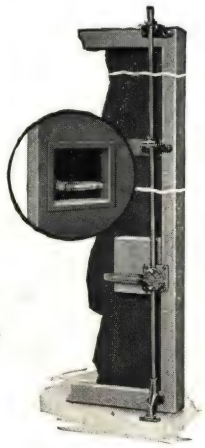


No. 1306
Flush Door Pull

Made of two parts of certified malleable iron. The flush or mortised side is set into the steel plate of the door while the raised pull is bolted to the opposite side. These pulls are large and sturdy so full strain may be applied without danger of bending. Two flush pulls may be used together on doors with plates on each side.

No. 2239 Cremone Bolt

Especially designed for very high doors. Used on the swing door next to the jamb. The guides are provided with adjustments allowing the doors to swing well under the header. Flush handle is set in the plate on the outside of the door. All cast parts are of certified malleable iron. Rods are of the highest grade steel. Vibration will not cause the bolt to change from locked to unlocked position or vice versa.

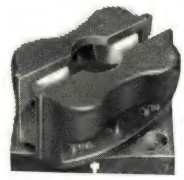


No. 2239
Cremone Bolt

No. 7164 Top Guide Roller

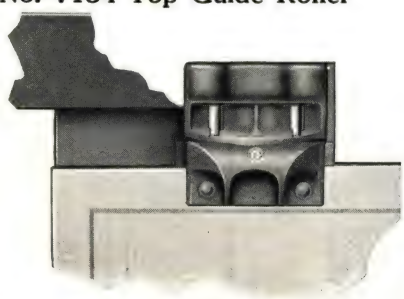
Allith Guide Rollers No. 7164 for straight sliding doors and single angle guide are of the swivel type to produce free movement even though angle may be somewhat distorted.

Made in sizes and types for either channel or tube doors and for all usual door thicknesses.



No. 7164
Top Guide Roller

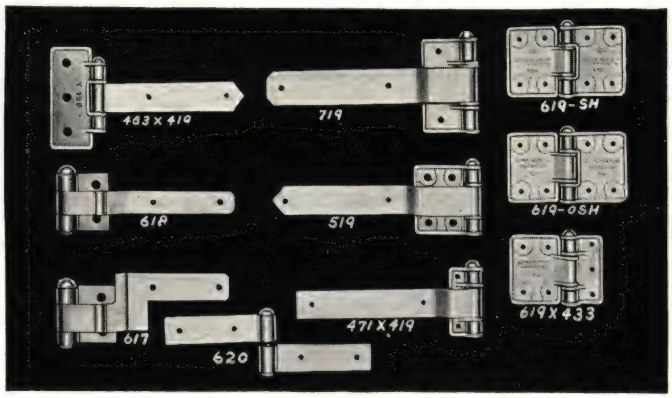
No. 7134 Top Guide Roller



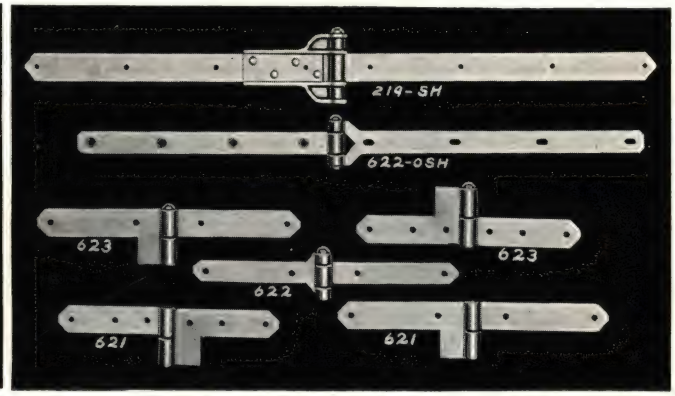
No. 7134
Top Guide Roller

Guide rollers for round-the-corner doors and single angle guide must incorporate proper weathering. The weathering wing on No. 7134 is so designed as to travel freely on curves and to assure perfect weathering when doors are in closed position.

ALLITH AIRPORT AND INDUSTRIAL DOOR HINGES



Special Hinges for Most Any Purpose Are Offered and Manufactured by Allith



Illustrations Feature Some of the Generally Used Types for Airport and Industrial Door Requirements

ALLITH LIFT DOOR HARDWARE



Note: In Illustration above, Door Does not Hang down above Top of Opening



Allith Lift Door Hardware is supplied as a separate and distinct equipment. The wood (or metal) door portion is not included. The omission of the door part is in line with many requests from architects and builders who have expressed the desire to use locally made doors in order to have the design harmonize with that of the building.

Complete data covering construction sizes for door panels will be gladly furnished upon request. Engineering assistance is also offered in the selection of a proper arrangement of door operation where unusual or difficult conditions must be met.

Special sets are provided for openings to Greasing Stations where elevating racks are used. Electrical operation is also offered as special equipment.

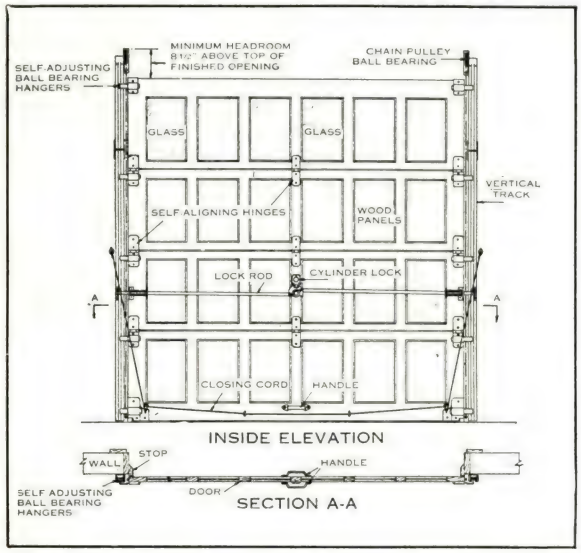
Track is the box type with two channels to carry the door load. In this manner, all chance of strain or twisting is overcome. The use of large radius curves, assembled in a die formed and welded unit, maintains permanent alignment at the point to which greatest pressure is brought to bear.

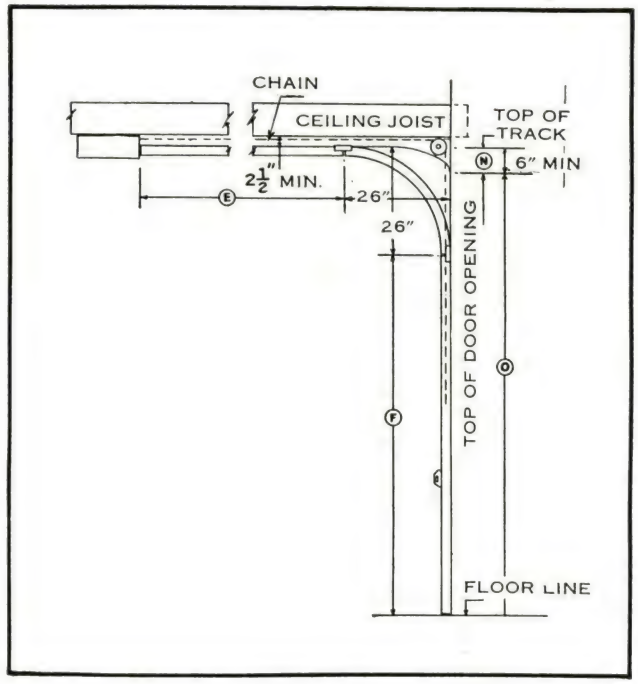
All wheels and rollers have ball bearings working on hardened axles and in hardened cones. Nothing soft here to cut or wear.

A cylinder lock provides security. Operation of door, due to free working rollers plus large curves and double groove or box track, is exceptionally easy.

Oversize equipment, proper design and good workmanship mean permanently satisfactory door action.

ALLITH LIFT DOOR HARDWARE (Continued)



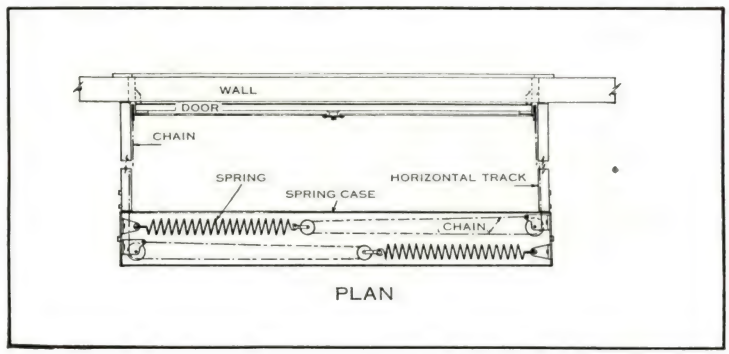


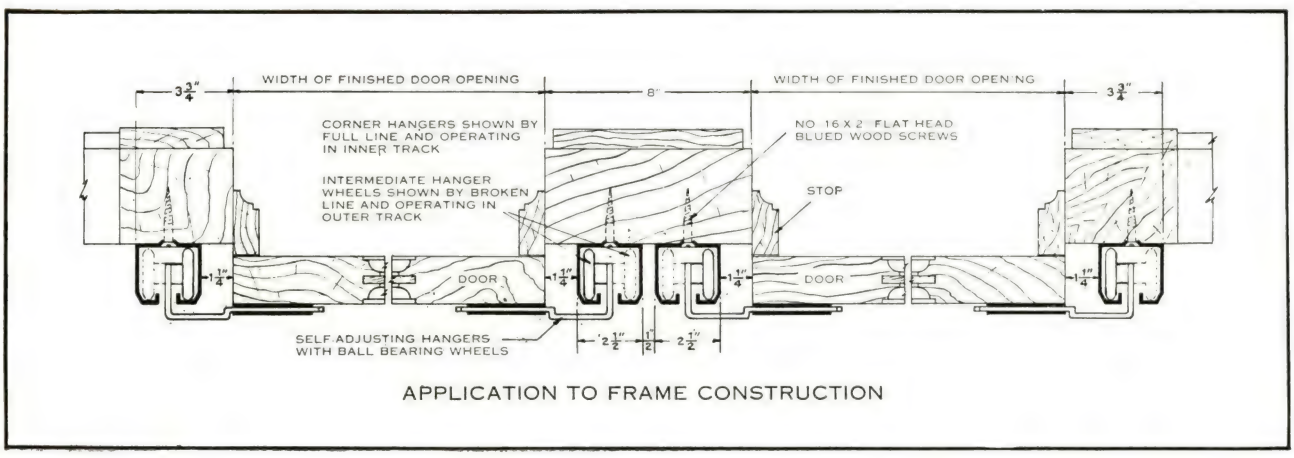
Headroom as noted above—minimum 8½ ins. The space of 2½ ins. between top of track and ceiling must be allowed for chain travel.

Stop secured to jambs after door is set takes care of all weathering in a most satisfactory way, yet eliminates all complicated parts and all wedging effects.

Hangers have wide flat surfaces to assure free movement without wear or binding.

Extra heavy and self-aligning hinges prevent any binding or distortion between door sections.





LABELED SLIDING AND SWINGING FIRE DOOR HARDWARE

Allith Labeled fire door hardware is regularly inspected and labeled under the supervision of the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters, and is also approved by the inspection department of the Associated Factory Mutual Fire Insurance Companies.

All cast parts are made of certified malleable, possessing twice the strength of gray iron castings and greater efficiency than wrought iron. The steel used in such parts as are made of steel is all carefully selected for the purpose intended. Horizontally sliding doors, inclined track rather than level track, are preferable to swinging doors, for they occupy practically no room, and the openings are easily kept clear from obstructions for their successful operation.

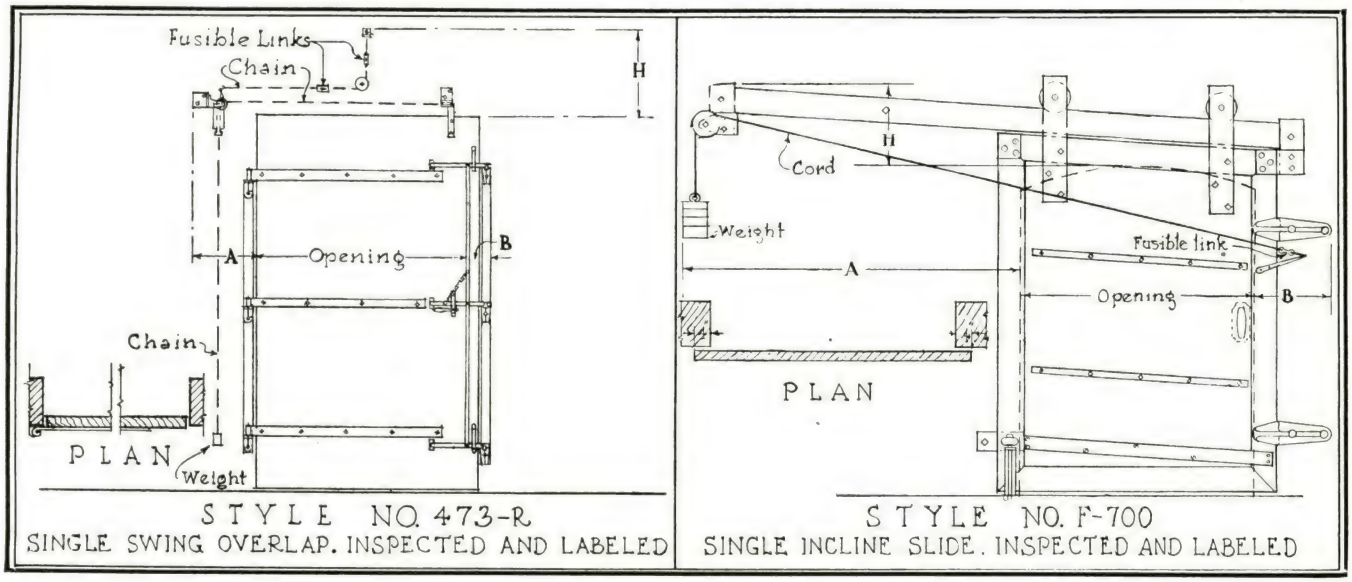
Types—Allith Labeled sliding and swinging fire door hardware is furnished to meet practically every requirement. Unless otherwise specified, hangers, track brackets and fixtures will be furnished for three-ply (2⅝-in.) doors. For detailed information on fire door hardware see our Catalogue No. 88.

If opening is square top, 12-in. headroom is required at edge of opening toward which door slides in closing, and ¾ in. more for every foot of track.

If opening is arched top, 12-in. headroom is required above top of arch and ¾ in. more for each foot of track from the center of opening.

MINIMUM HEADROOM AND CLEARANCE AT SIDE OF DOOR OPENING

Width of door opening	473-R			F-700			500		
	A	B	H	A	B	H	A	B	H
2′-6″	1′-9″	6½″	1′-9″	3′-10″	1′-2″	1′-1⅝″	3′-10″	1′-2″	1′-8⅜″
3′-0″	1′-9″	6½″	1′-9″	4′-4″	1′-2″	1′-2″	4′-4″	1′-2″	1′-9″
3′-6″	1′-9″	6½″	1′-9″	4′-10″	1′-2″	1′-2⅜″	4′-10″	1′-2″	1′-9⅝″
4′-0″	1′-9″	6½″	1′-9″	5′-4″	1′-2″	1′-2¾″	5′-4″	1′-2″	1′-10¼″
4′-6″	1′-9″	6½″	1′-9″	5′-10″	1′-2″	1′-3⅛″	5′-10″	1′-2″	1′-10⅞″
5′-0″	1′-9″	6½″	1′-9″	6′-4″	1′-2″	1′-3½″	6′-4″	1′-2″	1′-11½″
5′-6″	1′-9″	6½″	1′-9″	6′-10″	1′-2″	1′-3⅞″	6′-10″	1′-2″	2′-0⅛″
6′-0″	1′-9″	6½″	1′-9″	7′-4″	1′-2″	1′-4¼″	7′-4″	1′-2″	2′-0¾″
6′-6″	1′-9″	6½″	1′-9″	7′-10″	1′-2″	1′-4⅝″	7′-10″	1′-2″	2′-1⅜″
7′-0″	1′-9″	6½″	1′-9″	8′-4″	1′-2″	1′-5″	8′-4″	1′-2″	2′-2″
7′-6″	1′-9″	6½″	1′-9″	8′-10″	1′-2″	1′-5⅜″	8′-10″	1′-2″	2′-2⅝″
8′-0″	1′-9″	6½″	1′-9″	9′-4″	1′-2″	1′-5¾″	9′-4″	1′-2″	2′-3¼″
8′-6″	1′-9″	6½″	1′-9″	9′-10″	1′-2″	1′-6⅛″	9′-10	1′-2″	2′-3⅞″
9′-0″	1′-9″	6½″	1′-9″	10′-4″	1′-2″	1′-6½″	10′-4″″	1′-2″	2′-4½″



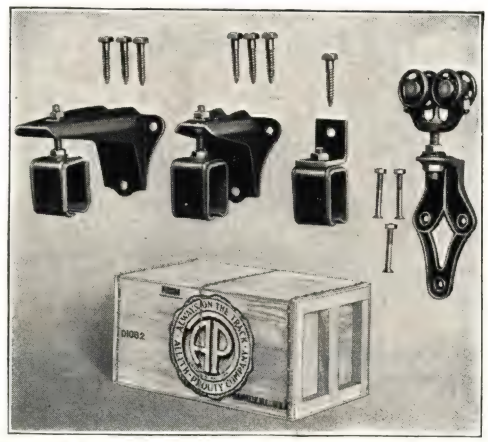
FOLDING SLIDING GARAGE DOOR HARDWARE "TEN-EIGHTY"

This hardware is designed for folding sliding doors, allowing the doors to fold back at any angle up to 180°, and for use on openings from 6 to 18 ft. wide, depending upon the number of doors used. Single tracks are required for 3, 4, 5 or 6 doors.

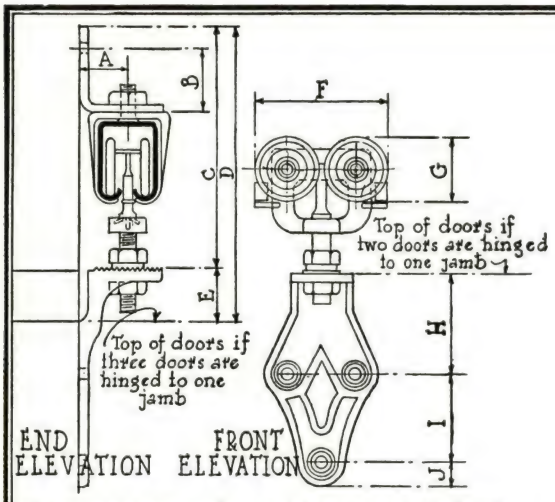
With these outfits, doors are hinged together and hung to the jambs and are supported at the upper outer corner by a ball bearing swivel hanger, sliding in a trolley track. This arrangement prevents sagging of doors, and permits the use of all or part of the opening at one time.

Space required between the inside wall and car when doors swing open or shut is governed by the width of one door only. When closed, doors fit against the stops in the same manner as a house door, making the opening weatherproof.

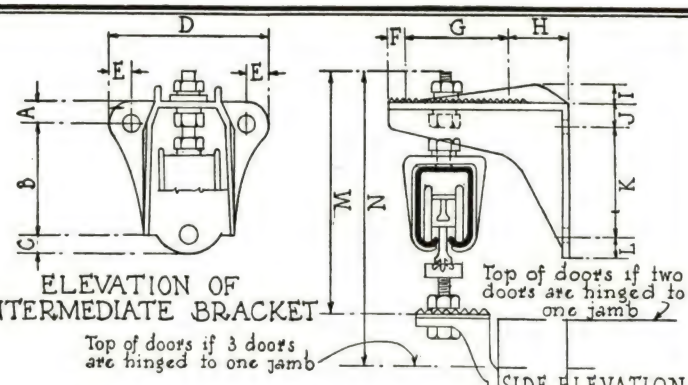
This equipment may be applied to the outside of an opening, though protection for the doors when open should be arranged for.



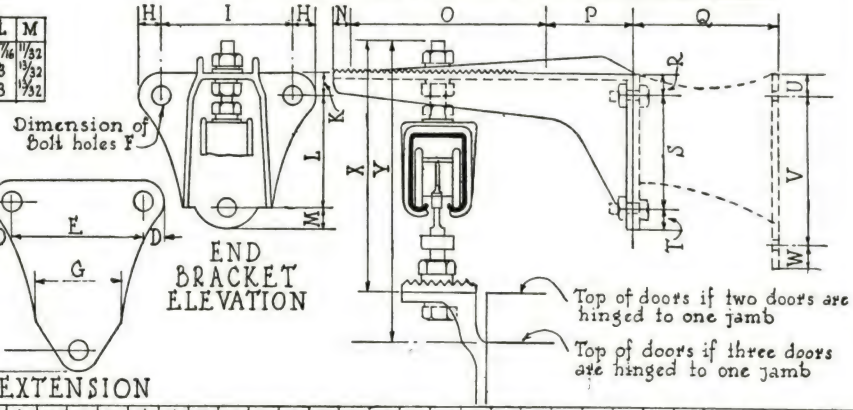
No. 1082 Folding Sliding Garage Door Hardware Set

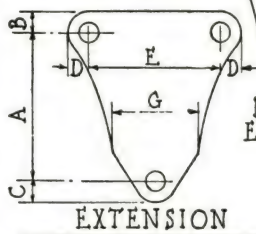


TYPE	A	B	C MAX. MIN.	D MAX. MIN.	E	F	G	H	I	J	K	L	M
1080	1¼	1½	7½	6⅞	3⅜	6¾	2⅛	4	1 29/32	3 3/16	2¾	¾	7/16	2⅞	11/32
1081	1⅝	1¾	9⅜	8⅛	11 3/16	10¾	2 1/16	6⅛	2¾	4¼	3¼	1	9/16	3	13/32
1082	2	2⅝	11⅜	10	13 3/16	2 1/16	2 1/16	5 5/16	2¾	4¼	4½	1	11/16	3	13/32



TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M MAX.	M MIN.	N MAX.	N MIN.	O
1080	13/16	2 15/16	¾	4½	9/16	13/16	4	3	–	13/16	2 15/16	¾	7¾	6⅞	9⅞	9	7/16
1081	⅞	3⅝	⅞	6 11/16	⅞	11/16	4¼	2¾	⅝	⅞	3⅝	⅞	10¾	9¼	12 13/16	11 5/16	9/16
1082	⅞	4⅞	⅞	7⅜	⅞	11/16	4¼	2¾	⅝	⅞	4⅞	⅞	11⅞	9¾	13½	11⅞	11/16





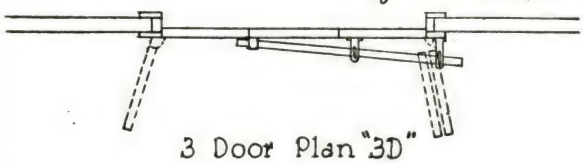
No.1080 Size suitable for doors not over 2 inches thick, 3 feet wide or 150 pounds in weight.

No.1081 Size suitable for doors not over 2½ inches thick, 3½ feet wide or 250 pounds in weight.

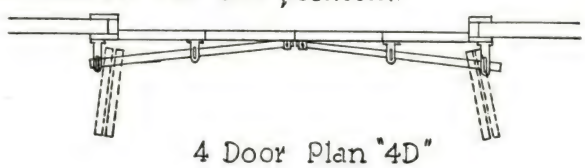
No.1082 Size suitable for doors not over 3½ inches thick, 4 feet wide or 350 pounds in weight

TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X MAX.	X MIN.	Y MAX.	Y MIN.	Z
1080	–	–	–	–	–	7/16	–	¾	3 3/8		1 3/16	2 15/16	¾	27/32	6	3	–	1 3/16	2 15/16	¾	–	–	–	7¾	6⅞	9⅞	9	–
1081	⅞	6¼	⅞	⅞	5⅝	9/16	3⅞	⅞	4 15/16	⅝	⅞	3 3/16	⅞	1 1/16	8¾	3¼	6	⅞	3⅝	⅞	⅞	6¼	⅞	10¾	9¼	12 3/16	11 5/16	11/16
1082	⅞	6¼	⅞	⅞	5⅝	11/16	3⅞	⅞	5⅝	⅝	⅞	4⅞	⅞	1 1/16	9	3	6	⅞	4⅞	⅞	⅞	6¼	⅞	11 7/16	9 13/16	13½	11⅞	11/16

Where doors are to fold back 180° the regular end bracket is used as intermediate and another end bracket plus extension block as shown by dotted lines above is used for the end position.



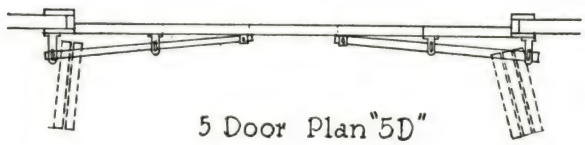
3 Door Plan "3D"



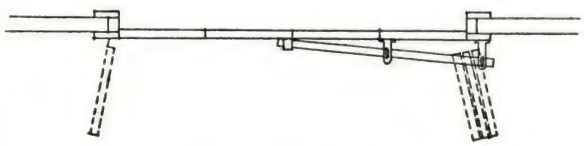
4 Door Plan "4D"



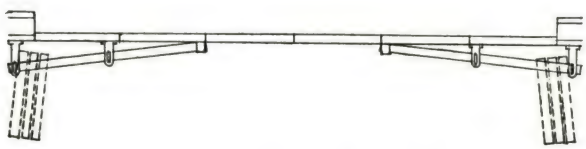
3 Door Plan "3D1"



5 Door Plan "5D"

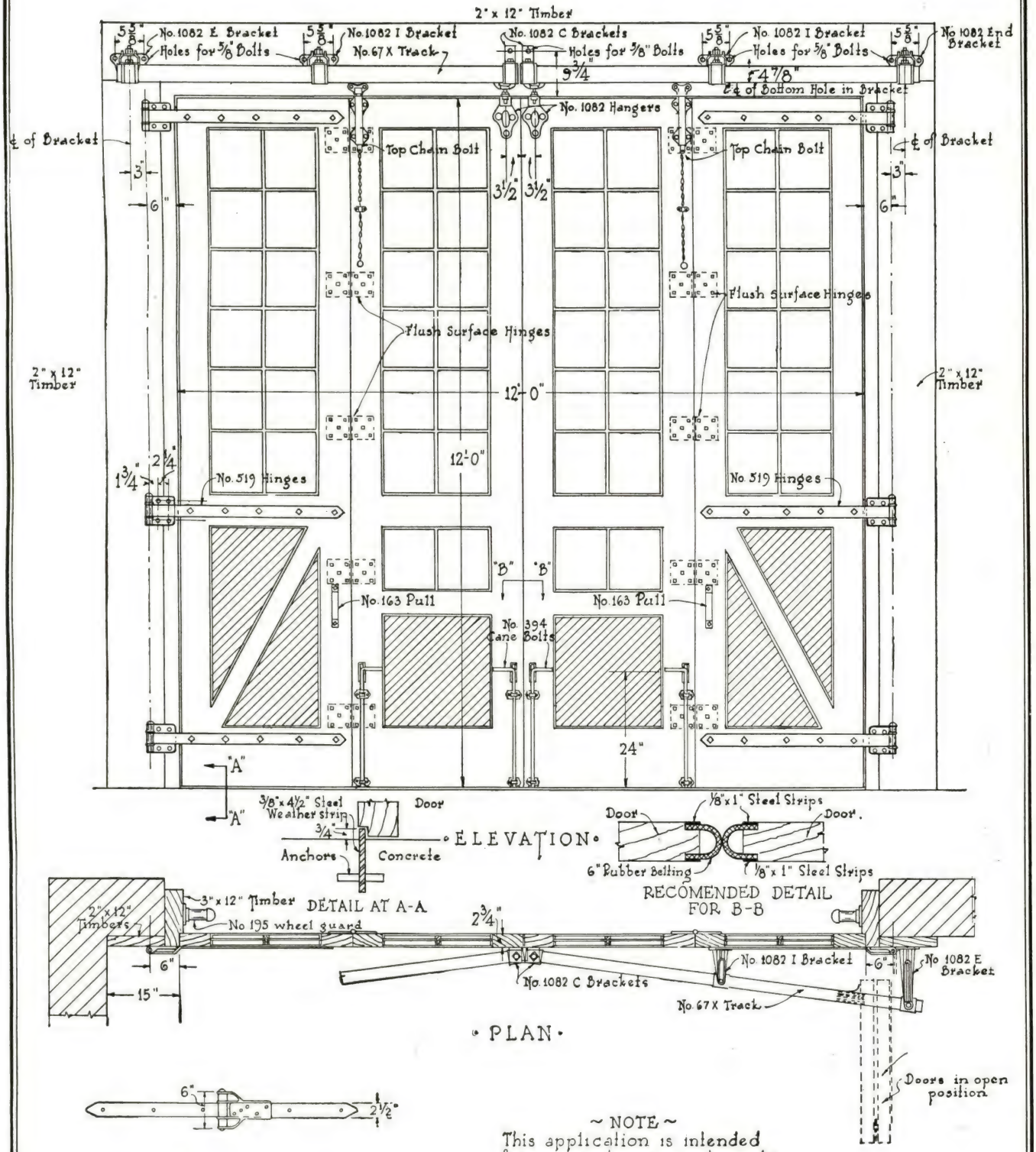


4 Door Plan "4D1"



6 Door Plan "6D"

DRAWN BY SWEETS CATALOGUE SERVICE INC.	DETAILS OF TYPE 1080, 1081 AND 1082 GARAGE DOOR HANGERS ···	NOT DRAWN TO SCALE DATE AUG'25	DRWG 1



NO. 219 STRAP HINGE

When doors have no lights, this hinge is used on two center doors in place of flush hinges

~ NOTE ~

This application is intended for use on doors in extremely large openings such as Public Service Garage Buildings etc.

DRAWN BY SWEETS CATALOGUE SERVICE INC.	TYPICAL NO. 1082 APPLICATION FOR HUGE DOOR OPENINGS	NOT DRAWN TO SCALE DATE AUG'25	DRWG 2

ACCORDION DOOR HANGERS

Hangers have certified malleable iron frames; roller bearing wheels, ball bearing swivels, anti-friction guide rollers, and vertical adjustments.

General Directions—*Plan Type No. 1* uses a half door at one side of opening with all doors folding and sliding to one jamb. Recommended practice is to use four-wheel hangers (No. 69, 117 or 64) and apply them to alternate doors. When the two-wheel hangers are used (No. 1069, 1117 or 1064), they should be applied to each full door.

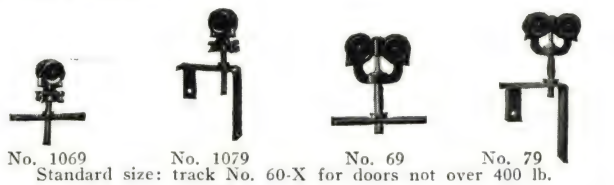
A passage door, full size, may be hinged to the opposite jamb.

Where doors in the opening are to be folded each way from center, use half doors at each jamb, and arrange the full doors in same manner as in above plan.

Plan Type No. 10 uses full doors throughout, arranged to fold and slide in units of two doors, each door having a two-wheel hanger (No. 1079, 1127 or 1074).

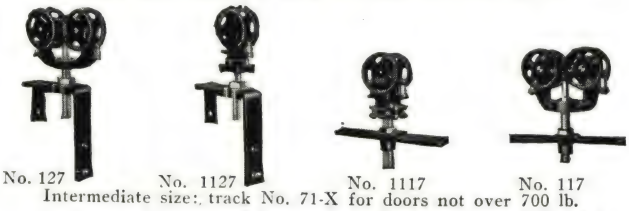
Detail shows casing stops applied on both sides and extending across the opening except for the distance equal to width of two doors, plus the combined thickness of all doors, at the end where first door is pivoted to the jamb. This space without stops permits only two doors to fold, and the operation of doors is to fold the two doors at pivoted end first. This will give a clear space into which the next unit of two doors is slid—still not folded—when this unit reaches the clear space these doors will fold flat like the first pair. Each unit thereafter is slid along until the clear space is reached and the folding of the doors is repeated.

This set is the smoothest running and the most easily operated form of accordion doors.



No. 1069 No. 1079 No. 69 No. 79

Standard size: track No. 60-X for doors not over 400 lb.



No. 127 No. 1127 No. 1117 No. 117

Intermediate size: track No. 71-X for doors not over 700 lb.



No. 64 No. 1064 No. 74 No. 1074

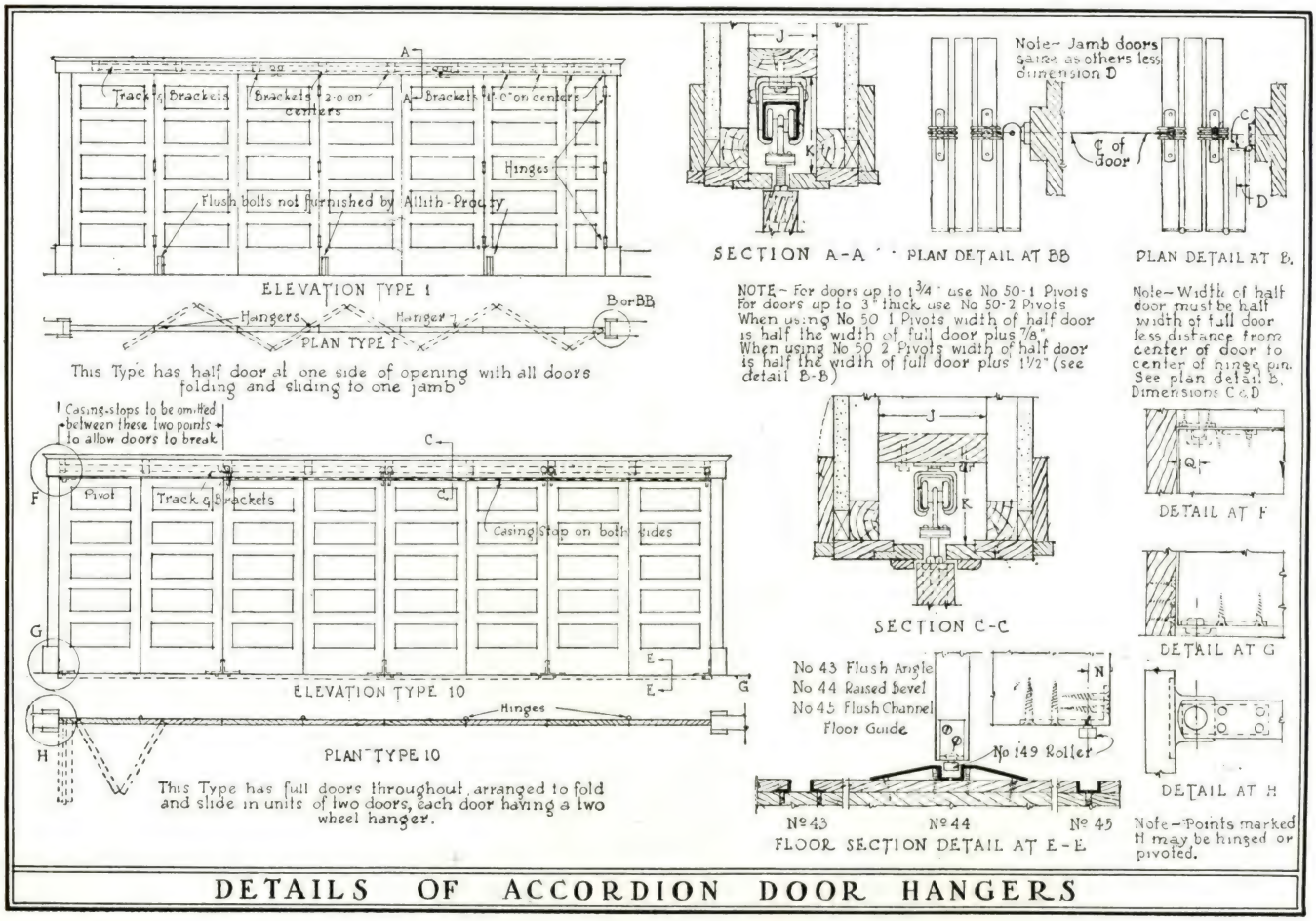
Large size: track No. 67-X for doors not over 1000 lb.

Accordion Door Hangers

DIMENSIONS OF HANGER POCKET

*Model of bracket	60-CO	60-CQ	60-CQN	71-CO	71-CQ	71-CQN	67-CO	67-CQ
Dimensions:								
J.....in.	4¼	2¾	3½	5⅝	3	3¾	7	3½
K.....in.	4½	4½	5	5¾	5¾	5¾	6⅜	6⅜

*See drawing No. 3 and 4 for brackets and tracks.



DETAILS OF ACCORDION DOOR HANGERS

STRAIGHT SLIDING WAREHOUSE DOOR HANGERS

No. 3 Rigid Hanger—Standard for fire doors. Similar to No. 6 Hanger but made in one piece, without the adjustment features of No. 6 Hanger. Length over all 21 in.

No. 6 Double Adjustable Hanger—Approximate capacity 1000 lb. For doors 1¾ to 3⅜ in. thick. These hangers have a vertical adjustment of 1½ in. Hanger is made of certified malleable iron, fitted with large easy running, roller bearing wheels. Used on freight stations, garages, warehouses, etc., it has no equal.

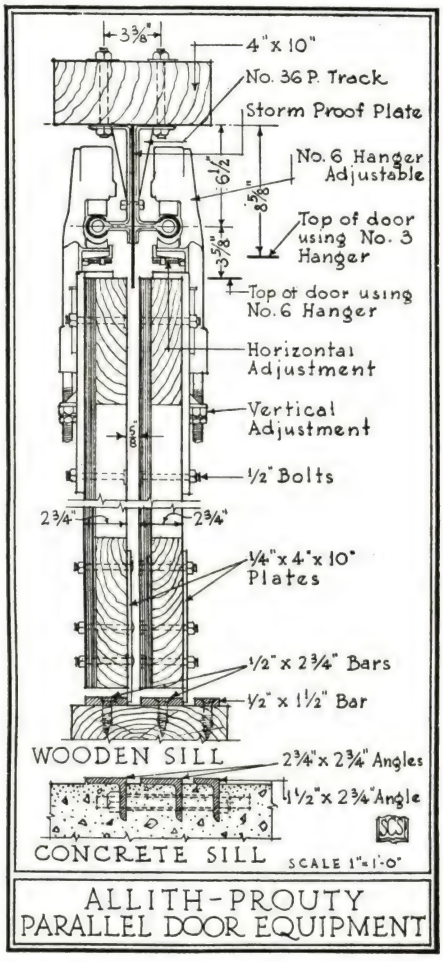
No. 17 Double Adjustable Tandem Hanger—Approximate capacity 2000 lb. For doors 1¾ to 3½ in. thick. The hanger frame is 15 in. wide by 28 in. long; wheels 4¾ in. in diameter with hardened steel bushings and roller bearings. The axles are fitted with grease cups. The hanger is adjustable up and down, also in or out. The No. 27 is the same except that it has a short apron only 7½ in. high, to go on cross rail above panels. In ordering, always specify thickness of doors.

Parallel Door Equipment

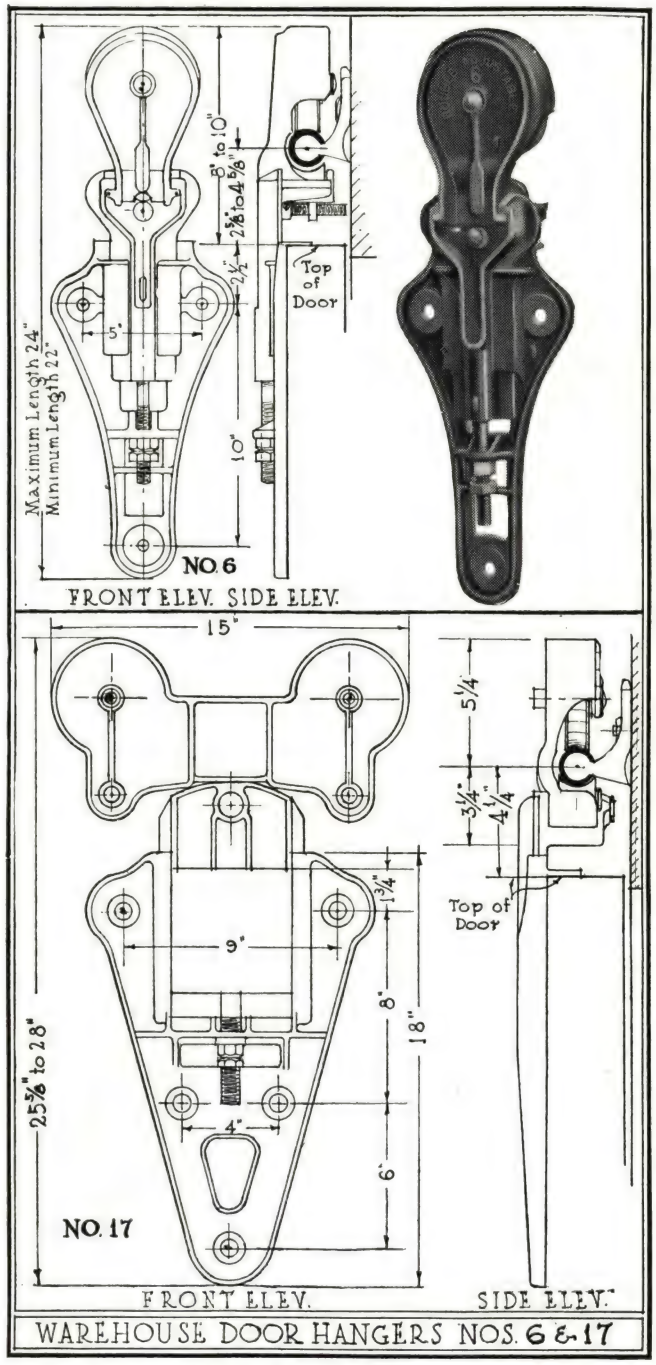
This outfit is designed for insuring perfect movement of continuous parallel doors, such as are used in freight stations, warehouses, public garages, etc. It is arranged to permit an opening at any place desired.

The track shown in the illustration is assembled in sections to accommodate different openings. It is suitable for attaching to any construction. Installation is simple and alignment perfect. The parting strip fastened between the brackets and extending below top of door makes the equipment stormproof as well as the strongest.

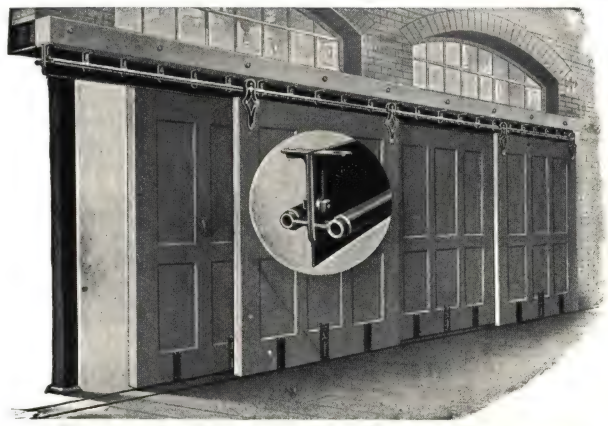
For wooden floors, ½-in. thick bars are used as floor guides; for concrete floors, 2¼x2¼-in. angles.



ALLITH-PROUTY
PARALLEL DOOR EQUIPMENT



WAREHOUSE DOOR HANGERS NOS. 6 & 17



Showing Application of Parallel Door Equipment

COBURN TROLLEY TRACK MFG. CO.

Garage and Heavy Sliding Door Hardware

HOLYOKE, MASS.

BRANCHES

NEW YORK, N. Y., 10 East 43rd Street
PHILADELPHIA, PA., 527 Commerce Street
BOSTON, MASS., 108 Broad Street
CHICAGO, ILL., 2424 West 22nd Street

Products

COBURN FOLDING SLIDING GARAGE DOOR HARDWARE, COBURN STRAIGHT SLIDING GARAGE DOOR HARDWARE including TRACKS, HANGERS, BRACKETS and HINGES.

COBURN No. 750 STYLE HANGERS, for heavy garage and warehouse doors.

Also manufacturers of Overhead Track Conveying Systems, Rolling Ladders for high shelving, and Folding Partitions.

For Coburn Metal Covered Doors and Trim, see Manufacturers' Index.

COBURN GARAGE DOOR HARDWARE SETS

These hardware sets contain all the items required to erect the doors in working condition. They are made up for two different types of door openings; the folding sliding and the straight sliding.

In the *folding sliding* types, the doors are hinged to the jamb and supported at the upper outer edge by ball bearing swivel hangers sliding in a trolley track.

With this outfit, the doors fold and slide to the side, fit perfectly tight and will not warp or sag. This type is specially adapted to garages where the full width of the door opening should be available and where the space between door jamb to the sidewall on each side is limited.

In the *straight sliding* types the tracks are parallel to the wall, the doors sliding to either side. In this type only part of the width of opening is available.

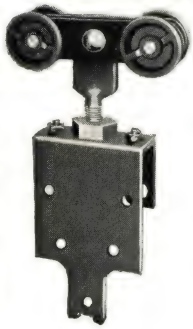
The standard equipment included in each set is listed under the description. All carriage bolts, lags and woodscrews required for the fastening of the different units are furnished with the set.

The COBURN TROLLEY TRACK MFG. CO. can furnish butts, locks and all hardware required to make a complete equipment or, if desired, these items can be purchased elsewhere, the COBURN TROLLEY TRACK MFG. CO. furnishing only the track, brackets, and hangers.

COBURN DOOR HANGERS



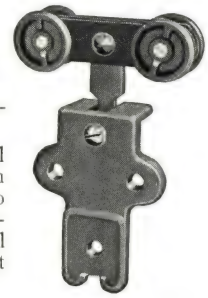
No. 444 Door Hanger—Has both vertical and lateral adjustments. For use on garage and other doors which slide and swing to the side, giving a clear opening with a minimum amount of floor space, and still fit in the jambs, making a tight weatherproof job. Not recommended for doors over 3 ft. wide.



No. 137 Door Hanger—Has both vertical and lateral adjustments. For use on garage, barn and warehouse doors. Has machined cast iron wheels, case hardened roller bearings and drop forged steel pendant.

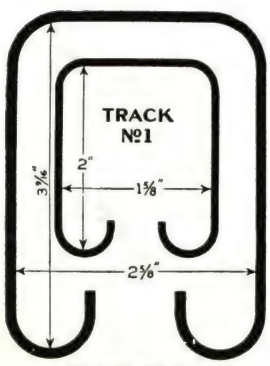


No. 350 Door Hanger—Has vertical adjustment only. For use on school, house and garage doors, where doors slide by each other or into a pocket. Has machined cast iron wheels, case hardened roller bearings and machined cold rolled steel ball bearing swivel pendant.



No. 120 Door Hanger—Has lateral adjustment only. For use on garage, barn and warehouse doors, where doors run to the side on a single run track. Has machined cast iron wheels, case hardened steel roller bearings, steel pendant and heavy cast iron petticoat.

COBURN TRACKS



TRACK № 4
Half Size Sections

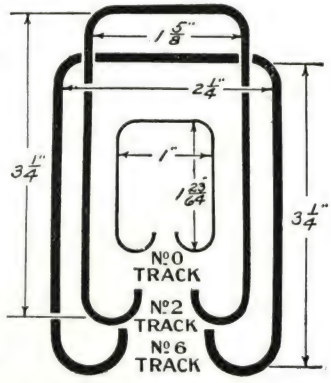
PRICES, LENGTHS AND WEIGHT OF TRACKS

Track No.	Price per ft.	Longest length made, ft.	Weight per ft., lb.	Max. weight of door, lbs.
0	$0.20	3	⅝	100
1	.26	10	1½	300
2	.40	10	2	500
4	.65	10	3¾	1200
6	.50	10	3	800

Curves—Nos. 1, 2, 4 and 6 can be furnished in curved sections with a minimum radius of 2½ ft.

DOOR WEIGHTS

Material	Weight in pounds of each sq. ft. of door for various thicknesses								
	1 in.	1½ in.	1¾ in.	2 in.	2¼ in.	2⅜ in.	2⅝ in.	3 in.	3½ in.
White pine	2.17	3.25	3.80	4.34	4.88	5.18	5.77	6.51	7.60
Oak and ash	3.33	5.00	5.83	6.67	7.50	7.96	8.86	10.00	11.67
Chestnut	3.42	5.13	5.98	6.85	7.69	8.11	8.99	10.26	12.00
Cypress	2.5	3.75	4.38	5.00	5.63	5.98	6.57	7.5	8.75
Whitewood	2.5	3.75	4.38	5.00	5.63	5.98	6.57	7.5	8.75

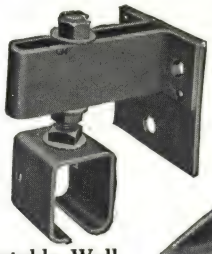


Half Size Sections

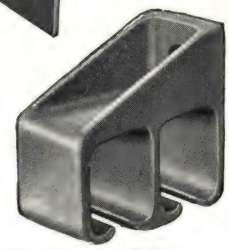
COBURN WALL BRACKETS



Single Wall Bracket

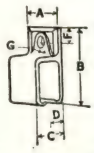


Adjustable Wall Bracket



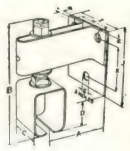
Double Wall Bracket

SINGLE WALL BRACKETS



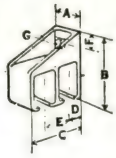
Track No.	A	B	C	D	F	G	Wt. lbs.	Number C	Number R	Number L	List Price
0	1 7/16	3	1 7/16	23/32	1/2	9/32	3/4	B01	B01R	B01L	$0.20
1	2 5/8	4 1/2	2 5/16	1 1/8	15/16	9/16	1 1/2	B11	B11R	B11L	.30
2	2 5/8	5 13/16	2 7/16	1 3/16	1	9/16	2 1/2	B21	B21R	B21L	.50
4	3 7/8	7 1/2	3 3/4	1 13/16	1 7/16	7/8	7 3/4	B41	B41R	B41L	1.60
6	3	6 3/8	3 1/4	1 5/8	1	11/16	7	B61	B61R	B61L	1.40

ADJUSTABLE WALL BRACKETS



Track No.	A Min.	B	C	D Max	D Min.	E	F	G	H	I	J	K
1	1 1/4	6 1/2	2 1/4	1 5/8	5/8	1/2	1/4	9/16	2 1/4	3 1/2	4	2 7/8
2	1 1/4	7 3/4	2 1/4	2 7/8	1 7/8	1/2	5/16	9/16	2 1/4	3 1/2	4	2 7/8
4	1 15/16	9 5/8	3 3/8	4	2 5/8	7/8	1/2	11/16	3	4 3/4	5	3
6	1 3/4	9 1/4	3	3 5/8	2 5/16	7/8	1/2	11/16	3	4 3/4	5	3

DOUBLE WALL BRACKETS



Track No.	A	B	C	D	E	F	G	Wt. lbs.	Number C	Number R	Number L	List Price
1	2 1/2	4 1/2	4 9/16	1 3/16	2 1/8	11/16	9/16	3 1/4	B112	B112R	B112L	$0.70
2	2 13/16	5 15/16	4 3/4	1 1/4	2 1/4	1	9/16	5 1/2	B212	B212R	B212L	1.20
4	3 1/8	7 1/2	7 1/4	1 15/16	3 3/8	1 1/2	13/16	11 3/4	B412	B412R	B412L	2.40
6	3	6 3/8	6 1/8	1 5/8	2 7/8	1	11/16	10 1/2	B612	B612R	B612L	2.20

NO. 750 STYLE HANGERS FOR HEAVY GARAGE OR WAREHOUSE DOORS

For Large Heavy Doors and Gates Where the Track Will Act as a Structural Support for the Door Over Wide Openings and Where Ease of Operation is Necessary



Patented

No. 750 Hanger

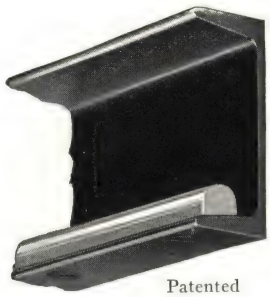
Used for straight track only. Wheels are machined cast iron, with hardened steel ball bearings. A cold rolled steel axle and a heavy forged machine steel petticoat give it the required strength for use on very heavy doors

No opening is too wide or door too heavy to operate on this style of door hanger and track.

The track is made of structural steel channels and I-beams and can be made an integral part of the building if desired.

The only limit to the free spans over which this style of track can be used is that of the safe carrying capacity of the structural steel. The size of the track and hanger required is determined by the strength of the structural section. It should be figured at about *60% of the safe load of beams for the span* as recommended in any of the steel handbooks.

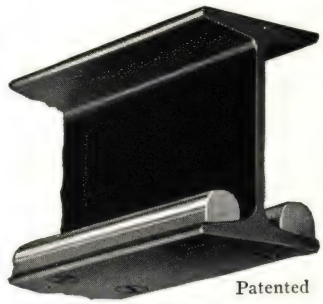
The use of this type of hardware becomes an engineering problem and Coburn engineers will gladly co-operate with architects in any particular requirements they may have.



Patented

Single Channel Track

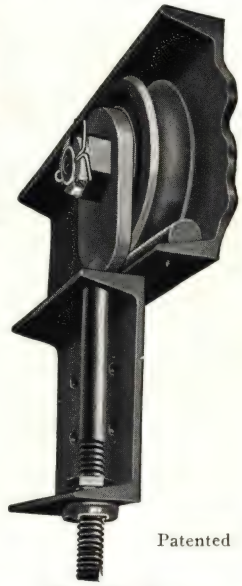
A single cold rolled steel runway on the lower flange. 2 to 12-in. channels used. The hanger wheel has a minimum clearance between flanges and can not jump off the track



Patented

Double Track I-Beam

Special shaped cold rolled steel runways on the lower flanges. We use 3 to 12-in. I-beams. Runways are securely fastened to flange with machine screws from the bottom

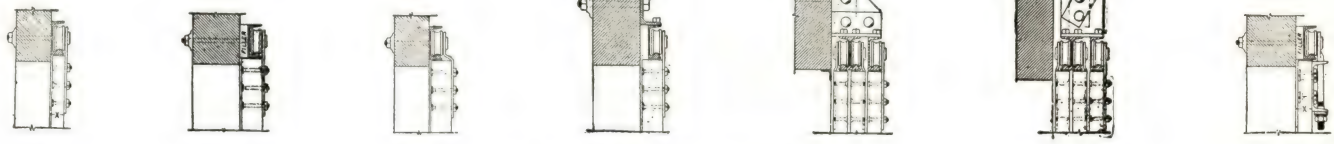


Patented

No. 751 Hanger

For straight or curved track. Construction similar to No. 750 except that petticoat is replaced with a heavy forged steel pendant, cold rolled steel ball bearing swivel adjusting nut, lock nut and pendant plate for attaching to door

A Few Typical Hanger Applications



CO-OPERATIVE SERVICE

Our Engineering Service Department is available at all times for satisfactory solution of perplexing door problems. This service rendered to architects, engineers, contractors, owners, without charge or obligation.

RICHARDS-WILCOX MANUFACTURING CO.

INCORPORATED

Manufacturers of Door Hangers and Hardware Specialties

AURORA, ILL.

BRANCHES IN ALL PRINCIPAL CITIES

For R-W Other Products, see Manufacturer's Index

Experience and Facilities

THE RICHARDS-WILCOX MANUFACTURING CO. have been continuously in business over 50 years, since the founding of the company in 1880. They are pioneer specialists in door hangers and similar hardware specialties. The factory at Aurora, Ill., covers 260,000 sq. ft.

Distribution and Service

R-W equipment is distributed through the better retail hardware dealers throughout the country. In the larger distributing centers branch offices are maintained in charge of an experienced R-W representative always accessible to the architect for prompt assistance and service.

Engineering Service

A corps of experienced engineers and draftsmen are maintained at the plant to assist in the designing and detailing of equipment particularly adapted to unusual or special conditions. The services of this department are obtainable, without obligation, through the local representative whenever required.

R-W "SLIDETITE" GARAGE DOOR EQUIPMENT

No. 1035 Equipment

Operation

"Slidetite" equipment consists of complete sets of hardware for the operation of from 3 to 10 doors closing in line in one opening. The doors are so hinged together and suspended at intervals on hangers running in overhead tracks that the doors open or close with a sliding-folding, accordion movement and at all times occupy the minimum space requirements.

When open, the doors are carried to one or both sides of the opening compactly folded together and swung clear of the jamb line opening, standing either at an angle to the front wall or, where space is sufficient, folded parallel with the front wall.

Although in-folding is recommended, "Slidetite" equipment is equally adapted to doors opening out.

Features

The outstanding feature of "Slidetite" is that the particular method of operation causes the doors to close absolutely tight together and against the rabbet at head, jamb and sill. They are extremely easy to operate. Locking devices, operated from the outside, provide convenient access without the necessity of a separate garage entrance door. Up to 30 ft. in width no intermediate posts or mullions are required.

Doorway and Door Sizes—Door Weights

"Slidetite" equipment is adaptable to clear openings from 8 ft. wide to a maximum of 30 ft. wide equipped with from 3 to 10 doors.

Individual doors (all of the same width) should not exceed 3 ft. wide nor 250 lb. in weight.

Heights may vary up to a maximum of 12 ft., so long as the weight limitations are not exceeded (higher doors require other hardware).

Hardware Furnished

Each "Slidetite" set consists of the requisite quantity of track, hangers, hinges, floor guides, tie rods, handles and door locking devices (together with all bolts and screws for attachment) necessary to operate the number of doors for which the set is intended. Complete erection details are furnished with each set of equipment. The hardware furnished is as follows:

(A) Track and Brackets—Rolled steel tracks Nos. 31, 232 and 32 are used dependent on weight of door to be carried. Tracks are supported on steel brackets of type and number required to fit the particular track assembly. The maximum length of track section is 10 ft.—where the track length required is greater than 10 ft., two lengths are connected in perfect, rigid alignment with the R-W Lock Joint Bracket. Finish: tracks, black japan; brackets, black japan.

(B) Tracks and Hangers—No. 435, four (4) wheel, roller bearing: wheels, steel (2⅛-in. dia. for track No. 31 and 3-in. dia. for tracks No. 232 and No. 33); drop forged steel frame and hardened bearings, adjustment, lateral and vertical; apron for track No. 31 is 7 $\frac{5}{16}$ in. high and 2 in. wide, and for tracks No. 232 and No. 33 7⅝ in. high and 2½ in. wide. Finish, black japan.

(C) Hinges—All hinges are wrought steel, black enamel finish.

(C1) No. 435 surface hinge. Sizes: 2½x4 in.; 3½x5 in.; 4x7 in.; 12x4 in. Used inside and outside where no space between doors is required for cremone bolts or special locking devices.

(C2) No. 836 offset surface hinge. Sizes same as listed for No. 435. Hinge knuckle is offset 1½ in. making a 3-in. space between doors when folded, otherwise hinge is similar to No. 435. Used for out-opening only whenever space between folded doors is required for cremone bolts or where special cremone bolt locking devise is installed.

(C3) No. 1035 heavy offset hinge with surface pintle. Sizes: 18x2½ in.; 24x2½ in.; 20x2½ in.; 36x2½ in. Used at jambs where two or more doors are folded clear of jamb line.

(D) Handles—No. 81, gray iron, 6½ in. over all, black enamel finish.

(E) Cylinder Lock and Latch—No. 650 rim cylinder lock and thumb lift latch and handle one (1) cylinder for locking door from outside only—two (2) cylinders for locking door from both sides. Face of cylinders made of solid polished bronze—lock case handle and thumb lift finished in black japan. Furnished when specified on free swinging door.

(F) Cremone Bolts—All cremone bolts are finished in black enamel.

(F1) No. 517 cremone bolt with lugged, adjustable bottom keeper is standard with No. 1035 "Slidetite" equipment. Locks both top and bottom with one movement of lever handle. Made in one size adjustable up to 9 ft. high (extra 18-in. sections furnished for higher doors).

(F2) No. 517x427 cremone bolt is No. 517 plus a high grade cylinder lock with offset locking attachment and an outside operating handle. Furnished when specified where outside access is desired.

(F3) No. 617 cremone bolt made in three principal sections—the center or lever handle locking section and top and bottom adjustable bolt sections—the three sections united by ½-in. connecting rods. Made in one size adjustable up to 10 ft. high (extra 18-in. sections furnished for higher doors). Furnished when specified in lieu of No. 517 bolt which is standard.

(F4) No. 617x427 cremone bolt is No. 617 plus a high grade cylinder lock with offset locking attachment and an outside operating handle.

(G) Tie Rods—No. 435, ⅜-in. dia. with adjustable tension. Designed to No. 1035 hinge pintle pin.

(H) Bumper Shoes and Floor Guides—No. 435-72 black enameled, steel bumper shoes (for one or two doors as required). No. 271 adjustable floor center (or near center) door guide; made of black enameled steel and gray iron; adjustable for doors from 1¾ in. to 3 in. thick.

(I) Door Holder—No. 119 special black enameled spring metal.

No. 1035 "SLIDETITE" STANDARD EQUIPMENT SETS

Number of doors	Maximum weight of each door using Track No. 31 100 lb.	232 175 lb.	33 250 lb.	"S" minimum, in. (See p. 3) Doors opening at 90° Thickness of: +in.	Opening parallel with wall, in.
3	1035-B3-31	1035-B3-232	1035-B3-33	2 doors +2⅛	1½
4	1035-B4-31	1035-B4-232	1035-B4-33	3 doors +2¾	1½
4	1035-B4½-31	1035-B4½-232	1035-B4½-33	2 doors +2⅛	1½
5	1035-B5-31	1035-B5-232	1035-B5-33	3 doors +2¾	1½
6	1035-B6-31	1035-B6-232	1035-B6-33	3 doors +2¾	1½
7	1035-B7-31	1035-B7-232	1035-B7-33	4 doors +3¼	1½
8	1035-B8-31	1035-B8-232	1035-B8-33	5 doors +6¼	1½
8	1035-B8½-31	1035-B8½-232	1035-B8½-33	4 doors +3¼	1½
9	1035-B9-31	1035-B9-232	1035-B9-33	5 doors +6¼	1½
10	1035-B10-31	1035-B10-232	1035-B10-33	5 doors +6¼	1½

Minimum headroom where two doors fold in one direction: No. 31 track = 6 ins., No. 232 track = 8¼ ins., No. 33 track = 8½ ins. When three doors fold in one direction: No. 31 track = 8¼ ins., No. 232 track = 11¼ ins., No. 33 track = 11½ ins. When more than 3 doors fold one way, the figure for No. 31 track is increased to 9 ins.

Note: *All dimensions for out-opening sets are the same as above except the dimension "S" where the plus figures for sets O1035-B3 and B4½ is 4½ ins., for sets O1035-B4, B5 and B6 is 5¼ ins., for sets O1035-B7 and B8½ is 8¼ ins., for sets O1035-B8, B9 and B10 is 9 ins.*

How to Use the Table

(A) System of Numbering—The numbers in the 2nd, 3rd and 4th hand columns designate the complete "open in" hardware set adapted to the number and weight of doors to be operated, and the plan type (the number of doors opening from the split to the right and left hand). In the table the numeral 1035 indicates the set type; the numeral B3 etc. indicates, B—No. 517 standard cremone bolts and 3 etc.—the plan type; the numerals 31, 232 and 33 indicate the track used for various door weights.

(B) Open-out Sets—To designate sets for out-opening doors, prefix the letter "O" to the first numeral, thus O1035.

(C) To Substitute No. 617 Cremone Bolts—Omit the letter "B" in the second numeral and specify the No. 617 bolt in the optional hardware (see suggested specification below).

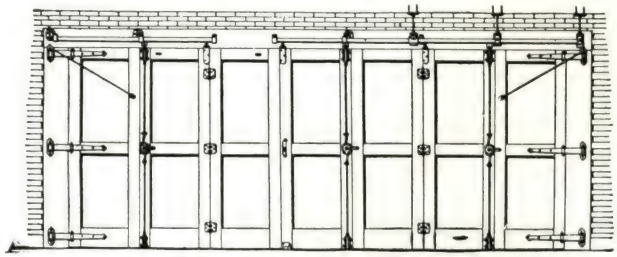
(D) To Specify No. 1135 "Ideal" Equipment—Substitute the number 1135 for 1035 in the first numeral and omit the letter "B" in the second numeral and the track number, thus No.1135-3, etc.

Specification

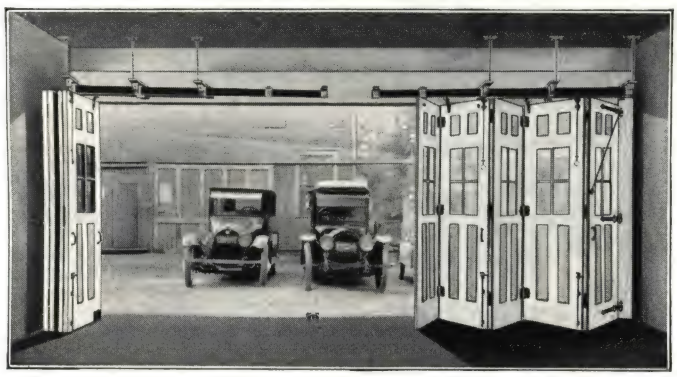
Furnish and install in accordance with the manufacturer's erection details, Richard-Wilcox "Slidetite" Garage Door Equipment as follows:

Doors *(number or otherwise locate)*: No. .... "Slidetite" for opening ..... wide, ... high; door thickness .....

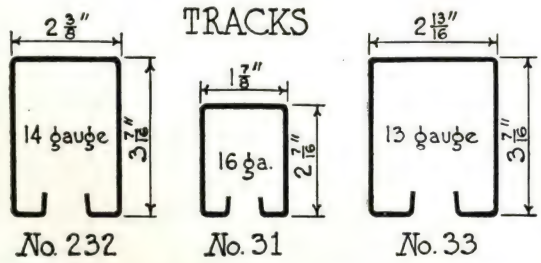
Note: *If there is more than one opening and the equipment varies, list each door separately.*



Typical Hardware on No. 1035-B7-31 Set



Typical No. 1035-B9-31 Set



Note: *Select the equipment number from the table above. Insert dimensions required—measurements should be from finished jamb to jamb and from finished floor to finished jamb.*

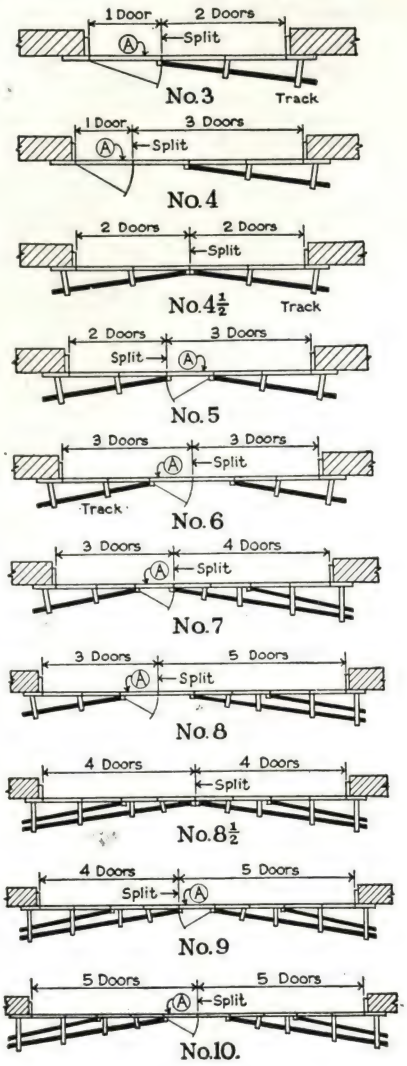
In addition to, or in lieu of, the standard hardware designated by the set number include the following optional hardware if desired.

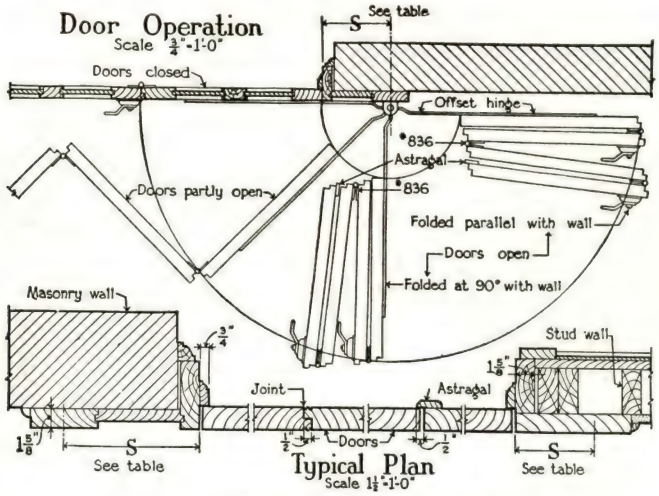
Note: *Select from list under heading "Hardware Furnished" R-W page 2.*

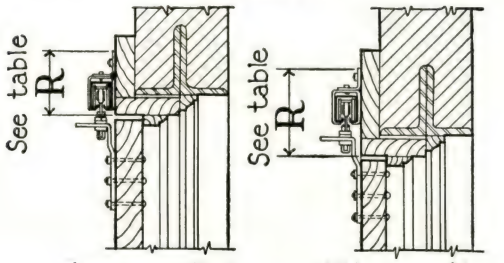
(a) No. 650 rim cylinder lock and latch *(one (1) or two (2) cylinders)* for free swinging door.
(b) No. 517x427 cremone bolt locking device.
(c) No. 617 cremone bolts.
(d) No. 617x427 cremone bolt locking device.

PLAN TYPES

NOTE: Grouping of doors may be reversed to swing from either jamb from split.
NOTE: Door "A" is a free swinging door.

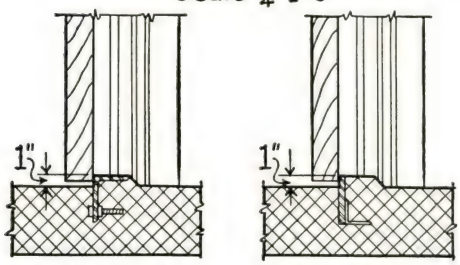






Typical Door Heads

Scale ¾"1'-0"



Typical Sill Details

Scale ¾"=1'-0"



No. 1135 Ideal "Slidetite" Track and Hanger

R-W No. 1135 Equipment

General—In operation the No. 1135 "Slidetite" equipment is similar to the No. 1035 equipment. It is particularly adapted to the highest type of private garage installations.

The track and hanger units are similar to the "Ideal" elevator door equipment and operate with exceptional smoothness and ease. Except for (1) the "Ideal" track and hangers and (2) the cremone bolts, the equipment is the same as described for the standard No. 1035 sets.

Tracks and Hangers—The door hangs from a wide rider-bar, rolling over hardened steel balls, which in turn, roll along a carefully milled steel track groove.

Friction is practically eliminated and at the same time the rider-bar travels at twice the speed of the balls. A ball retainer keeps the steel balls accurately spaced at all times.

Cremone Bolts—The No. 617 (and 617x427, when specified) cremone bolts are standard with the No. 1135 equipment.

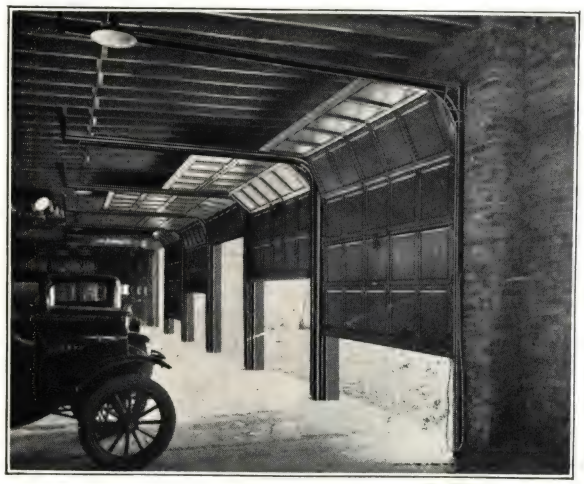
R-W No. 1099 "OVER-WAY" GARAGE DOOR EQUIPMENT

Operation—Slide vertically on tracks to an overhead position under the ceiling. The lifting mechanism consists of two helical oil tempered springs which perfectly counterbalance the weight of the door. Chains are used instead of cable. The sheaves that connect the chains with the springs run on ball bearing spindles. The rollers are of steel, hardened, with ball bearings.

Doors—Doors may be specified with or without sash. The doors have exceptionally rugged frames, strong panels and shiplap joint construction.

Jamb Construction—No special jamb construction is necessary.

The jambs may be of any material, but a flat wood or metal surface must be provided to which to attach guide tracks.

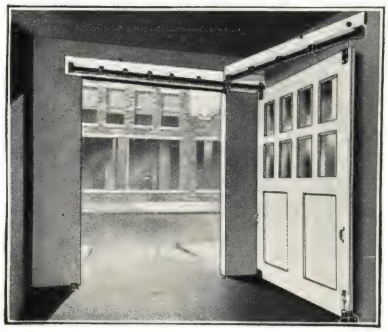


Hinges—Doors are fastened together with a new type of hinge especially developed for this door.

Size of Opening—Doorways varying in size from 8 ft. by 7 ft. 6 in. to 12 by 12 ft. may be equipped with these doors.

Headroom and Sideroom—Our standard equipment for openings up to 12 ft. 0 in. by 12 ft. 0 in. requires a minimum of 11 in. headroom. However, we have a special type of OveR-Way door equipment which only requires 9 in. headroom. Sideroom required for openings up to 10 ft. 0 in. x 11 ft. 8 in. wide is 5 in. For larger openings up to 12 ft. 0 in. x 12 ft. 0 in., 5½ in. Special low headroom type requires 4⅜ in. for openings up to 10 ft. 0 in. x 8 ft. 11 in. or 5⅜ in. for larger openings up to 12 ft. 0 in. x 12 ft. 0 in.

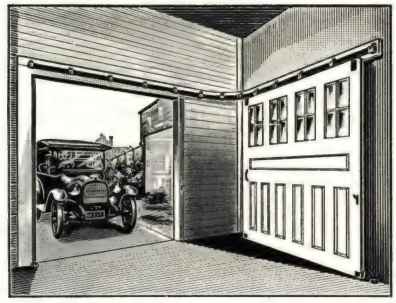
R-W No. 235 "SLIDASIDE" GARAGE DOOR EQUIPMENT



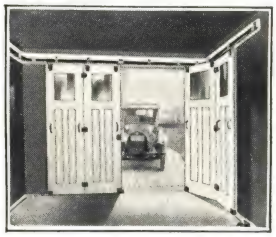
235-AA Single door set using slot brackets. For double doors, specify 235-BB.



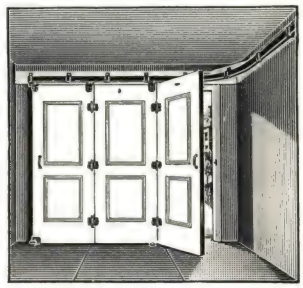
235-DD Double door set using corner brackets. For single doors, specify 235-CC.



235-EE Single door set using curved corner track. For double doors, specify 235-FF.



235-HH Set, two pairs of doors hinged together, opening in opposite directions. When two doors are hinged together and slide in one direction specify 235-GG.



235-JJ Set, 3 doors hinged together sliding around the corner on curved track.



235-KK Set, two groups of three doors hinged together, one of which slides to the right; the other to the left.

R-W No. 235 "SLIDASIDE" GARAGE DOOR SETS

	Doors in opening	Width of opening, ft.	Max. weight of each door, lb.	Min. headroom, in.	Space jamb to side wall, in.
235-AA-1831	1	Up to 8	200	9	2 or more
235-AA-18232	1	Up to 8	200-350	11⅜	2 or more
235-AA-1833	1	Up to 8	350-600	11¾	2 or more
235-BB-1831	2	Up to 8	200	9	2 or more
235-BB-18232	2	Up to 8	200-350	11⅜	2 or more
235-BB-1833	2	Up to 8	350-600	11¾	2 or more
235-CC-1831	1	Up to 8	200	6⅜	Less than 2
235-CC-18232	1	Up to 8	200-350	7⅝	Less than 2
235-CC-1833	1	Up to 8	350-600	8	Less than 2
235-DD-1831	2	Up to 8	200	6⅜	Less than 2
235-DD-18232	2	Up to 8	200-350	7⅝	Less than 2
235-DD-1833	2	Up to 8	350-600	8	Less than 2
235-EE-1831	1	Up to 8	200	6⅜	26 or more
235-EE-18232	1	Up to 8	200-350	7⅞	26 or more
235-EE-1833	1	Up to 8	350-600	8¼	26 or more
235-FF-1831	2	Up to 8	200	6⅜	26 or more
235-FF-18232	2	Up to 8	200-350	7⅞	26 or more
235-FF-1833	2	Up to 8	350-600	8¼	26 or more
235-GG-1831	2	Up to 8	200	6⅜	26 or more
235-GG-18232	2	Up to 8	200-350	7⅞	26 or more
235-GG-1833	2	Up to 8	350-600	8¼	26 or more
235-HH-1831	4	Up to 8	200	6⅜	26 or more
235-HH-18232	4	Up to 8	200-350	7⅞	26 or more
235-HH-1833	4	Up to 8	350-600	8¼	26 or more
235-JJ-1831	3	Up to 8	200	6⅜	No requirement
235-JJ-18232	3	Up to 8	200-350	7⅞	No requirement
235-JJ-1833	3	Up to 8	350-600	8¼	No requirement
235-KK-11631	6	Up to 16	200	6⅜	No requirement
235-KK-116232	6	Up to 16	200-350	7⅞	No requirement
235-KK-11633	6	Up to 16	350-600	8¼	No requirement

To Specify

Furnish and install in accordance with the manufacturer's erection details, Richards-Wilcox No. 235 "Slidaside" garage door equipment as follows:

(Select catalogue number for door weights, size and number of doors, from table) for doors weighing .... lb., total opening width ...., height ...., door thickness ..... (Attach sketch of floor plan with dimensions.)

LOCKING DEVICES

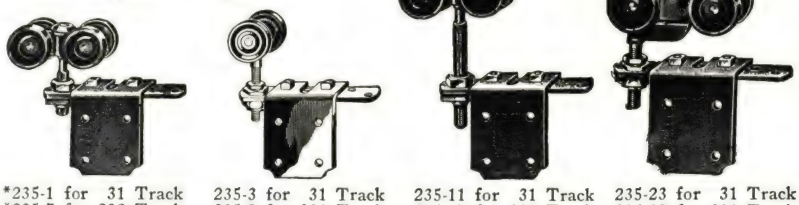
The following locking combinations are available for the sets shown above:

Set	Lock doors from inside	Lock doors from outside	Lock doors from inside and outside
AA	1 No. 524 or 1 No. 516 bolt	1 No. 525 lock	
BB	2 No. 524 or 2 No. 516 bolts	.....	1 No. 525 lock and 1 No. 524 or 1 No. 516
CC	1 No. 524 or 1 No. 516 bolt	1 No. 825 lock	
DD	2 No. 524 or 2 No. 516 bolts	.....	1 No. 825 lock and 1 No. 524 or 1 No. 516
EE	1 No. 524 or 1 No. 516 bolt	1 No. 525 lock	
FF	2 No. 524 or 2 No. 516 bolts	.....	1 No. 525 lock and 1 No. 524 or 1 No. 516
GG	1 No. 524 or 1 No. 516 bolt	.....	1 No. 525 lock
HH	2 No. 524 or 2 No. 516 bolts	.....	1 No. 525 lock and 1 No. 524 or 1 No. 516
JJ	.....	1 No. 835 or 1 No. 525 lock	
KK	.....	2 No. 835 or 2 No. 525 locks	1 No. 525 lock and 1 No 516 or 1 No. 835

How to Use the Table

The first number, 235, designates the "Slidaside" series. The capital letters AA, BB, etc., indicate the type of "Slidaside," see illustrations above. The first figure after the letters indicates the locking device. On all the sets listed above, the figure is 1, indicating inside locking only for all except the 3 and 6 door sets. In the latter it indicates outside locking only. Optional methods and devices for locking, however, are given in separate table. The second or second and third numbers, 8, 9 or 10, designate the width of opening. The last two or three figures, 31, 232 or 33, represent the track size (see page 2). If opening is 10 ft. wide and 232 track is wanted for type CC, the catalogue number would be 235-CC-110232.

Types of Hangers



*235-1 for 31 Track	235-3 for 31 Track	235-11 for 31 Track	235-23 for 31 Track
*235-7 for 232 Track	235-8 for 232 Track	235-17 for 232 Track	235-28 for 232 Track
*235-2 for 33 Track	235-4 for 33 Track	235-12 for 33 Track	235-24 for 33 Track

*No. 235-5, -9 and -6 are similar to 235-1, -7 and -2 except they have knuckle-jointed frames for curved track.

R-W "IDEAL-SLIDING" GARAGE DOOR EQUIPMENT

Description

"Ideal-Sliding" Garage Door Equipment is high class hardware in which "Ideal" ball bearing track and hanger assemblies support sliding doors. The "Ideal" track and hanger assembly embodies, because of scientific construction, perfect operation. The door hangs from a wide rider-bar, rolling over steel balls, which in turn roll over a carefully milled track groove. Friction is practically eliminated and at the same time the door travels at twice the speed of the bearings. A ball retainer always keeps the steel balls properly spaced.

Operation

From the suggested hardware sets given below, equipment for single sliding and double sliding doors can be selected to suit various doorway conditions.

(A) Single doors sliding on single track to one side of doorway. (See Plan A below.)

(B) Pair of doors sliding in opposite directions on single track. (See Plan B.)

(C) Two parallel doors sliding on two tracks to wall space on one side of opening. (See Plan C.)

(D) Two parallel doors sliding from jamb to jamb on two tracks. (See Plan D.)

(E) Parallel doors on two tracks with front wall space in center of doorway. (See Plan E.)

(F) Parallel doors on two tracks sliding to wall spaces on both sides of doorway.

(G) Parallel doors sliding from jamb to jamb in two tracks, one inside and one outside. (See Plan G.)



Above:

"Ideal-Sliding" Track Assembly

Left:

Cross Section of Ball Bearing Track

Cross section of "Ideal-Sliding" ball-bearing track, showing relative position of track, bearings and rider bar

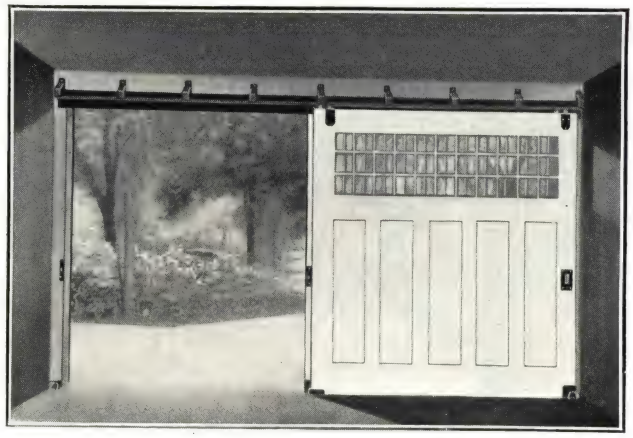


Illustration Shows a Two-Car Garage. Doorway Is Equipped with "Ideal-Sliding" Parallel Doors

Hardware Furnished

With the exception of the track and hanger assemblies which are of the "Ideal" type, all other hardware in the "Ideal-Sliding" sets is the same as described and illustrated in the section on "Parallel Sliding Garage Door Equipment" page 6.

Weatherstripping—Sets 457 and 454 are furnished with tracks having no weatherstripping. 456 hardware is supplied with tracks equipped with weatherstrips.

Weights of Doors

This equipment is made for doors weighing up to 500 lb.

Headroom

Distance between top of door and top of track brackets for plans using double track is 11 in. The headroom on plans using single track is 7 in.

To Specify

Furnish and install in accordance with the manufacturer's erection details, Richards-Wilcox "Ideal-Sliding" Garage Door Hardware as follows:

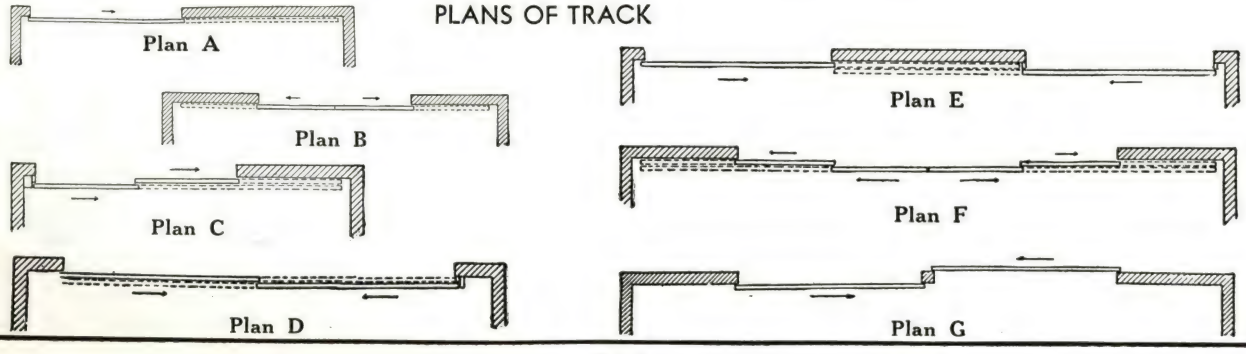
(Select catalogue number for size opening and plan of tracks) for doors weighing .... lb. total opening, width ...., height ...., door thickness .....

Note: *If there is more than one opening and the equipment varies, list each door separately.*

"IDEAL-SLIDING" SETS

	Size of opening, ft.	Using equipment No.	Maximum width of opening, ft.
Plan C	up to 8	457 (without weatherstrip)	10
Plan A	up to 8	454 (without weatherstrip)	20
Plan B	up to 8	454 (without weatherstrip)	13
Plan D	up to 16	457 (without weatherstrip)	20
Plan D	up to 16	456 (with weatherstrip)	20
Plan E	up to 8	457 (without weatherstrip)	10 ea.
Plan F	up to 8	457 (without weatherstrip)	20
Plan G	up to 8	454 (without weatherstrip)	10

PLANS OF TRACK



R-W No. 434 HEAVY GARAGE DOOR HARDWARE

Operation of Doors

No. 434 equipment operates doors in the same manner as the "Slidetite" equipment described in the section on garage doors.

The doors are locked by heavy cane bottom bolts, and by heavy spring top bolts. All of the hardware is extra heavy and is adapted to both wood and steel doors.

No. 434 Hardware

The R-W No. 434 hardware consists of hangers, tracks, brackets, hinges, locking bolts and hold open latches. When wicket doors are used, hinges and latch are furnished for the same.

Tracks and Hangers—The hangers are No. 2435 and track brackets are the Nos. 435x375 and 1035x375. The track is our No. 375 made of No. 10 gauge steel.



Figure 2—Front of Aurora Bus Barn, Doorways of Which Are R-W Equipped

Hinges—Made with long straps, which extend across the door. The straps are made of ⅜x2½", ⅜x3" and ½x3" stock. Pintles for jamb hinges with disc bearing are made of 5" stock for hinges with 2½" straps, and of 6" stock when used with hinges 3" wide. Pintles for hinges with ball bearings are one inch wide. These pintles are made in various ways, according to requirements at the jamb. All hinges are bolted thru the door.

Regular type equipped with hardened cadmium plated disc bearings and cadmium plated pintle pin. Also made ball bearing, the ball bearing unit being cadmium plated. This makes an ideal combination and an ornamental as well as a very easy operating installation.

Cane Bolts—When floors are earth or cinder large cane bolts operating horizontally with guides and keeper plates are furnished for each pair of doors.

Hold Open Latch—A hold open latch bar is attached to the outside of one door of each pair when doors open out. The hold open latch is attached to a post or a section of rail set in the ground.

Wicket Doors—A pair of heavy tee hinges and a heavy warehouse door latch are furnished for wicket doors when so ordered.

R-W STRAIGHT AND PARALLEL SLIDING DOOR EQUIPMENT

Description

This equipment consists of all the necessary hardware to operate heavy doors on single or multiple runs of parallel track. It is designed for heavy doors weighing from 300 to 3000 lb. and up to 4½ in. thick.

Operation

This equipment will operate over any width opening. One, two or three runs of track may be used. Weights and thickness of doors are given in the table herewith.

Hardware Furnished

Hangers—Hangers are specifically designed for heavy duty. All are of ball bearing construction and will operate easily and smoothly the weight doors indicated for each type.

Tracks and Brackets—Tracks No. 31, 32, 232 and 33 are the same as used in "Slidetite" Equipment. No. 233 Track is 10 gauge, lock joint, 4¼ in. high, 2⅝ in. wide, inside measurement.

No. 375 Track is 10 gauge, 3¼ in. high, 2⅝ in. wide, inside measurement.

No. 145 Track is 11 gauge with ¼-in. angle iron tread, 3 in. wide, 4$\frac{7}{32}$ in. high, inside measurement.

No. 533 Track is No. 9 gauge, 4½ in. high, 2$\frac{15}{16}$ in. wide, inside measurement.

Bracket attachments may be for overhead or wall attachment. Track is furnished in 4, 6, 8 and 10 ft. lengths. Brackets should be spaced on 24-in. centers.

To Specify

Furnish and install according to manufacturer's erection details, Richards-Wilcox Heavy Industrial Door Equipment as follows:

Hanger No. .... (select according to corresponding weights and thickness of doors, two hangers to each) for use with ..... runs of track (if multiple track, to be assembled by manufacturer with necessary brackets) for doors weighing .... lb. Total opening .... ft. wide, ... ft. high. Door thickness .... in.

Note: If there is more than one opening and the equipment varies, list each door separately.

Note: State whether overhead or wall attachment.

STRAIGHT AND PARALLEL SLIDING DOOR EQUIPMENT

Hanger No. Ball bearing	Track No.	For doors weighing, lb.	Thickness of doors, in.	Distance top of door to bottom of track, in. Minimum	Maximum
20½B	31	300	1¾–2½	1$\frac{3}{16}$	2$\frac{5}{16}$
27½B-1	31	300	1¾–2	1$\frac{3}{16}$	2$\frac{5}{16}$
27½B-2	31	300	2¼–2¾	1$\frac{3}{16}$	2$\frac{5}{16}$
28½B-1	32	400	1¾–2	1$\frac{3}{16}$	2$\frac{5}{16}$
28½B-2	32	400	2¼–2¾	1$\frac{3}{16}$	2$\frac{5}{16}$
29½B-1	232	600	1¾–2	1⅛	2½
29½B-2	232	600	2¼–2¾	1⅛	2½
123½B-1	33	800	1¾–2	1¼	2⅜
123½B-2	33	800	2¼–3	1¼	2⅜
150½B-1	33	800	1¾–2	1¼	2⅜
150½B-2	33	800	2¼–3½	1¼	2⅜
499-1	233	1200	1¾ to 2	1¼	2⅜
499-2	233	1200	1¼ to 3½	1¼	2⅜
155½B	375	1600	2¼ to 3½	5½	6¾
149-1	145	2000	1¾ to 2	1¾	3¼
149-2	145	2000	2½ to 3¼	1¾	3¼
149-3	145	2000	3½ to 4¼	1¾	3¼
598-1	533	2000	1¾ to 2¼	1¾	3¼
598-2	533	2000	2½ to 3¼	1¾	3¼
598-3	533	2000	3½ to 4¼	1¾	3¼
1098-1	533	3000	1¾ to 2¼	5½	6½
1098-2	533	3000	2½ to 3¼	5½	6½
1098-3	533	3000	3½ to 4½	5½	6½
1049-1	145	3000	1¾ to 2¼	5½	6½
1049-2	145	3000	2½ to 3¼	5½	6½
1049-3	145	3000	3½ to 4¼	5½	6½

R-W No. 1300 AUT-O-DOR ELECTRIC DOOR OPERATOR

Description

In bringing out the No. 1300 Aut-O-Dor Operator, we have kept pace with modern times by developing an Electric Door Operator that is neat in appearance and compact in design. We have eliminated the long levers and connecting arms that have so detracted from the general appearance of the door operators in the past.

We believe the No. 1300 Aut-O-Dor Operator to be the neatest door operating mechanism on the market today and when installed on the doors, it does not detract from the artistic design of the building.



No. 1300 Aut-O-Dor Unit Designed for Either Plain Swinging or Sliding-folding Doors

Installation

Heretofore, the problem of installation has been a very vexing one. In the No. 1300 Aut-O-Dor Operator we have again complied with the popular demand, by developing a door operator so simple in design that it can readily be installed in an hour's time by any handy man, exclusive of the electric wiring.

The No. 1300 Door Operator is set in place in much the same manner as a liquid door check. It is only necessary to put three bolts through the top rail of the door and two lag screws or cap screws into the door jamb to install each unit, one unit being used on each side of the opening. In other words, there are only 10 bolts and screws to attach to make a complete installation.

Control

It is not necessary to run electric conduit to the rear of the building in order to operate an Aut-O-Dor, throughout the length of the garage. By means of an especially designed switch mounting, the doors may be operated by a small overhead cable, which is regularly furnished. As many cords may be dropped from the cable as desired. Cords are usually hung the full length of the driveway, and floor men find it more convenient to operate the doors from the pull cords than from wall switches. If desired, standard three and four-way switches can be secured from any electrician and used for operating the doors instead of the pull cords.

Inasmuch as no special switches are required to operate this controller, they are not furnished regularly. Any electrician can install as many sets of push button switches in the office and other places as necessary.



No. 1300 Aut-O-Door in Fire Station

Safety Features

In order to guard against accidents, we have designed our No. 1300 Operator so as to take care of every emergency.

Should the electric current be off, the doors may be operated by hand from the inside by merely pulling the release cord. The introduction of this feature means that at no time are your customers locked in or out.

In case the doors are hit when in motion the crank arm is propelled through a friction clutch which allows slippage so that no damage is done to the mechanism. By pushing any operating button a second time the doors may be stopped in the middle of either cycle of operation.

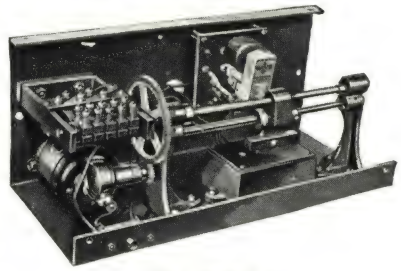
As the doors are opened and closed by means of a crank, they start opening very gradually, the action becoming more rapid in the middle of the operation and stopping in a slow, easy manner without any sudden jerk or pull on the doors. This keeps the doors in good shape and will not break the glass by slamming.

Another great feature derived from the crank movement is that power increases toward the end of the operation. This makes it possible to completely close the doors against a heavy wind without any strain whatsoever on the mechanism.

When the doors are closed they are locked and cannot be blown open by a wind.

Time Switch for Fire Station Use

The Richards-Wilcox No. 1300 Aut-O-Dor Electric Door Operator has met with universal approval among the architects, as well as with Fire Department officials, for controlling large entrance doors in fire stations operated by a time switch.



Time Switch

In Fire Departments, it is important that when an alarm is turned in that the equipment leave the building in the shortest time possible and that the doors be controlled with the least amount of effort. By a slight pull on a cord hanging conveniently over the driver's seat, the doors are opened, and after the equipment has left the building the doors are automatically closed after a predetermined lapse of time. The time switch has a motor as a time element and is easily adjusted.

The doors may be opened and closed electrically independently of the time switch without the necessity of disconnecting the time element.

Should the occasion demand, there are extra contacts provided so that the lights, sirens, and other equipment may be controlled automatically without any extra duties being required of the firemen. Should there be an interruption in electric current after the time switch has started its cycle of operation, the doors will remain open and the time switch will continue its cycle of operation upon resumption of the electric current.

R-W No. 448 AND No. 548 MILL TYPE DOORS

No. 448 SupeR-Way Doors

Adapted To—SupeR-Way doors are especially recommended for railroad freight sheds, baggage rooms, warehouses, shops, roundhouses, and for all factory purposes where strength and permanence are essential.

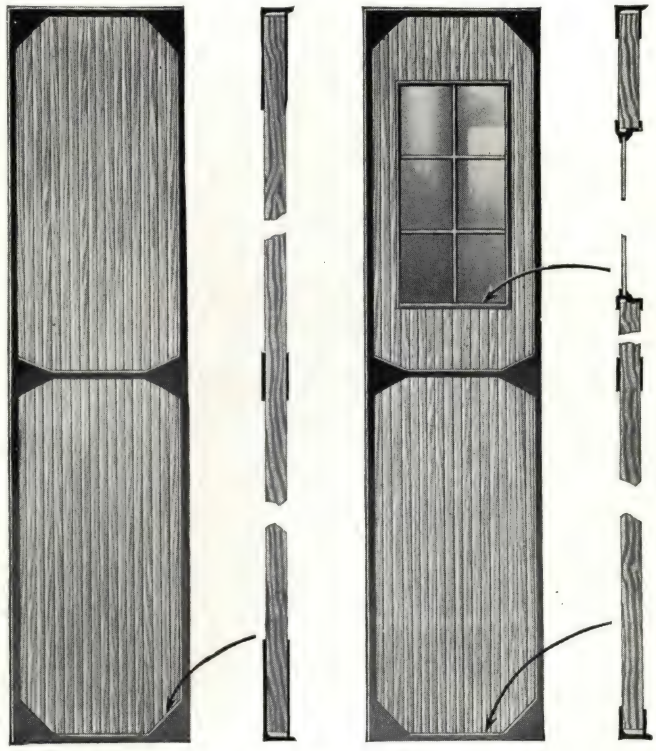
No Strain—In a SupeR-Way Mill-type Door there is no strain whatever on any of the wood members. All hardware attachments are made directly to the steel frame. The weight of the doors is carried by the built-in steel frame and by hinges, hangers and other hardware which attach not to wood, but to steel—steel-to-steel throughout.

Frame—A SupeR-Way Mill-type Door consists of a steel frame which is complete in itself. The illustrations will show, at a glance, that the wood members have nothing to do with hanging this door, but that the weight is carried by the steel which is not subject to sagging, warping and pulling apart common to ordinary doors.

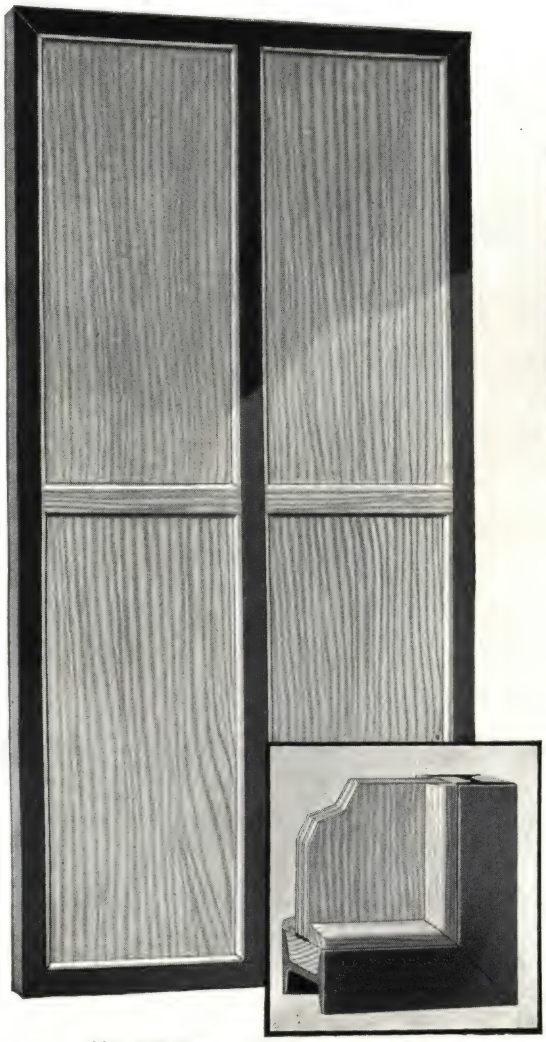
Wood Units—Tongued and grooved units 1¾ in. square are fitted into this frame and nailed through the tongue and groove, piece by piece, to each other. The nails are thus embedded between the strips—not a nail exposed anywhere.

SupeR-Way Mill-type Doors are free from pulling apart of the wood sections. This common complaint in other doors is not experienced because the method of keying the wood members together makes a solid, firm construction, much superior to the paneling of the ordinary door.

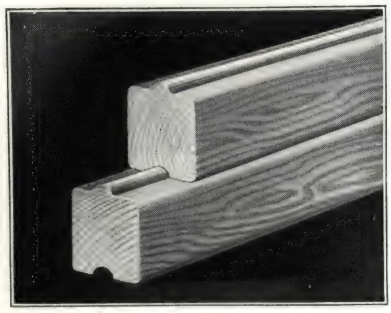
No Bolts—All of the steel members are welded together, not bolted, making a permanently strong and rigid construction. There are no bolt ends or nuts sticking out anywhere. Everything is snug and trim. The result is a door 1¾ in. thick throughout, which is stronger and more durable than any 2½- or 3-in. door built on the usual lines.



No. 448 SupeR-Way Mill Type Door



No. 548 Door with Construction Detail



Cross Section of Wood Members

Doors—The construction of hinged mill-type doors is the same as sliding mill-type doors except that a steel center member is built into the doors, to provide a metal-to-metal attachment for the center hinge as well as for the top and bottom hinges.

No. 548 Doors

The frame of the No. 548 Door is a 3-in. steel I-beam. The entire framework is welded together at all intersections. Door cannot be made less than 3 in. thick, as this is the smallest available I-beam.

The wood panels are five ply, ¾ in. thick. The grain of the wood in each alternate ply runs in the opposite direction from the adjoining plies, so that there is considerable resistance against shrinking or swelling. The outer plies are of fir. On account of the built-up construction, the panel is much stronger than a single piece of wood of the same thickness. The maximum width of any panel is 4 ft. and the maximum height is 8 ft. Doors wider than 4 ft., will have two or more panels in width; doors higher than 8 ft. will have two or more panels in height.

Wood fillers in the I-beam and moulding to hold the panels in place are shown in the cut at the left. The design of the door lends itself very nicely to use as folding doors because the rabbet at the joints can be ideally taken care of.

The weight of the doors per square foot will vary somewhat in the different sizes, but will average about 8 lb. per sq. ft. in the smaller sizes and 7 lb. per sq. ft. in the larger sizes.

Steel sash can be built into the panels of this No. 548 door if desired, at a slight additional cost.

THE TOPPING MANUFACTURING COMPANY

Manufacturers of Equipment for Folding Partitions and Wardrobe Doors; Garage Door Hardware and Electric Door Operators

TELEPHONE
Ashland 339 Main

MAIN OFFICE AND FACTORY
ASHLAND, OHIO

Product

"Easyfold" Equipment for Folding Partitions; "Red Rib" Equipment for Accordion Doors.
"Openeasy" Electric Door Operators.

"Easyfold" Equipment for Partitions

"Easyfold" Equipment originally was designed and, through years of experience, has been improved and perfected to meet every requirement of strength and durability in construction, simplicity in design, and the extreme of ease in the operation of folding partitions. Headroom of only 3½ ins. is required for the track. It may be used in new or in old buildings.

EASYFOLD
THE TOPPING MFG. CO. RED-RIB ASHLAND, O. U.S.A.
SLIDEASY
TRADE-MARKS

Description—Heavy track of cold rolled steel is suspended from above in strong tight-locking brackets. Hangers, easily accessible and of positive adjustment, are of malleable iron and drop steel forgings with dustproof ball bearing swivels—an exceptional construction. Double grooved wheels run on arched treads, reducing friction to minimum, span the slot in track and prevent spreading. Floor guide of extruded brass, with interlocking and removable top plates, cannot rust. The V-shaped dust pocket is cleaned easily by vacuum or by hand. Door guides have case hardened ball bearing wheels, of large diameter, which rotate horizontally and take all side thrust in floor guide with no shearing action as doors fold. Ball bearing emergency rollers, with wide tread, have no contact with level floor. They protect uneven floors. Compensating jamb springs function always.

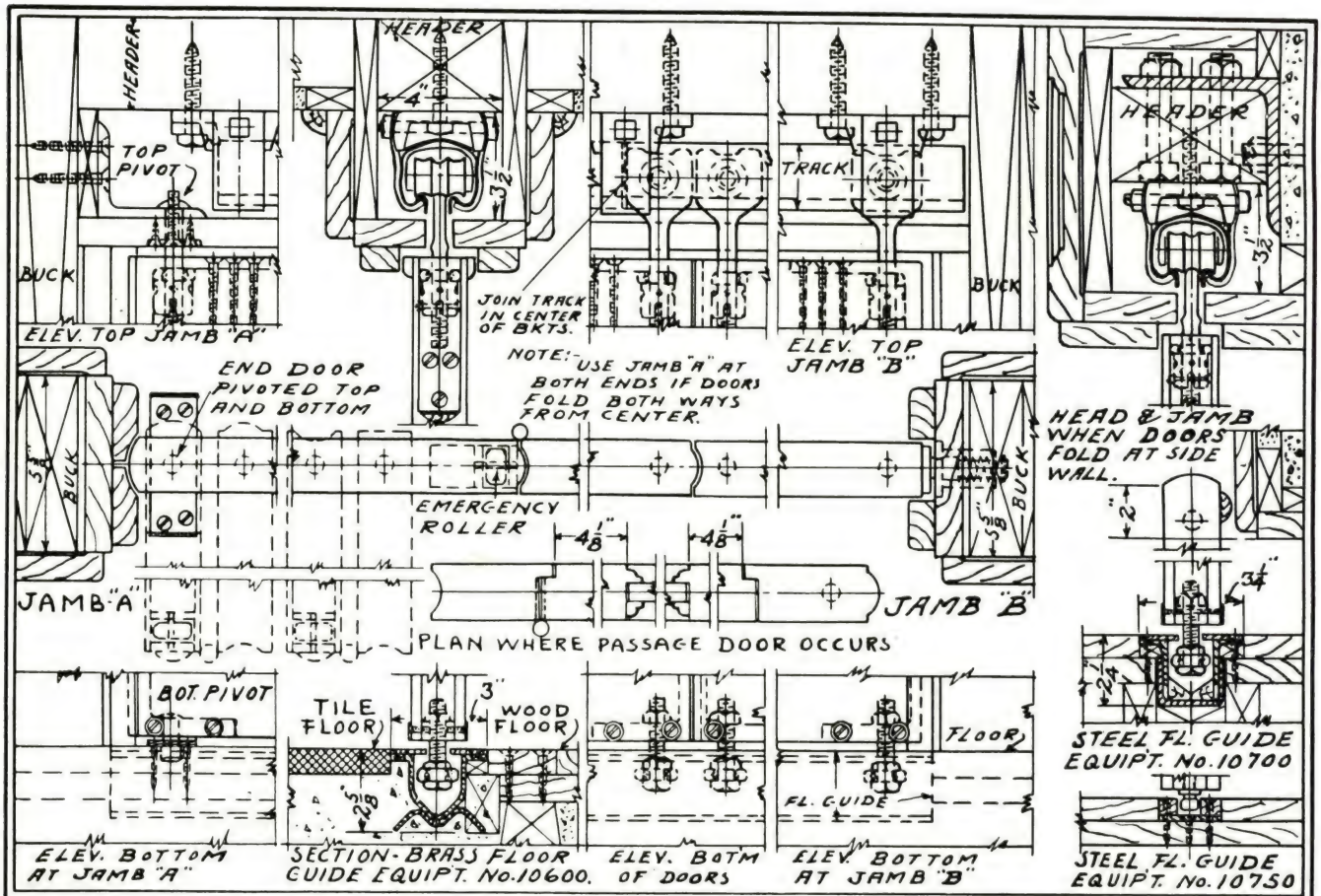
Doors—Partitions may comprise any number of doors; an even number if possible. Doors move in units of two, fold at either jamb or at both jambs, or travel past jambs and fold at wall or column. A hinged passage door may be built into any unit.

All doors in a partition must be of equal width, 1¾ to 3 ins. thick. Doors may be of regular type, soundproof, or fireproof construction; flush, glazed, paneled, or designed for blackboards.

"Easyfold" Hardware Comprises—Overhead track; brackets with lags or bolts; adjustable hangers; bottom guide wheels; emergency rollers; adjustable top and bottom pivots for end door at folding end; compensating jamb springs; floor guides, and special sills and braces for passage doors.

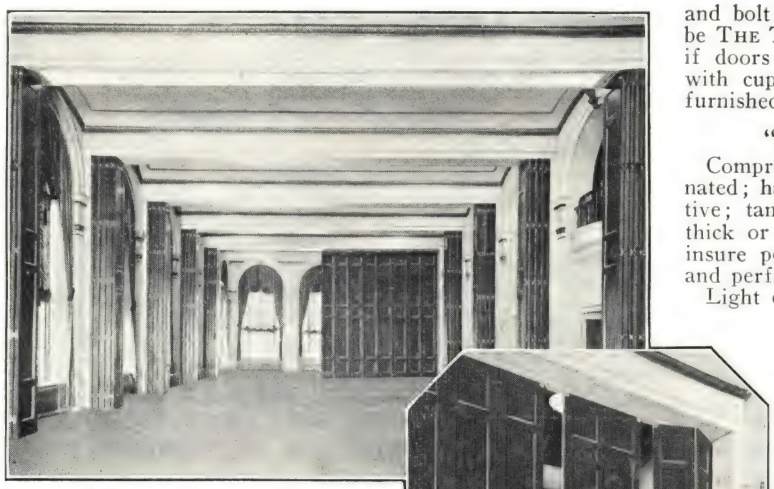
Finish—Access cover plates are bronze. Edge plates are plain to stain, or dead-black, or special finish as specified.

Specifications—Doors, jambs, and trim to be as detailed, furnished with Topping "Easyfold" Equipment No. 10600, and installed by contractor in strict accordance with details furnished by The Topping Manufacturing Company. (When



DETAILS OF TOPPING "EASYFOLD" EQUIPMENT. SCALE 2"=1'-0"

D-E.W.S.



Neil House, Columbus, Ohio
GUSTAV W. DRACH, Architect

the Hamlinized Folding Partition is specified, use "Easyfold" No. 10600 H.)

For butts (or invisible hinges), flush bolts, door pulls, latch or lock sets for passage doors, see specifications for "Finishing Hardware."

Butts for folding doors to be steel [bronze] [Soss Invisible Hinges]. Flush bolts to be THE TOPPING MANUFACTURING COMPANY'S No. 609, with backset to center the doors (made with ⅞, 1, 1⅛, 1¼, 1½, and 1¾-in. backsets) and bolt head to fit slot in floor guide. Flush door pulls to be THE TOPPING MANUFACTURING COMPANY'S No. 608 (No. 607 if doors are small). Latch [lock] with proper backset and with cup and drop handles both sides for passage door, all furnished to match other hardware in parts where these occur.

"Red Rib" Equipment for Accordion Doors

Comprises these superior features: side friction is eliminated; hanger adjustment is easy of access, simple, and positive; tandem wheel hangers may be used on doors 1⅜ ins. thick or thicker; "Easyfold" adjustable pivots on half doors insure perfect operation under changing structural conditions and perfect alignment with full width doors.

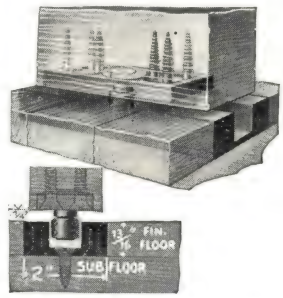
Light doors require only 2⅞-in. headroom, and heavy doors 1¾ ins. thick or thicker only 3⅜-in. headroom between header and soffit. Pivoted half door requires ½-in. additional headroom.



Hanger

Description—Track, brackets, and hangers are of same superior construction as detailed in description of "Easyfold" equipment. Floor guide is built of cold rolled steel, with ¾-in. slot; all surfaces smooth and lacquered. Door guide with ball bearing, wide tread roller, rotating horizontally, eliminates friction. This floor guide with door guides prevents doors from dragging on floor. They should be specified with "Red Rib" equipment.

Doors—Openings may have any number of doors. Doors should not exceed 3 ft. in width. If pivoted, a half door must be exactly one-half width of full door plus 1⅛ ins.; if hinged to jamb, it must be exactly one-half width of full door less distance from center of track to center of butt pin. Beginning with door farthest from half door, a hanger is used on every other door.

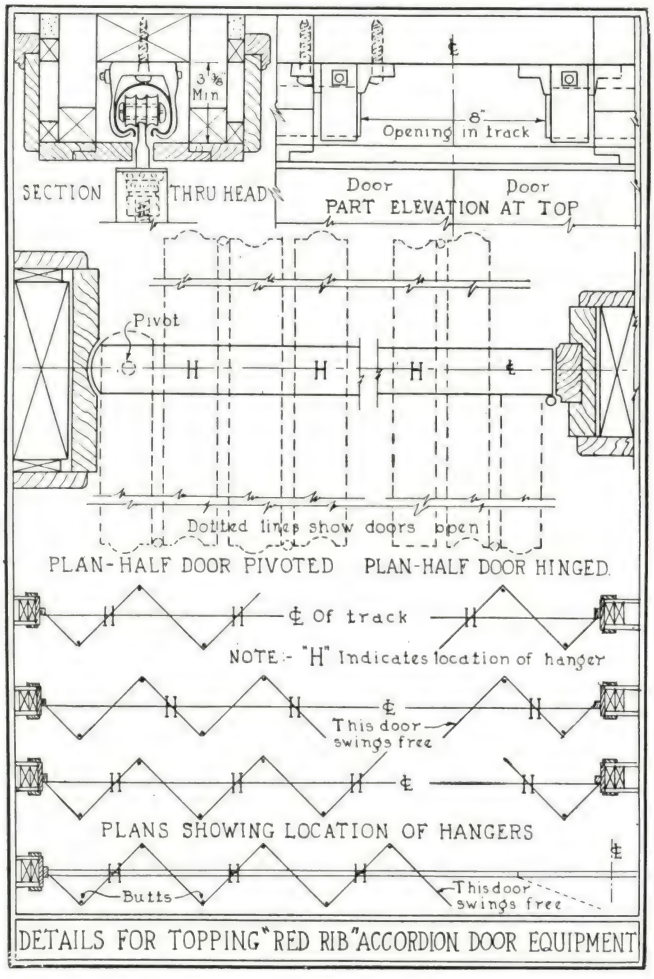


Accordion Door and Floor Guides

Specifications—Furnish and install for all accordion doors, "Red Rib" Hangers No. 105B, Track No. 92, Brackets No. 092C, to be spaced as recommended by the manufacturer. Floor Guide No. 750 for full width of opening, Door Guides No. 753½, and Flush Bolts No. 609, all as manufactured by THE TOPPING MANUFACTURING COMPANY, Ashland, Ohio.

Note: For doors 1⅜ ins. thick, or for 1¾-in. doors, specify "Red Rib" Hangers No. 105A, Track No. 91 and Brackets No. 091C.

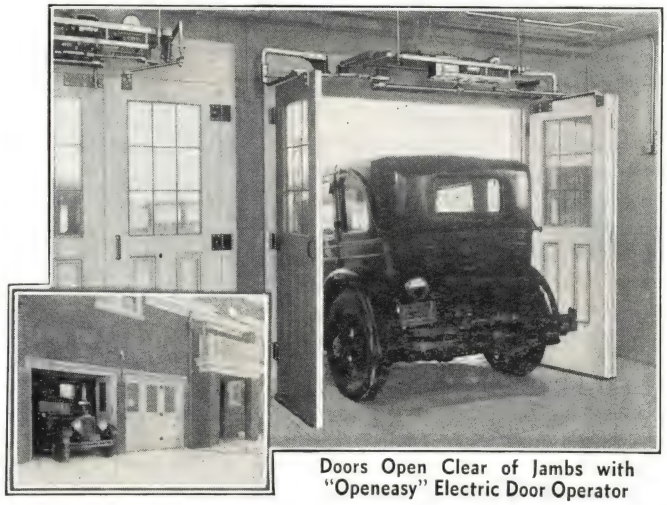
Specify "Easyfold" Pivots No. 604, butts, flush bolts, flush door pulls or lock trim for doors under "Finishing Hardware."



"Openeasy" Electric Door Operators

A simple, practical, and durable electrical device for automatically opening and closing doors of all types in public and private garages, fire stations and warehouses.

Complete catalogue mailed on request.



Doors Open Clear of Jambs with "Openeasy" Electric Door Operator

FARLEY & LOETSCHER MFG. CO.

Manufacturers of "Weatherseal" Garage Doors

DUBUQUE, IOWA

Product

"WEATHERSEAL" GARAGE DOORS No. 800 and No. 805 (patents pending).

Also Sash, Doors, Blinds, Frames, Interior Finish and Building Specialties.

For "Qualitybilt" Disappearing Stairways, see Manufacturers' Index.

"Weatherseal" Garage Doors No. 800 and No. 805

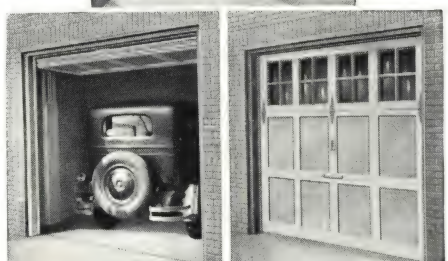
"Weatherseal" Garage Doors are made to fold at the top of the opening, counterbalanced with cast iron weights. The folding action is smooth, safe and simple. Limited ceiling space required does not interfere with lights, pipes, beams, partitions, etc. Doors fit against jamb, making installation easy in old or new buildings. Made in two styles, No. 800 for standard residence garages and No. 805 for large openings. (See bottom of page.)

Advantages—"Weatherseal" Garage Doors will not bind or sag, yet seal the opening perfectly weatherproof all around, as the door in closing is automatically forced tightly against the stops. This makes garage easy to heat. Snow and ice, swelling of door or raising of floor by frost will not interfere with their operation.

Construction and Materials—Made in three sections with clear white pine stiles and rails, 1¾ in. thick, glazed single strength, glass set with wood stops. Panels are 3-ply fir, dipped in pure linseed oil before assembled in door. Waterproof glue is used throughout. Stiles and rails are joined with ⅝-in. hardwood dowels. In addition, hinges and brackets overlap and reinforce sixteen of these joints. Hinged intersections are deeply rabbeted. Each door furnished completely assembled, squared for the opening. Door hardware attached, ready to install. Complete instructions for installing included with each door.







Operation of Weatherseal No. 800

Operation—Operates from either side with equal ease. The two lower sections fold against the upper section at top of opening. This action is aided by the heavy weights. Closing is just as simple. There are no springs to break or lose their tension.

Headroom and Clearance—***No. 800 Door***—Minimum headroom necessary is only 1¾ in. above top of door. Clearance between rear bumper of car and door is about 12 to 15 ins. Bottom panel requires 2 ft. 6 in. clearance at a point 6 ft. from floor line to swing open. When folded up doors reduce height of opening 7 ins. leaving 7 ft. 5 in. clear in 8 ft. opening and 6 ft. 11 in. clear in 7 ft. 6 in. opening. Clear ceiling space 2 ft. 8½ ins. required for 8 ft. high door when folded.

No. 805 Door—Headroom 13½ ins. or more depending on size of door. Doors completely clear opening at top, when folded. Ceiling space used, about 2 ins. more than one-third of door height.

Hardware—All hardware is furnished, including a high grade cylinder lock. Hardware has a wide margin of safety and is made of steel and malleable iron, black japanned. Pulleys are roller bearing with turned wheels. Chain is twist link, welded and galvanized. Weights are cast iron.

Sizes and Designs—"Weatherseal" No. 800 is made in two stock sizes, 8x8 ft. by 1¾ in. and 8x7 ft. 6 ins. by 1¾ in. in the design illustrated.

This design, however, can be varied on special order.

"Weatherseal" No. 805 is for larger openings and made to order only.

Shipping Weight—Shipped one door in crate.

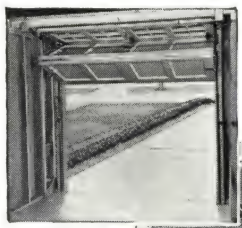
Shipping weight of No. 800 is approximately 395 lbs. for 8x8 ft. and 375 for 8x7 ft. 6 ins. Shipping weight of No. 805 is about 7½ lbs. per sq. ft.

"Weatherseal" No. 805 for Large Openings

For service stations, factories, warehouses, public garages, etc.

Description—Appearance and construction of No. 805 door are the same as our standard No. 800 design, but the operation is slightly different and heavier hardware is used.

Operation—Top section rolls back on short tracks suspended from the ceiling and center and lower sections fold up against it, clearing top of the opening. Action is controlled by cast iron weights and can easily be adjusted for effortless operation. Complete instructions for preparing opening and installing are included with each set.



Showing how large No. 805 doors fold at top of opening



Weatherseal No. 805
Size 16x13 ft.

Sizes—"Weatherseal" No. 805 doors are made to order only for openings larger than 8x9 ft. and 9x8 ft. and up to and including openings 16 ft. wide by 14 ft. high.

Installation—Each installation of No. 805 varies according to size and details will be sent on request.

Note: Installation details on the following page do not apply to No. 805 doors.

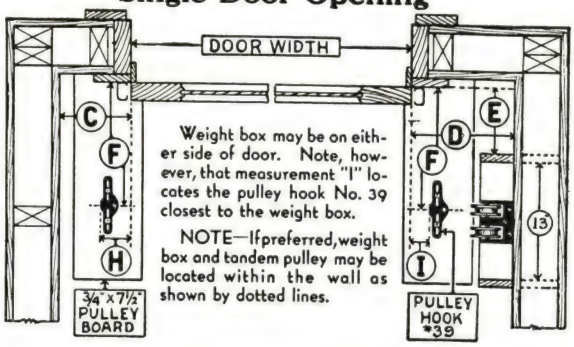
Prices

Write for illustrated folder and price information. Address S. 32.

CEILING PLANS OF NO. 800 DOOR

FOR LOCATING PULLEY HOOKS AND WEIGHT BOX

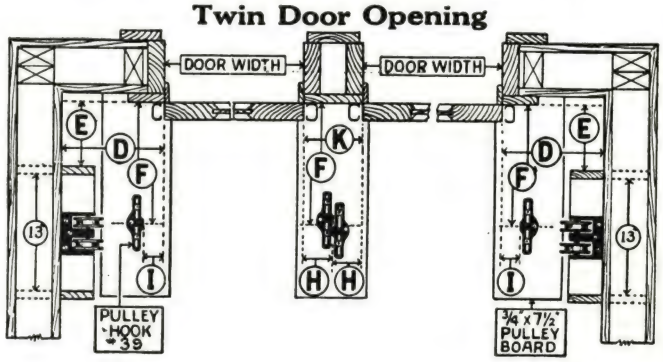
Single Door Opening



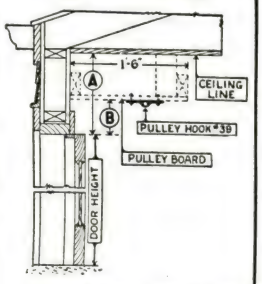
Weight box may be on either side of door. Note, however, that measurement "I" locates the pulley hook No. 39 closest to the weight box.

NOTE—If preferred, weight box and tandem pulley may be located within the wall as shown by dotted lines.

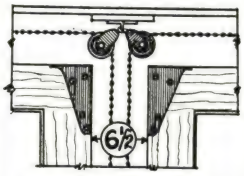
Twin Door Opening



High Ceiling

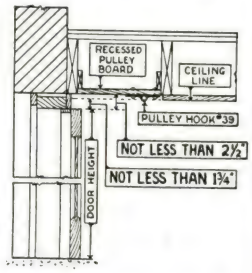


Vertical section, when head room "A" is 6" or more. When head room exceeds 10", frame down pulley board preferably to 6" as indicated by "B"

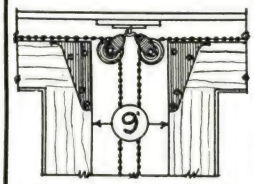


In openings having 6" or more head room, pulleys are placed above doors thus requiring only 3¼" minimum for each pulley. See meas. **"C"**.

Low Ceiling



Vertical section through door frame when head room is limited.



In openings having less than 6" head room, pulleys must be placed between doors, thus requiring 4½" minimum for each pulley. See meas. **"C"**

DOOR FRAME OPENING

New opening should be same size as door, set flush with inside of wall. The stops provide the necessary lap to seal the opening. It is advisable to use 1¾" jambs.

In old openings slightly undersize, door can lap over the frame an inch or less on each side and 3" or less on top, without difficulty. In oversize old openings, false jambs can be attached to fill out. Be sure, to have proper anchorage at top of the side jamb for hanger brackets, as these are under considerable strain when the door is open.

MEASUREMENTS FOR CEILING PLANS

Note that measurements given are always figured from the outside face or edge of door.

C { 3¼" minimum if head room is 6" or more.
4½" minimum if head room is less than 6".

D { 3¼" minimum.

E { 3-0 minimum if "D" is 3¼" to 6".
1-7 minimum if "D" is 6" to 11".
7" or as near as possible forward or backward if "D" is 11" or more.

F { 13" for doors 8'-0 high.
12" for doors 7'-6 high.

H { 3¼" when head room is 6" or more.
4½" when head room is less than 6"

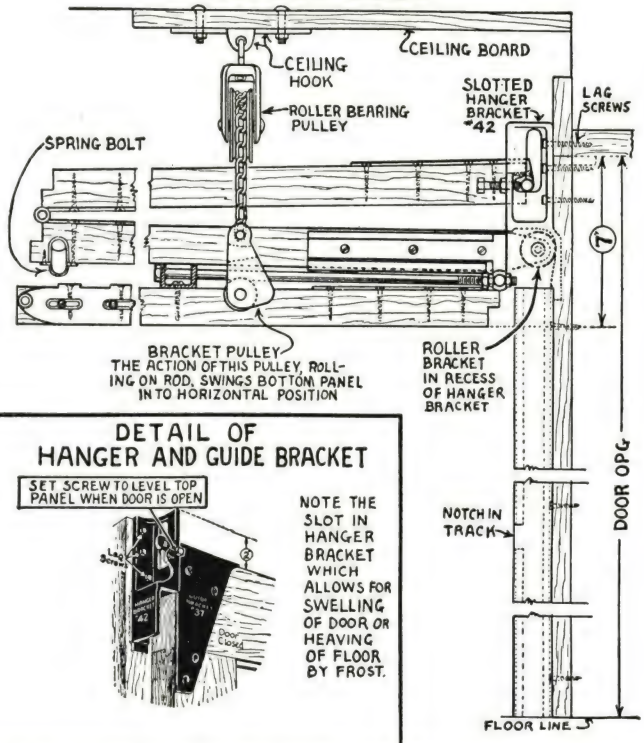
I { 2" on all installations.

K { Not less than 6½" when head room is 6" or more and not less than 9" when head room is less than 6".

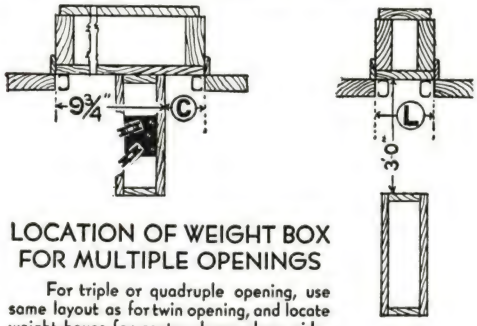
L { Not less than 6½" when head room is 6" or more and not less than 7¾" when head room is less than 6".

ELEVATION

NO. 800 DOOR



Multiple Opening Mullions



LOCATION OF WEIGHT BOX FOR MULTIPLE OPENINGS

For triple or quadruple opening, use same layout as for twin opening, and locate weight boxes for center doors along sidewalls. *For these installations center doors will require longer chain, which must be specified if wanted.*

Weight boxes for other than the two end doors may also be centrally placed behind mullion, 3 feet from inside of mullion as indicated. If mullions are 13" or 14¼" (depending on ceiling height) or wider, weight box may be located directly behind mullion as illustrated above.

DETAIL OF HANGER AND GUIDE BRACKET

NOTE THE SLOT IN HANGER BRACKET WHICH ALLOWS FOR SWELLING OF DOOR OR HEAVING OF FLOOR BY FROST.

BARBER-COLMAN COMPANY

Manufacturers of Garage Doors and Garage Door Operators

ROCKFORD, ILL.

For our pages on Temperature Control, see Manufacturers' Index

THE BARCOL OVERDOOR



OVERdoors on Filling Station

The Barcol OVERdoor is an improved type of overhead or upward-acting door, giving a perfectly balanced, easy operating, and positive closing action under all weather conditions. It is intended for use on private and public garages, filling stations with greasing and washing service rooms, factories, warehouses, bakeries, terminals, etc. It is available in four stock sizes as follows—8x7 ft., 8x7 ft. 6 in., 8x8 ft., and 8x10 ft. Special sizes up to 18 ft. wide and 15 ft. high can be provided in the standard design. A "wicket" door—a small hinged service door in the OVERdoor—can be supplied when required. Special devices are provided for abnormal headroom conditions. Reinforcing strips and a center support track are used for extra wide doors. Glass may be had in any number of sections. Special design doors—to match architectural style of building—can be made to order. Removable mullions are available when required. Installation and service are available from branch offices and representatives in many principal cities.

Features

Features of the Barcol OVERdoor are as follows:

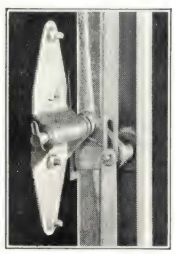
Door has a smooth and easy opening and closing action due to solid, ball-bearing rollers, accurate design of balance springs, and special closing action.

All hardware of Model 75 Barcol OVERdoor is zinc-cadmium plated for rust-prevention and endurance.

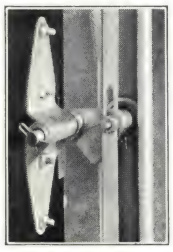
Door is balanced for convenient and minimum-effort handling by means of two adjustable proportional counterbalancing coil springs. No strenuous lift or pull required at any point of travel. Only effort required is to overcome friction as weight of door is completely balanced.

Stiles and rails made of full 1¾-in. thick, clear, straight grain white pine lumber, properly cured, and primed after sanding. Heavy laminated panels are of fir, with grains at right angles and glued with waterproof glue, also primed after sanding. All joints are mortised, glued with waterproof glue, and steel pins driven through tenons.

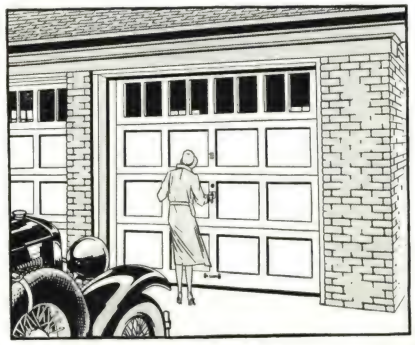
Hinged roller plates provide unusually effective closing action, pressing entire door firmly and uniformly against stop strips in last three inches of downward travel. On opening, same action prevents sticking or jamming that would require severe effort to start door up. Door rolls easily at all times, because it is held well away from casing by this means.



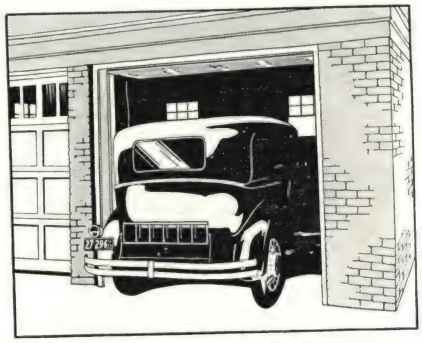
Roller Plate OVERdoor Opening



Roller Plate OVERdoor Closed



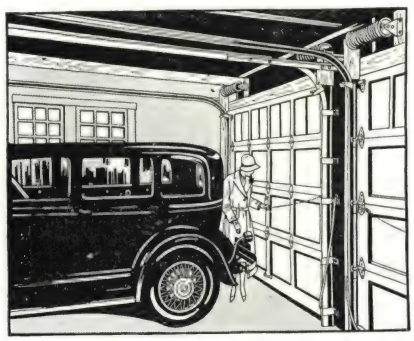
To open the Barcol OVERdoor, unlock it and raise the lifting handle



Full clearance, because the OVERdoor is up, out of the way



A pull on the assist cord starts the OVERdoor downward



A downward push on the locking handle, and the OVERdoor is closed—and locked



OVERdoors on Apartment Garages

Illustration Opposite

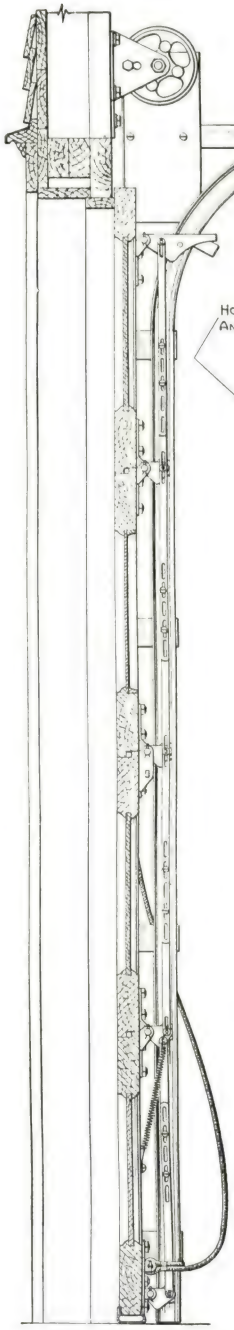
The illustration on the following page is a scale drawing of two elevations of a standard 8x8 ft. Barcol OVERdoor, showing all hardware and other parts. Center illustration gives dimensions for and illustration of normal casing and headroom requirements. A cross-section of the track and one roller assembly is shown. At the bottom are three special designs for OVERdoors.



Large OVERdoor in Factory

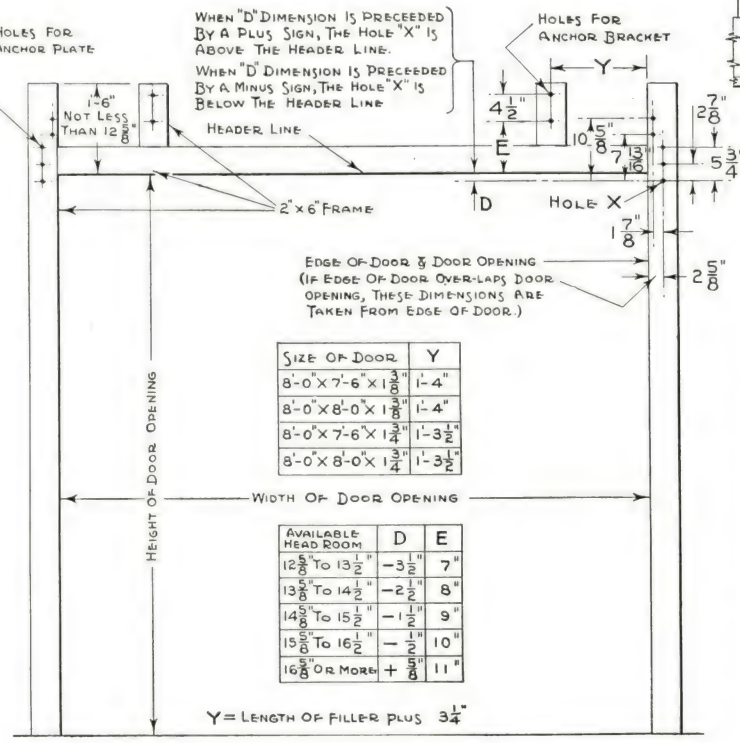
BARCOL OVERdoor MECHANISM AND CASING

SHOWING DETAIL OF CONSTRUCTION



VERTICAL SECTION

INSIDE VIEW OF DOORWAY
SHOWING NECESSARY CASING

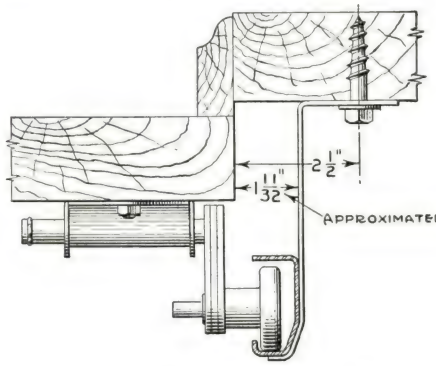


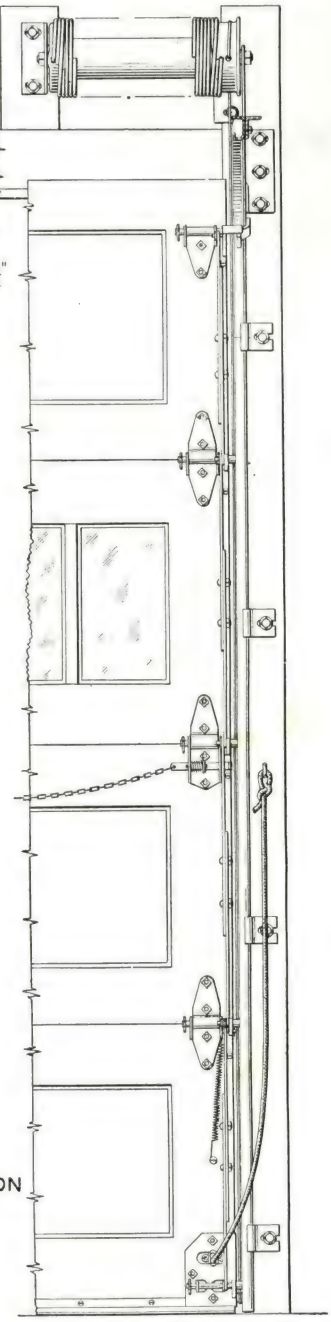
SIZE OF DOOR	Y
8'-0"x7'-6"x1 3/8"	1'-4"
8'-0"x8'-0"x1 3/8"	1'-4"
8'-0"x7'-6"x1 3/4"	1'-3 1/2"
8'-0"x8'-0"x1 3/4"	1'-3 1/2"

AVAILABLE HEAD ROOM	D	E
12 5/8" TO 13 1/2"	-3 1/16"	7"
13 5/8" TO 14 1/2"	-2 1/16"	8"
14 5/8" TO 15 1/2"	-1 1/16"	9"
15 5/8" TO 16 1/2"	- 1/2"	10"
16 5/8" OR MORE	+ 5/8"	11"

Y = LENGTH OF FILLER PLUS 3 1/4"

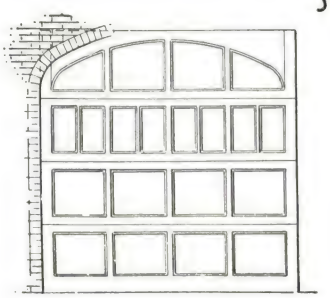
METHOD OF ANCHORING TRACK

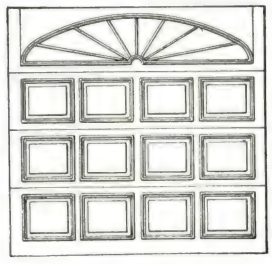


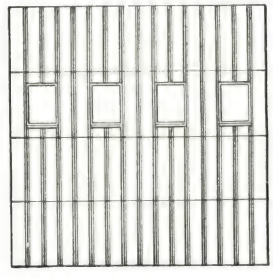


REAR ELEVATION

SPECIAL DESIGNS OF BARCOL OVERdoors







BARBER-COLMAN DOOR OPERATORS

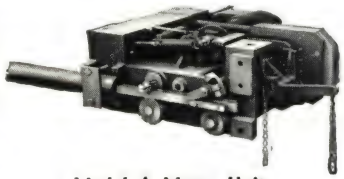


Door Operator with Radio Control

The signal is sent from the car approaching the garage. The doors open automatically and, at night only, the garage lights are turned on

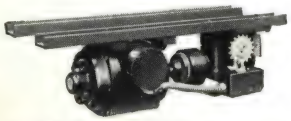
The Operators

Description—The Barber-Colman Model A Door Operator is a device for opening and closing garage doors electrically; it is designed for operation by either switch control or radio control, or both. It will operate nearly all types of swinging, sliding or overhead doors. Power is transmitted by a standard motor unit through members which differ according to the type of door. An adjustable "overload release" device removes all power from the door when it strikes any obstruction. The operating mechanism holds the door open and does not allow the wind to blow it shut. When the door is closed it is securely locked by a mechanism that cannot be picked. Provisions for reset and for manual release are simple and convenient. All parts of the machine are easily removable and standardized. The standard operator is designed to run on 110-volt, 60-cycle a-c. Operators can be furnished to run on 220-volt, 60-cycle a-c., 110-volt d-c. or 220-volt d-c.



Model A Motor Unit

The Model M Door Operator is designed for overhead type doors only. It consists of a motor with centrifugal clutch drive through a worm and worm gear transmission to a sprocket. Made for switch control only, not radio. Sizes and current characteristics of motors as required. Damage from door striking obstruction prevented by slipping of centrifugal clutch which is uniform in action regardless of humidity. Door is securely held when closed.



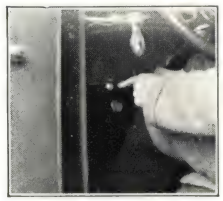
Model M Motor Unit, Overhead Type Door Only

Radio Control

How It Operates—The Barber-Colman Radio Controlled Door Operator makes possible the opening and closing of garage doors by means of a radio transmitter operated from the instrument board of a car. Coded signals make it private. A series of radio impulses transmits a message that will open only the door for which they are coded. At night radio signal from car not only opens doors but also automatically turns on the garage lights. Dependability and reliability has been proven by several years of satisfactory operation in many installations.

Transmitter—Each car which is to control a door is equipped with a transmitter that broadcasts a particular series of impulses. A pull on the transmitter knob conveniently placed on the dashboard causes this code to be sent automatically. The transmitter consists of three main parts: the timer, the spark coil unit, and the transmitting antenna. Power is drawn from the car battery and consumption is negligible. The timer, which governs transmission, is encased in a small box and clamped back of the instrument board. The spark coil unit, enclosed in a watertight box clamped to the main frame, furnishes the high frequency current necessary for broadcasting. This current flows through the transmitting antenna which consists of two lengths of rubber insulated wire suspended diagonally under the car. The wire is mounted in such a manner that there is little danger of mechanical injury. The only part of the transmitter in evidence is the knob on the instrument board.

Receiver—The receiver unit is contained in a box about 1 ft. square and 1½ ft. long mounted on the wall inside the garage. Connected to it is the receiving antenna which consists of a wire buried in the driveway. The receiver analyzes the coded signal from the car, and, if it is the proper code, trips off the electric operator which opens and closes the door. A selecting mechanism in the receiver makes it responsive to two different codes for garages having two doors. The receiver requires 110-volt, 60-cycle a-c., the power ordinarily furnished for house lighting. The single vacuum tube used in the detecting circuit of the receiver is of the type used in automatic train control equipment. The mechanism is simple in design and reliable in operation.



Radio Control Transmitter

Switch Control

Self-restoring Switch—A self-restoring toggle switch is furnished with each operator as standard equipment. It can be installed in a standard surface or flush type switch box in the house or garage. It will control two door operators selectively.

Driveway Post—Conveniently installed at the side of the driveway for operation without leaving the car. The lock-switch in the post head makes a contact when the key is inserted, which opens the doors. A self-restoring toggle switch, not locked, is also provided in the post head by which the door can be closed but not opened.

Outside Switch—This switch, like the driveway post, embodies the lock switch for opening and the free switch for closing. It may be used in place of the post where a wall or fence affords a convenient location.

Driveway Plate—Contact made with adjustably flexible diaphragm by weight of car. Placed where wheel of car approaching garage will pass over. Avoids necessity of stopping car though is generally wired to open the door only.



Types of Doors for Operators

Two-leaf Outward Swinging
Three-leaf Inward Swinging
Single Sliding
Two-leaf Inward Swinging
Four-leaf Inward Swinging
Overhead

THE MAJESTIC COMPANY

Manufacturers of Building Products

HUNTINGTON, IND.

For Majestic Building Specialties, see Manufacturers' Index

MAJESTIC VERTI-FOLD DOOR

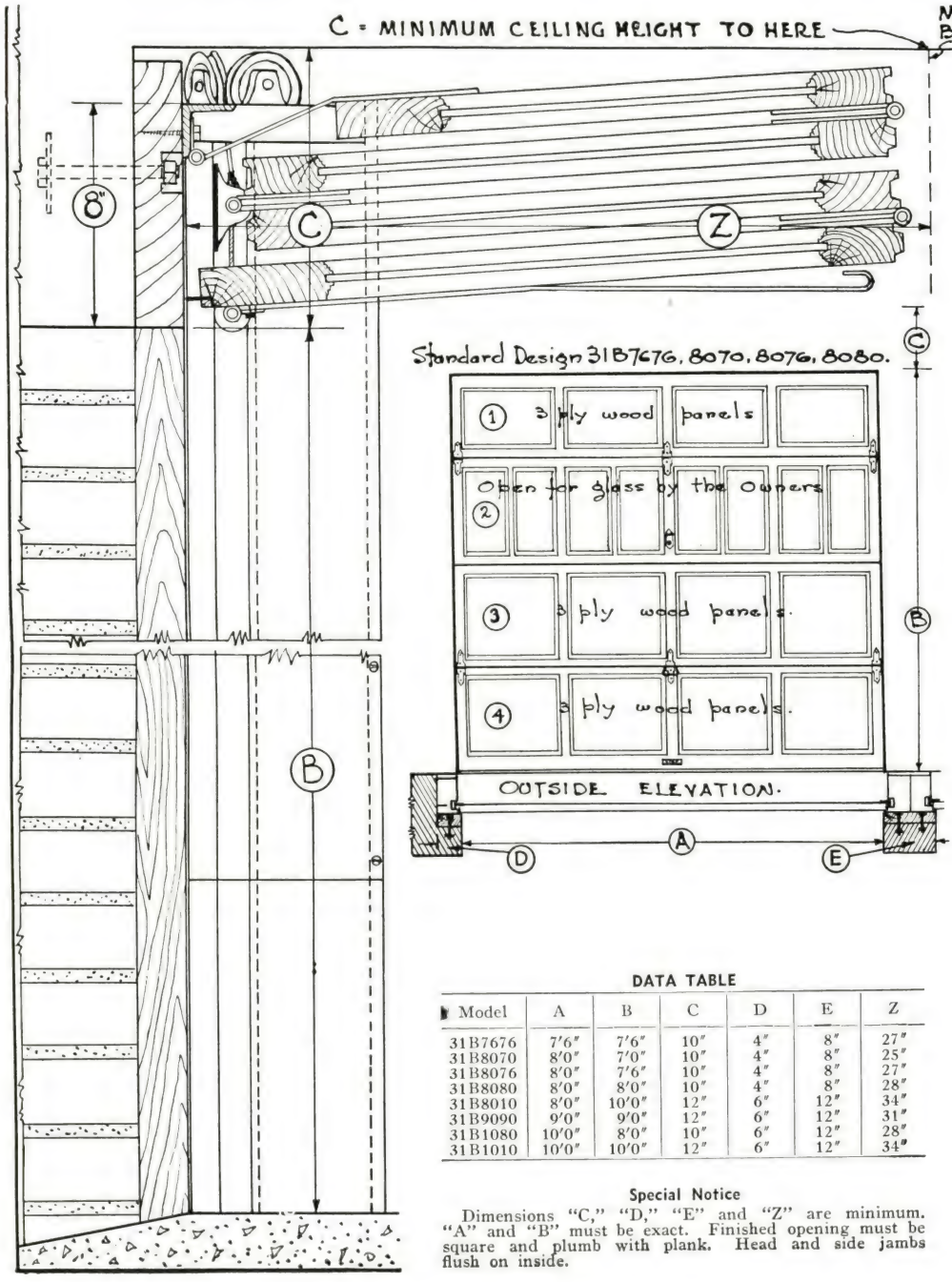
Patent No. 1178945—Other Patents Pending

Description—This door is a new type that embodies many exclusive features of construction and operation due to its unique and patented design.

Method of Operation—Instead of swinging or sliding, the door folds and unfolds vertically. Ice and snow and temperature changes do not interfere with its operation and it will permanently function with ease and convenience. Door may be locked or unlocked from either side.

Installation—Door guides and counterbalances are housed in slender metal casings installed just inside door jambs. Less than the usual ceiling height is needed. Comes completely assembled and crated, with all hardware in place including Yale lock. It is one of the easiest and quickest of all doors to install.

Construction—Woodwork, made by specialists in door construction, is of the best quality white pine and fir. Joints are tongue and grooved. Door, equipped with flexible weatherstrip at bottom, fits snugly against frame providing a complete and weatherproof fit all around. Primed at factory with aluminum paint. Unprimed doors optional.





Showing How Door Folds Inside

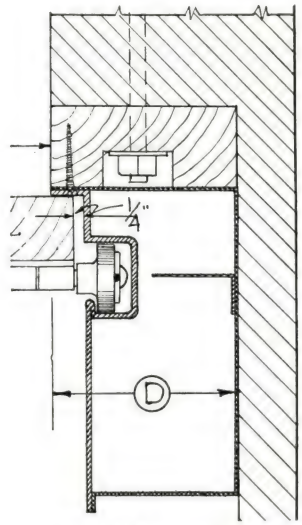
Up over car without interference, even when bumper of car is almost against door

DATA TABLE

Model	A	B	C	D	E	Z
31B7676	7'6"	7'6"	10"	4"	8"	27"
31B8070	8'0"	7'0"	10"	4"	8"	25"
31B8076	8'0"	7'6"	10"	4"	8"	27"
31B8080	8'0"	8'0"	10"	4"	8"	28"
31B8010	8'0"	10'0"	12"	6"	12"	34"
31B9090	9'0"	9'0"	12"	6"	12"	31"
31B1080	10'0"	8'0"	10"	6"	12"	28"
31B1010	10'0"	10'0"	12"	6"	12"	34"

Special Notice

Dimensions "C," "D," "E" and "Z" are minimum. "A" and "B" must be exact. Finished opening must be square and plumb with plank. Head and side jambs flush on inside.



Typical Box Installation

Do not recess boxes into masonry

McKEE DOOR COMPANY

Manufacturers of McKee Overhead Garage Doors for Garages, Service Stations, Factories and Warehouses

6224-6228 South Oakley Avenue, CHICAGO, ILL.

Description

Doors are made in approximately 2 ft. high sections hinged and rabbeted together. Sections raise vertically, engaged in track guide by means of ball-bearing rollers, to a horizontal position above the opening.

Doors operate easily, opening and closing with little effort.

Spring Counterbalance

The spring is "Motor Type," made from high grade, flat, tempered spring steel, encased in heavy gauge steel housing and packed in graphite lubricant. Outer end of spring is anchored to housing and the center end engages in a hardened steel shaft which rotates on ball bearings and carries the cable sheave.

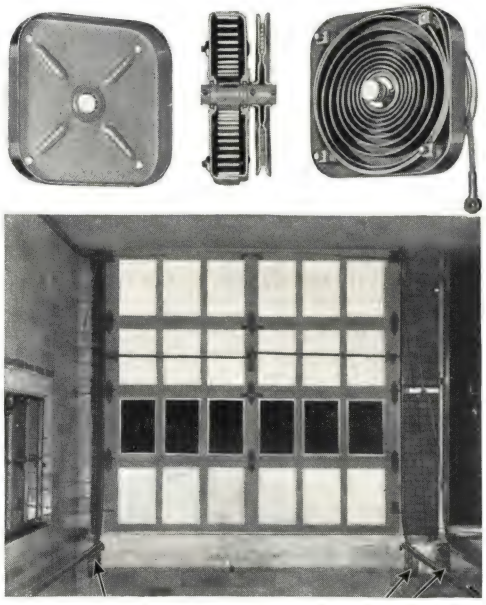
Springs are used approximately to 60% of their efficient pull, which leaves a wide range of adjustments, easily made.

Construction and Materials

Doors are blind-mortised and tenoned with substantially built stiles and rails of white pine or Sitka spruce, having 3-ply fir panels.

Stock doors are paneled sections but may be furnished with one or more sections open for glass.

Special designed doors can be built to specifications.



Inside View of Door Showing Hardware

Above: Counter-balancing Motor Spring

Powerful, encased, safe, efficient, double ball bearing rotating shaft and sheave

Hardware

Pliable $\frac{3}{16}$-in. steel aircraft cable having a tensile strength of 3100 lbs. and patented connection secured to cable under hydraulic pressure is used to raise and lower door.

Locking device consists of standard Corbin lock engaging disc, with steel bars $\frac{1}{4}$x$\frac{3}{4}$ in. entering both tracks on either side of door. Cylinders can be keyed alike. Adjustable lock rod guides are placed at each side of door.

Track is of special rolled section of heavy gauge steel, so designed rollers cannot leave the track. Special track and hardware can be so designed to accommodate additional clearance over opening, particularly adaptable for greasing stations where lifts are used. Movable steel center post can be furnished to accommodate wide openings.

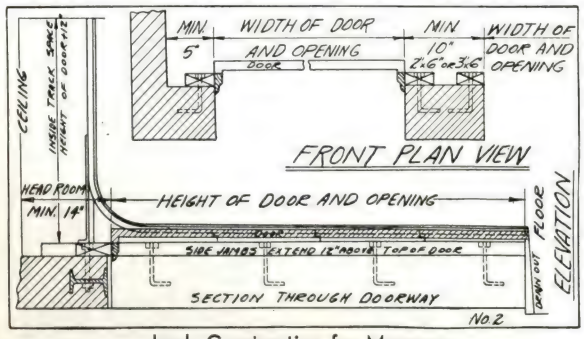
Hardware can be furnished rust-proof by Udyliting (Electro-Galvanic).

Doors can be electrically operated or extra large doors operated with chain hoist.

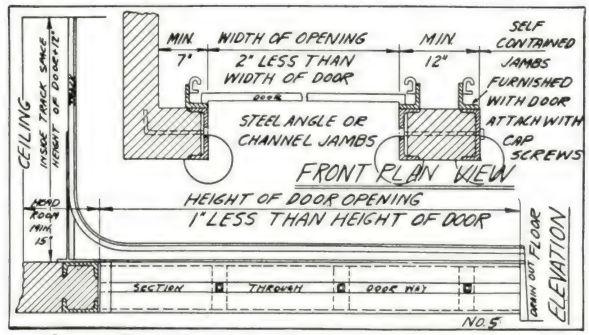
Important

When specifying on overhead type of door, insist on the springs being incased which will insure safety and quietness for your clients.

Write for select designs and detailed prints.



Jamb Construction for Masonry



Strong Steel Jambs for Factories, Warehouses, etc.



Residential Installation



Service Station Installation

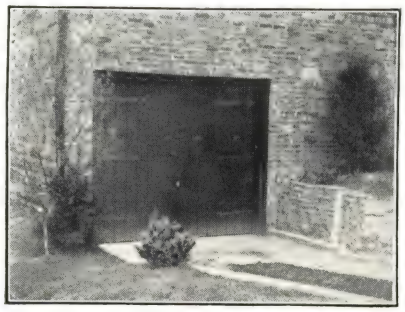
THE McKINNEY DOOR SALES CO.

PITTSBURGH, PA.

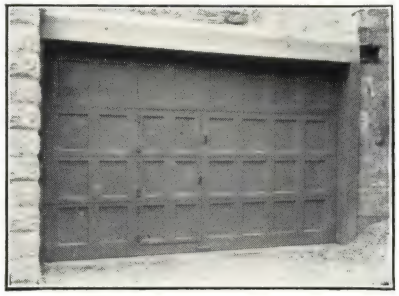
DISTRIBUTORS

FREDERICK KAISER PRODUCTS, INC.
PHILADELPHIA, PA., 248-258 W. Wingohocking Street BALTIMORE, MD., 633 W. Howard Street
NEWARK, N. J., 1125 Broad Street

HARRY R. WILKINSON, 1029 Chrysler Building, New York, N. Y.









WHY THE McKINNEY OVERHEAD TYPE DOOR—BECAUSE

It Is Out of the Way

The McKinney Door, when open, is completely out of the way. Weather does not affect the operation, nor does snow and ice interfere with the opening or closing of the McKinney Door. It also minimizes the danger to the car—no more doors to flap in the wind.

It Is Weathertight

An ingenious arrangement forces the door tight against the jamb as it is lowered. This is done automatically, without upsetting the balance or increasing wear and tear in any way. No weatherstripping is necessary when using the McKinney Door.

It Is Noiseless

Three features insure smooth, silent operation in the McKinney Door: Steel rope for raising and lowering in place of chain. Specially designed grease packed ball bearing rollers of moulded rubber (instead of steel) constructed to give satisfactory service for the life of the door. Special spring mounting to prevent spring slap.

It Is Easy to Operate

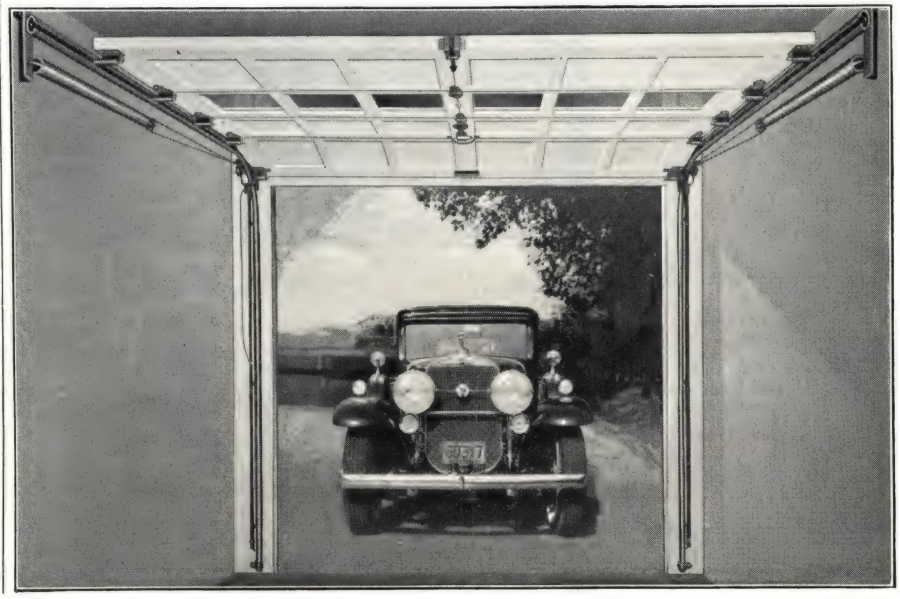
The entire weight of the McKinney Door is so evenly distributed that there can be no twisting or undue strain at any time. Well balanced and moving smoothly on its tracks, even a child can operate it without effort or risk. Furthermore, this door is equipped with a pin tumbler cylinder lock which locks the door when it is lowered.

It Is Easy to Install

The McKinney Door, with the new Angle Mounted McKinney Track insures accurate and rigid erection so essential to satisfactory operation.

Specially Designed Doors a McKinney Feature

We are prepared to follow architects' specifications explicitly, or to prepare special drawings designed to supplement those of the architect for the house, garage and other surroundings.



ROWE MANUFACTURING CO.

Manufacturers of Ro-Way Doors
"Overhead and Out of the Way"
GALESBURG, ILL.

Description

Ro-Way Doors are made in approximately 2-ft. high horizontal sections hinged together. The following number of sections are required for the height door as listed below:

Doors up to 8 ft. 6 in. high.....4 sections
Doors from 8 ft. 7 in. to 10 ft. 6 in..5 sections
Doors from 10 ft. 7 in. to 12 ft. 6 in.....6 sections
Doors from 12 ft. 7 in. to 14 ft. 6 in.....7 sections

Door Sections

All stiles and rails are mortised and tenoned together (no wood dowel pins used) and firmly held with casein waterproof glue, also steel doweled. Extra strong hinges hold the sections together. Between each section is a shiplap joint, rabbeted $\frac{5}{16}$ in. deep, which excludes all wind and rain.

RO-WAY

U. S. Pat. No. 1747206
Nine other patents pending

Hardware

All track and chain rollers are ball bearing with case hardened shafts and ball races—154 steel ball bearings being used in even the smallest size door. Heavy duty specially formed 2-in. tracking used. Vertical track attached to jamb by track brackets or if desired can be angle iron mounted. Adjustable troubleproof extension springs used. Foolproof, burglarproof locking device used. Two $\frac{1}{4}$x$\frac{3}{4}$-in. slide bars, which engage vertical track on *each* side and keep it *always* locked. All necessary hardware is furnished for each door.

Length of horizontal track extending back from header is equal to height of door, plus 16 in.

However, standard sizes 8x7 ft., 8x7 ft. 6 in., and 8x8 ft. all extend 112 in.

RO-WAY "OVERHEAD AND OUT OF THE WAY" GARAGE DOORS AND EQUIPMENT
All styles, all kinds, all sizes made to fit any opening

Name	Description	Headroom required	Sideroom needed	Balanced by
Ro-Way Doors				
Model A—With shackle hinges	Vertical track*	7½ inches	3½ inches	2 extension springs**
Model E	Vertical track†	13½ inches	4½ inches	2 extension springs**
Model F—With self-sealing moulding	Vertical track†	13½ inches	4½ inches	2 extension springs**
Model K	Vertical track†	8½ inches	4½ inches	2 extension springs**
Model L—With self-sealing moulding	Vertical track†	8½ inches	4½ inches	2 extension springs**
Model "A-1"—For high lift doors	High lift doors§	From 7½ inches to 5 feet	3½ inches	2 extension springs**
Model "W"—For high lift doors	High lift doors§	From 7½ inches to 5 feet	9 inches	Counterweights
Ro-Way Door Accessories				
Chain hoist—For hand use	Used on Models E, F, K and L	16 inches	One side 6 in.; other 10 in.	2 extension springs**
Chain hoist—Power operated	Used on Models E, F, K and L	16 inches	One side 6 in.; other 10 in.	2 extension springs**
Removable mullions—sliding post type	Write for description	.....	.....	.....
Electric controls—For all models	Write for description	.....	.....	2 extension springs**
Pass door—approx. 24 inches wide ‡	Used for small entrance door ×	.....	.....	.....

*Mounted on brackets only.
§Used for garages having hydraulic lift for greasing cars.
×To pass through large overhead type door.
†Mounted on either brackets or angle iron.
‡Swing hinged type.
**Adjustable.

Stock Materials

Finest grade Sitka spruce is used for the stiles and rails, which are 1¾ in. thick. All panels are laminated 3-ply fir ⅜ in. thick and manufactured with waterproof glue.

Glass Sections

Any or all sections may be left open for glass. We do not furnish the glass.

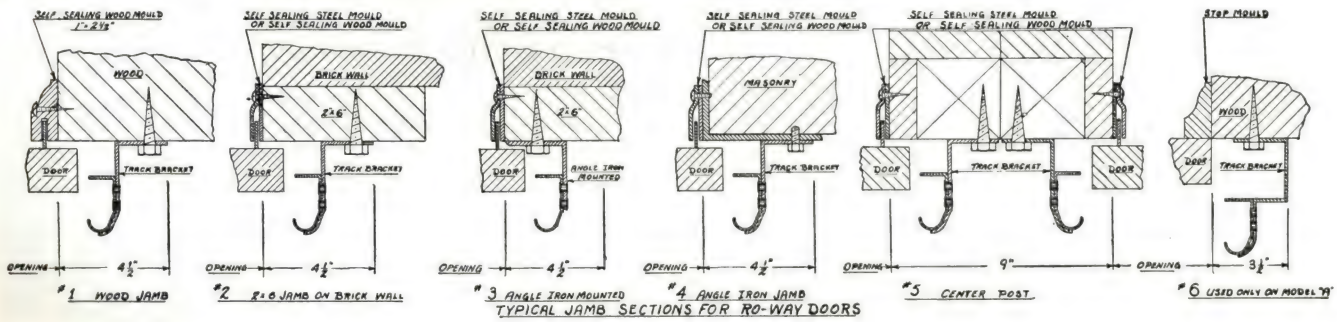
Door Struts

Steel struts or "U" bar stiffeners are used on doors over 12 ft. in width, to give necessary rigidity.



Headroom

As the term indicates, headroom is the clear space needed vertically above the top of the door opening (full door and track width), to the ceiling, joists, rafters, etc. Ro-Way Doors *save* headroom. In a new building, you can sometimes save enough money to pay for a Ro-Way by not being compelled to build your walls extra high, which is necessary to get sufficient headroom for some kinds of doors. See list for headroom and sideroom required for various models of Ro-Way Doors.



TYPICAL JAMB SECTIONS FOR RO-WAY DOORS

OVERHEAD DOOR CORPORATION

MAIN OFFICE AND FACTORY
HARTFORD CITY, IND., U. S. A.
DISTRIBUTERS EVERYWHERE
CANADA: Overhead Door Company of Canada, Ltd., 1951 Dundas Street, West, TORONTO, ONT.

LOCAL REPRESENTATIVE

Product

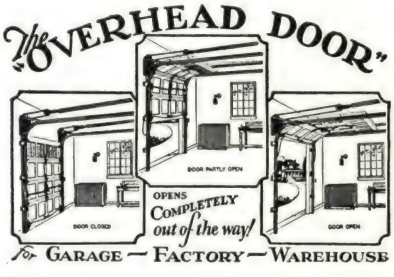
The "Overhead Door" (Reg. U. S. Pat. Off.).

Experience of Manufacturer

Overhead Door Corporation has manufactured The "Overhead Door" continuously and solely for a period of ten years. The factory at Hartford City, Indiana, covers 136,000 sq. ft.

Sales-service and Distribution

Our sales-service organization is international in scope. Individual Overhead Door Companies are located in every state and practically every important city in each state in the United States. Each of these companies maintains an active sales, service and installation force which is readily accessible to the architect as well as to his clients.



The "Overhead Door"

Application—For public, private and apartment house garages, factories, warehouses, greasing and filling stations, airplane hangars, fire stations (and similar buildings), boat wells and partitions.

Operation—Opens UP—completely out of the way. Affords full height and width of opening. Makes available the use of every inch of floor and wall space within the building. Operation is smooth, quick and silent.

Any Size or Design—The "Overhead Door" may be had in any size or design to conform with any architectural trend. The door may be electrically operated if desired.

Stock Materials—Stiles and rails are made of the finest grade Sitka spruce, free from all knots and blemishes. Panels are made of three-ply fir veneer, manufactured with waterproof and termite-proof glue. All materials are thoroughly sanded and ready for paint or varnish. Doors can be made of clear cypress, white pine, or selected red oak throughout. Solid raised panels, at extra cost. All rails and stiles are 1¾" thick and three-ply veneer is ⅜" thick. All material is thoroughly kiln-dried.

All tracks and hardware for all size doors are made of steel formed in our factory. All hardware is finished with DuPont (Baking) Dulux. All moving parts are ball bearing. Safe working load of chain is many times the weight of the door. Springs are tested at 10% more stretch than is required to operate the door.

Door Sections—Stiles and rails are mortised and tenoned together and are glued and doweled with steel dowels. Sections are joined together by means of special graduated hinges and the joints between the sections are rabbeted to make a shiplap joint. The rabbet is $\frac{5}{16}$" deep on each rail and is sufficient to exclude all wind and rain.

Number of Sections Required—

Doors up to 8′ 6″	4 sections
Doors from 8′ 6 ″ to 10′ 6″	5 sections
Doors from 10′ 6″ to 12′ 6″	6 sections
Doors from 12′ 6″ to 14′ 6″	7 sections

Higher doors should be figured with intermediate sections not to exceed 23″ in height. We reserve the right to specify changes when better door operation will result.

Glass Sections—Any or all sections for all size doors may be arranged for glass. If mullions are required they are furnished 1¾" wide at slight extra cost. No glass is furnished unless specified.

Stock Doors—Stock size doors are 8′ wide by 8′ high; 8′ wide by 7′6″ high; 8′ wide by 7′ high.

Stock doors are made with 4″ wide center stiles, 5⅜" end stiles, $2\frac{5}{16}$" center rails, 4″ top rails, 5″ bottom rails. Each section is made with 5 center stiles and 6 three-ply fir panels ⅜" thick, or all may be left open for glass.

Special Size Doors—Doors made to size, in general, are constructed as follows: Doors up to 10′2″ wide are made with 3½", 4" or 5" center stiles, $2\frac{5}{16}$" center rails, 5⅜" end stiles, 5" top rails and 6" bottom rails. The bottom rails can be furnished extra wide if desired at slight extra cost.

Doors from 10′3″ to 16′ wide are made with 5" wide center stiles, $2\frac{13}{16}$" center rails, 6" end stiles, 6" top rails and 7" bottom rails. Doors over 16′ wide are made with 6½" wide end stiles. The bottom rails can be furnished extra wide if desired at slight extra cost.

Center stiles are arranged so that no glass or wood panel is over 16" or less than 10" in width.

Special Design Doors—Doors of special design may be built to conform to any architectural conception. The beauty and artistic features of a building may be incorporated in the garage doors. Our engineering department will gladly co-operate with architects in making their plans so that they may utilize to the utmost the unique advantages of The "Overhead Door."

Door Struts—Doors 12′ wide or over require our steel struts to make the door rigid. Doors of special construction less than 12′ wide may require struts.

Locking Device—A Yale cylinder lock in combination with a positive locking device, securely locks, bolts and bars the door across its entire width with a quarter turn of the handle from either the inside or outside. The door may be locked or unlocked from either side. Doors may be keyed alike or separately. Master-keying at slight extra cost.

Jamb and Pier Construction—2"x6" facing secured to the wall with bolts and made flush with the sides of the opening provides an ideal foundation for the hanging of any size "Overhead Door." These facings should extend at least 15" above the header and be fastened securely near the top.

Angle mounted track may be installed directly on steel jambs by drilling and tapping the jambs and fastening the angle iron securely with flat-head cap screws.

We recommend mounting "Overhead Doors" on steel jambs or wood casings although it is not impossible to erect directly on brick or concrete.

Headroom—Headroom is indicated on all Jamb Details and is a term applied to the space required for installation and operation of The "Overhead Door." The term indicates the clear space (full door and track width) vertically above the top of the opening to the nearest point of obstruction, such as rafters, ceiling, beams or roof. For headroom, one must consider obstructing pipes, beams, etc., which may interfere with the operation of the door.

Manufactured Complete—Each "Overhead Door" is manufactured complete and is assembled in units with hardware attached ready for installation. This includes all bolts, screws, etc. No glass is furnished unless specified.

Electric Control—The "Overhead Door" Control is designed and engineered for use on only The "Overhead Door." Positive, quick and silent electric operation is assured. Control stations may be located at any desired point. Private garage doors may be operated from the driveway, house or any convenient location.

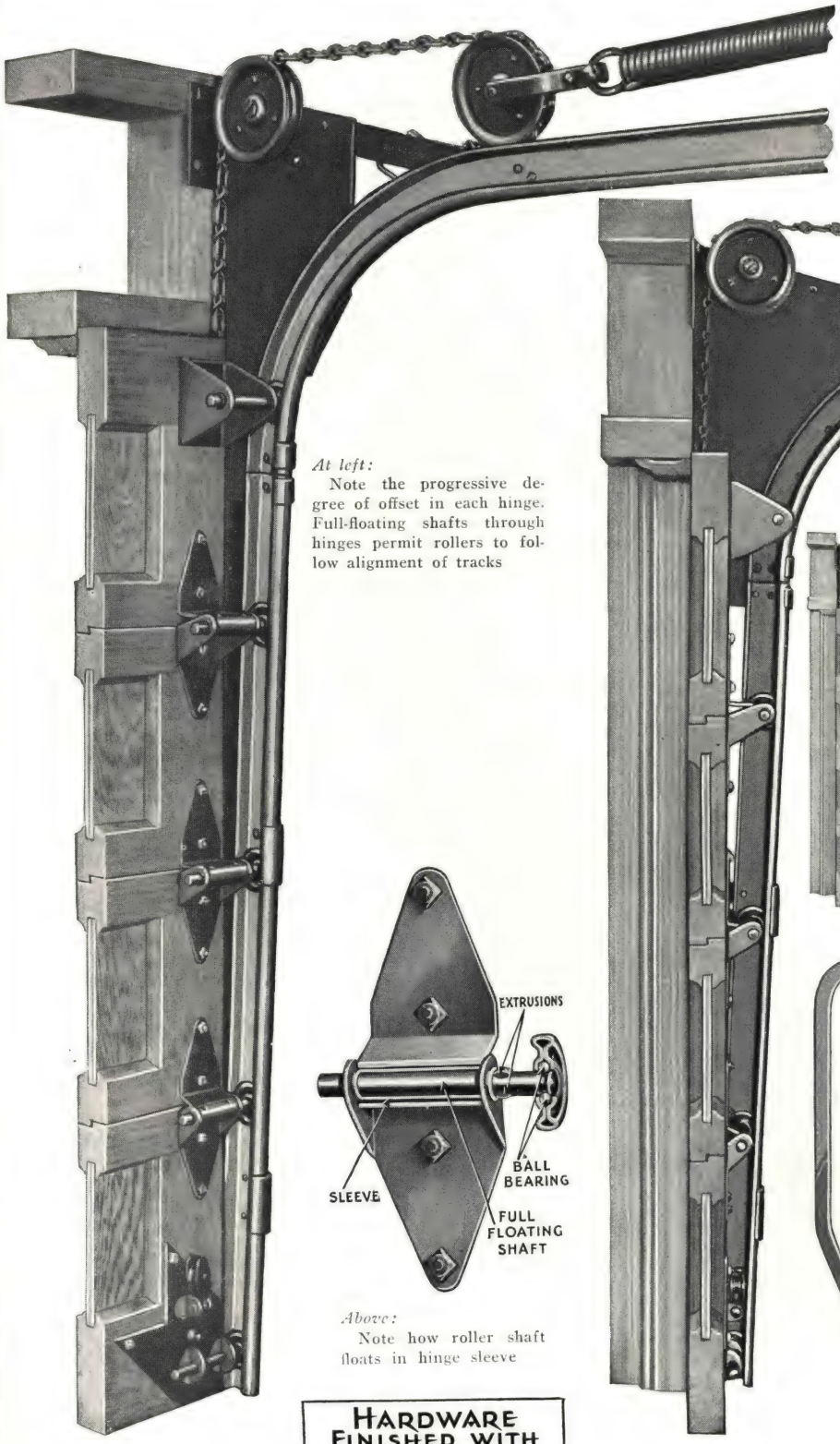
Metal Doors—The "Overhead Door" may be had in all-aluminum, all-steel, metal clad, or all-steel with rock wool insulation construction. Flat casement sash appearance construction is also offered.

Accessories

Attention is called to a few of the many devices offered for use in connection with The "Overhead Door," namely: Girder and auxiliary track; chain hoist, hand or electrically operated; automatic fire station equipment; full vertical doors; doors with more than normal vertical travel; and accessories, such as, rubber rollers, built-in pass doors, etc.

Specifications

In specifying, designate as "The 'Overhead Door,' manufactured by Overhead Door Corporation, Hartford City, Indiana, U. S. A."



At left:
Note the progressive degree of offset in each hinge. Full-floating shafts through hinges permit rollers to follow alignment of tracks

Below:
Progressive offset of hinges, and the tracks inclined rearwardly from jambs, close door tightly against jambs



Each "OVERHEAD DOOR" is perfectly counterbalanced by two springs of large capacity, assuring ample and even power. Track hangers (not supplied by us) should be steel

Above:
Note how roller shaft floats in hinge sleeve

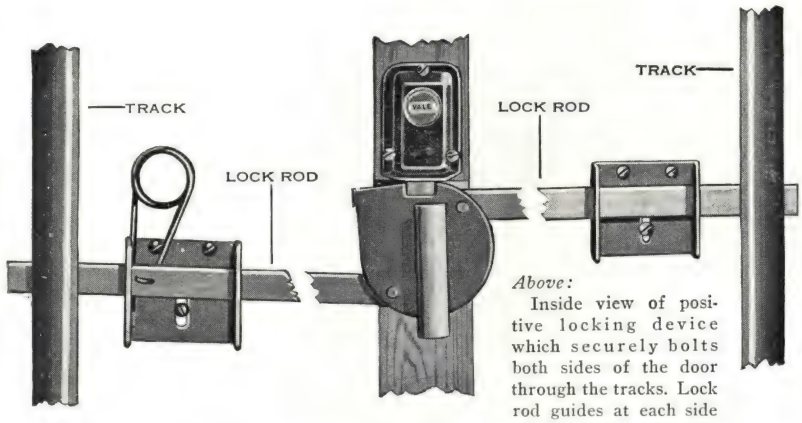
Full-size cross-section view of track with roller in position. The bed of the track on both sides is sloped to a proper degree, eliminating all possibility of friction

HARDWARE FINISHED WITH DU PONT DULUX
REG. U.S. PAT. OFF.

OUTSTANDING FEATURES OF THE "OVERHEAD DOOR"

Below:
The tracks inclined rearwardly from jambs is accomplished by varying lengths of jamb brackets. Observe simplicity of installation. Note attachment of chain to bottom of door which eliminates strain on hinges and sections

At left:
A very slight upward lift and the door pulls away from the jambs, eliminating binding and friction as the door moves upward and open—completely out of the way



Above:
Inside view of positive locking device which securely bolts both sides of the door through the tracks. Lock rod guides at each side of door are adjustable

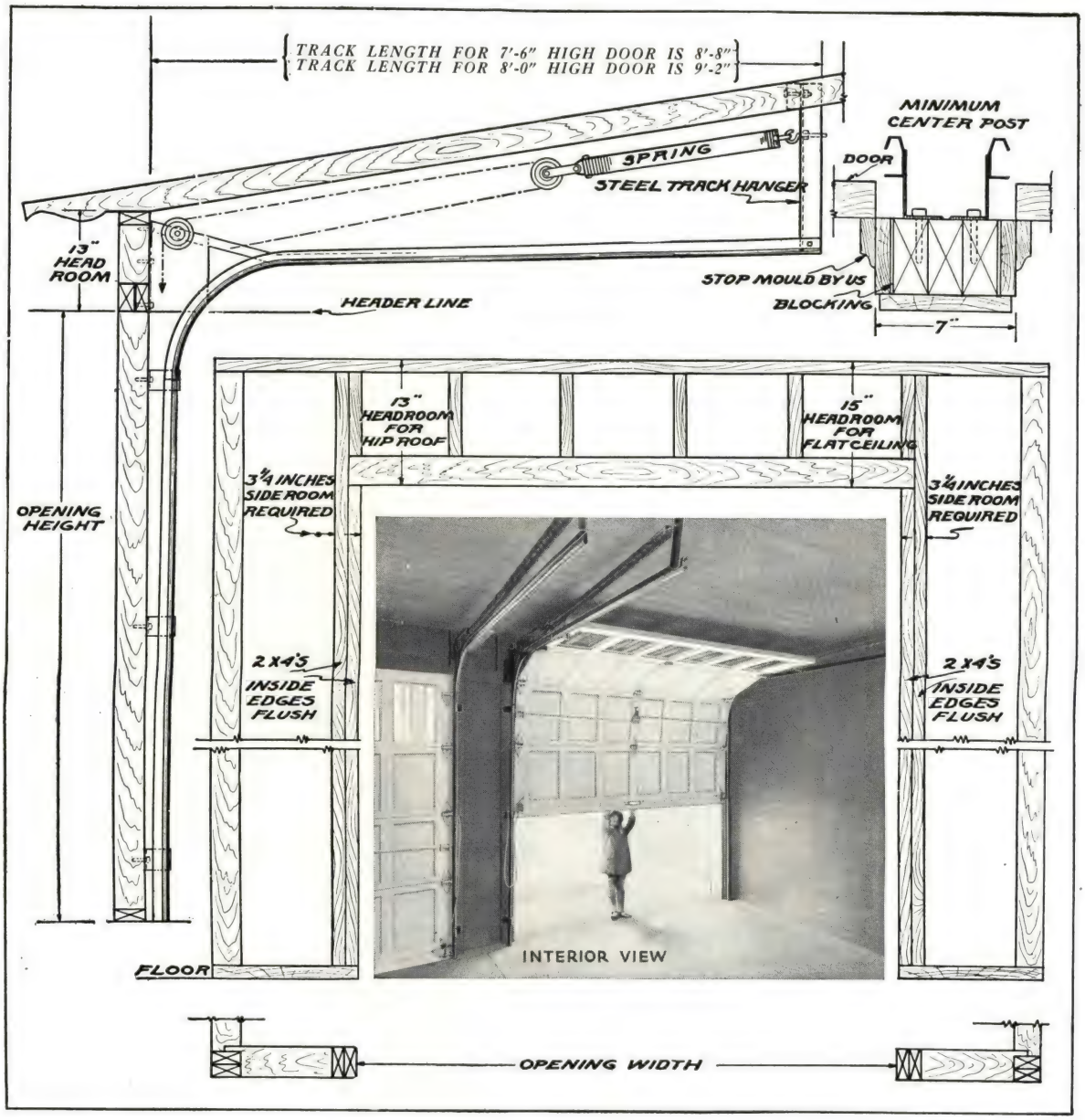


At left:
Exterior view of lock assembly. Use of key is necessary only when unlocking door from outside. The door is locked automatically by a quarter turn of either the outside or inside lock handle

HARDWARE FINISHED WITH DU PONT DULUX
REG. U.S. PAT. OFF.

OUTSTANDING FEATURES OF THE "OVERHEAD DOOR"

Should existing clearances be less than those indicated in the detail below consult our Engineering Department for information relative to special installation means



Practical jamb construction for all "OVERHEAD DOORS" not exceeding 8 ft. wide or 8 ft. high.

Stock size doors are 8 ft. wide by 8 ft. high; 8 ft. wide by 7 ft. 6 in. high; 8 ft. wide by 7 ft. high.

Tracks for all "OVERHEAD DOORS" to be installed on steel jambs are mounted on angle iron because a drill and tap method of installation is necessary.

Doors 64 sq. ft. and less in area, to be installed on steel jambs have the vertical tracks mounted on 2½x2½x⅛-in. angle. Horizontal tracks do not require reinforcement.

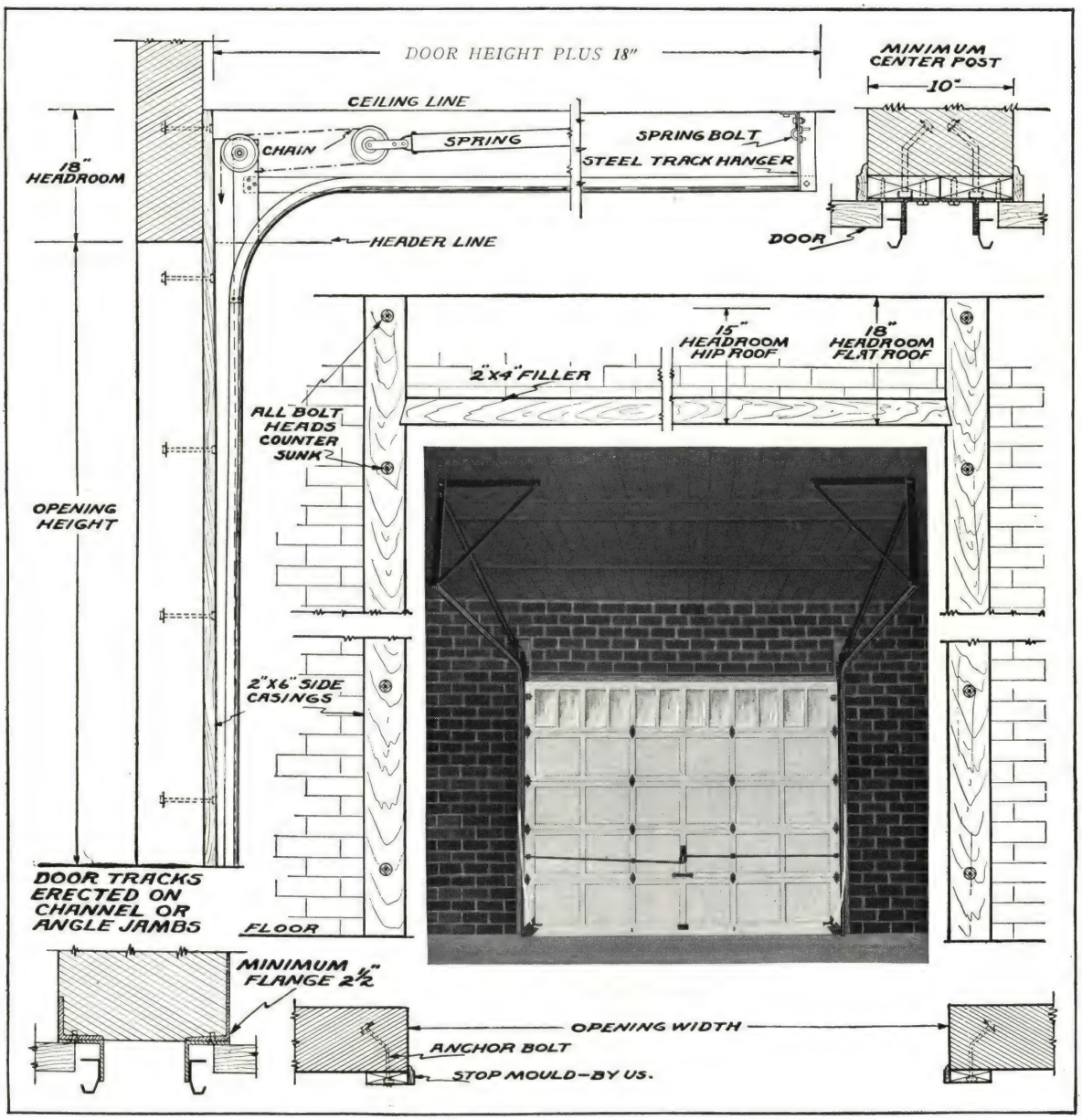
Should an inside wood (casing) jamb construction be desired as shown in Jamb Detail No. 3, either 2x4-in. or 2x6-in. casing may be used. In either case clearances specified in Jamb Detail No. 1 prevail

The "OVERHEAD DOOR" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "OVERHEAD DOOR"

DETAIL NO. 1

WOOD JAMB DETAIL FOR THE "OVERHEAD DOOR"

Should existing clearances be less than those indicated in the detail below consult our Engineering Department for information relative to special installation means



Practical jamb construction for "OVERHEAD DOORS" measuring in area up to (approximately) 144 sq. ft. and which are to be installed on wood (casing) jambs.

Vertical and horizontal tracks for doors 90 to 144 sq. ft. (approximately) in area are mounted on 2½x2½x⅛-in. angle iron.

Doors 65 to 90 sq. ft. in area have the vertical tracks assembled with double jamb brackets and the horizontal tracks mounted on 1¼x1¼x⅛-in. angle iron.

If a door measuring less than 65 sq. ft. in area is desired for installation on inside wood (casing) or steel jambs, clearances as specified in Jamb Detail No. 1 may be followed, and 2x4-in. inside wood (casing) jambs may be used if desired.

Tracks for all "OVERHEAD DOORS" to be installed on steel jambs are mounted on angle iron because a drill and tap method of installation is necessary.

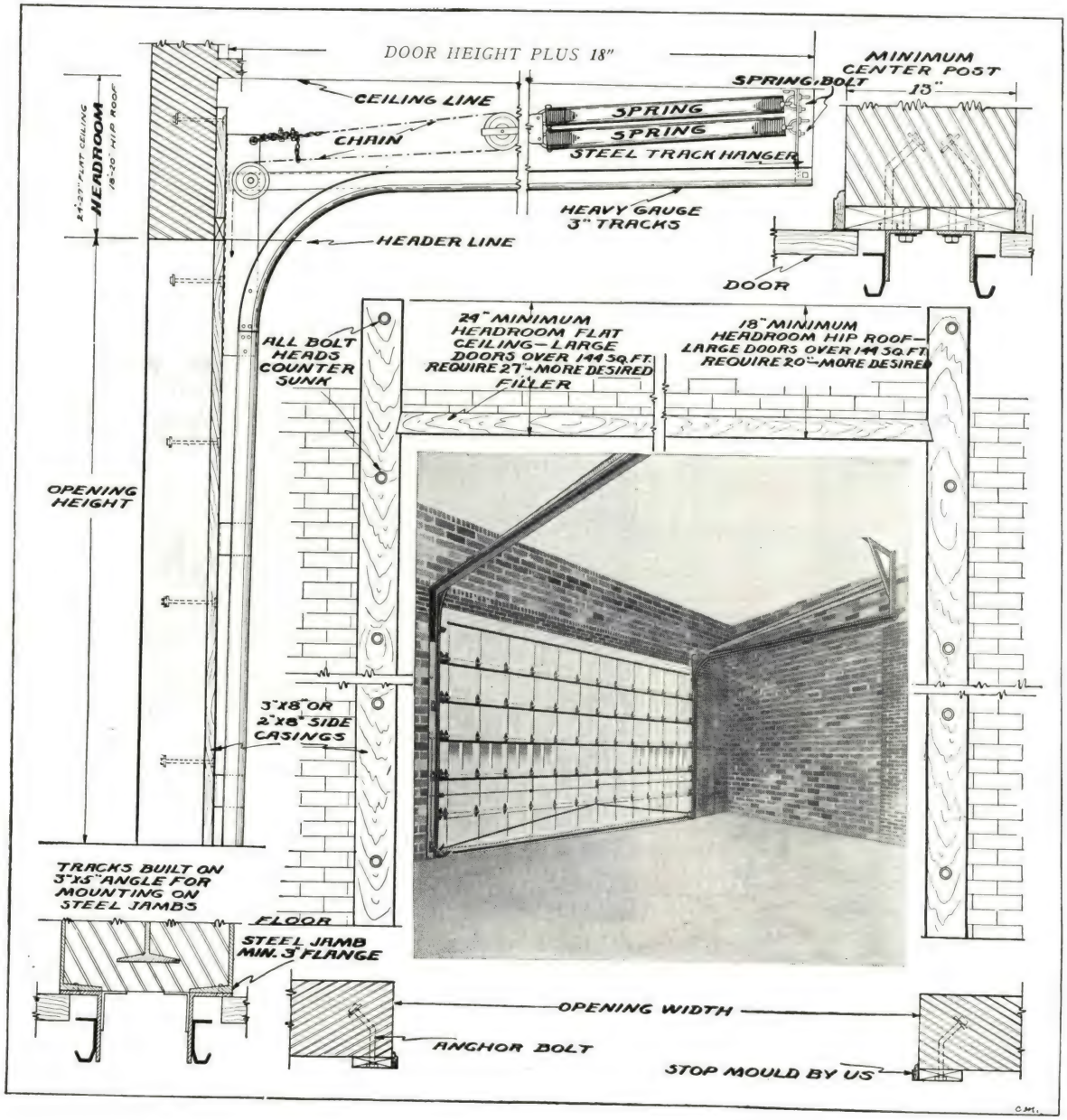
Vertical and horizontal tracks for doors 64 to 144 sq. ft. (approximately) in area to be installed on steel jambs are mounted on 2½x2½x⅛-in. angle iron. Doors 65 to 90 sq. ft. in area have the vertical tracks mounted on 2½x2½x⅛-in. angle iron and the horizontal tracks mounted on either 1¼x1¼x⅛-in. angle iron or on 2½x2½x⅛-in. angle iron.

The "OVERHEAD DOOR" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "OVERHEAD DOOR"

DETAIL NO. 3

INSIDE WOOD (Casing) JAMB DETAIL FOR THE "OVERHEAD DOOR"

Should existing clearances be less than those indicated in the detail below consult our Engineering Department for information relative to special installation means



Jamb detail requirements for the installation of "OVERHEAD DOORS" measuring (approximately) 144 sq. ft. or more, in area.

Special heavy gauge track and hardware are standard equipment for use on doors of this classification, which are to be installed on either wood or steel jambs.

Doors 144 sq. ft. (approximately) and over in area, to be erected on wood (casing) jambs, have vertical tracks equipped with heavy gauge jamb brackets and have the horizontal tracks mounted on 2½x2½-in. angle iron. Doors exceedingly wide or high (approximately 165 sq. ft. and greater) have vertical tracks mounted on 3x5-in. angle iron.

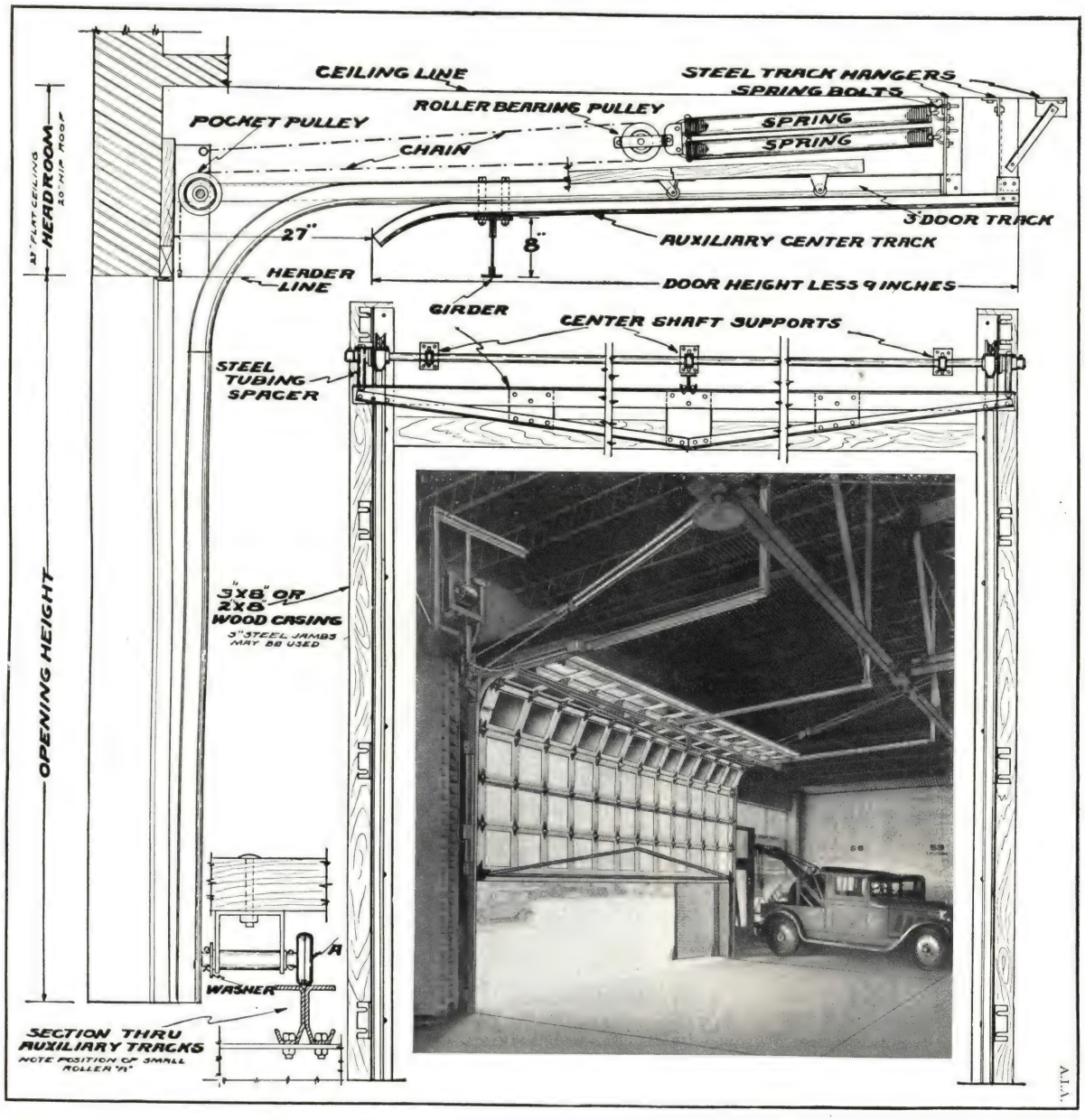
For installation on steel jambs, vertical tracks of all doors 144 sq. ft. (approximately) in area and greater, are mounted on 3x5-in. angle iron and horizontal tracks are mounted on 2½x 2½-in. angle iron

The "OVERHEAD DOOR" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "OVERHEAD DOOR"

DETAIL NO. 4

HEAVY HARDWARE JAMB DETAIL FOR THE "OVERHEAD DOOR"

Should existing clearances be less than those indicated in the detail below consult our Engineering Department for information relative to special installation means



On all doors 18 ft. wide or wider, the girder and auxiliary track is recommended. The auxiliary or center track forms an ideal support for very wide doors when in the open or horizontal position. Doors less than 18 ft. wide, of special construction heavier than our regular stock, require the girder and auxiliary track. Doors approximately 16 ft. wide and wider come under this classification. The chain hoist, hand or control operated, may be used as desired.

The chain hoist has been specially designed for large "OVERHEAD DOORS." The chain hoist is primarily manufactured for use on doors equipped with heavy hardware but may be used on doors equipped with 2½x2½x⅛-in. angle iron mounted track. The chain hoist operates the "OVERHEAD DOOR" rapidly and does not restrict hand operation from the outside. Hoist is available for operation of door from either side (right or left).

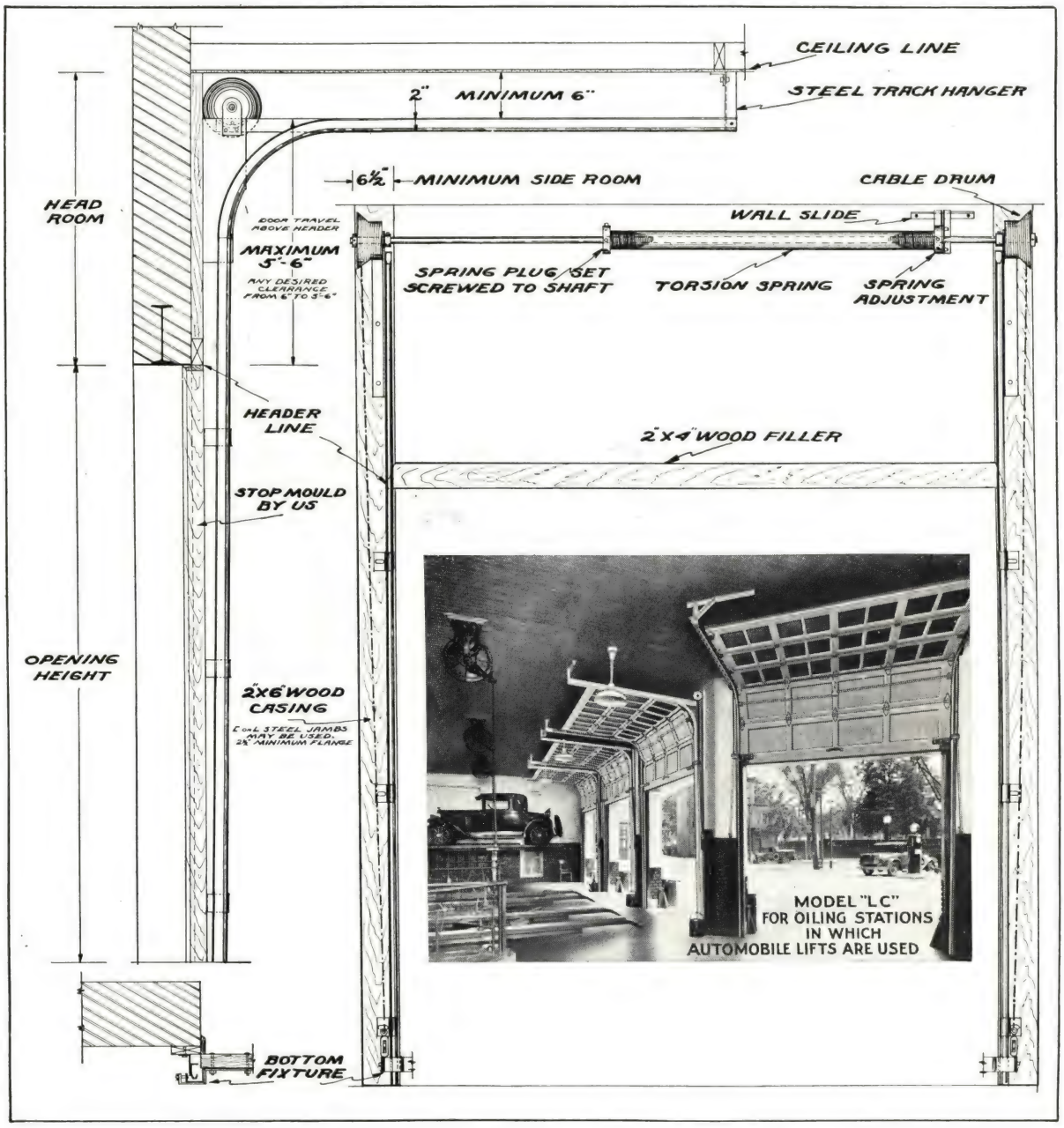
Above illustration is of a door 21x12 ft. equipped with motor controlled chain hoist.

The "OVERHEAD DOOR" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "OVERHEAD DOOR"

DETAIL NO. 123-A

GIRDER AND AUXILIARY TRACK DETAIL

Should existing clearances be less than those indicated in the detail below consult our Engineering Department for information relative to special installation means



For doors with vertical travel higher than regular, Model "LC" is especially engineered for use in service stations in which automobile lifts are to be used. The door travels vertically higher than regular and in an open position does not interfere with operation of the lift.

Model "LC" is for use on doors not exceeding 10 ft. wide or containing more than 100 sq. ft. The door travel above header is from 6 in. to a maximum of 5 ft. 6 in. as desired. Single or double strength glass only should be used in doors equipped with Model "LC."

The "OVERHEAD DOOR" Model "LC" is counterbalanced by a torsion spring and steel shaft assembly in conjunction with galvanized flexible cable operating over special cable drums attached to both ends of the shaft. Operation is smooth and positive as in The "OVERHEAD DOOR" of standard construction.

The "OVERHEAD DOOR" Control (motor size always in the proper relation to door size) assures perfect and positive electric operation for The "OVERHEAD DOOR"

DETAIL NO. 125

MODEL "LC" OVERHEAD DOOR

THE STANLEY WORKS

Member of the Producers' Council

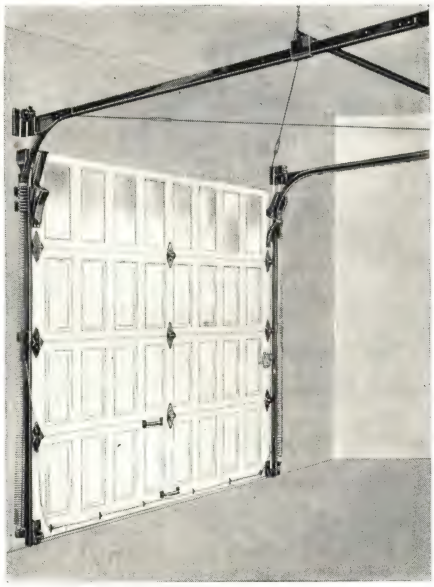
Manufacturers of Stanley "Roll-Up" Garage Doors

NEW BRITAIN, CONN.

NEW YORK, N. Y., 100 Lafayette Street
CHICAGO, ILL., 61-67 West Kinzie Street
PHILADELPHIA, PA., 617 Filbert Street
LOS ANGELES, CAL., 1202 Washington Building
SAN FRANCISCO, CAL., 576 Monadnock Building
SEATTLE, WASH., 619 Mutual Life Building
CLEVELAND, OHIO, 1404 Builder's Exchange Building

For Electric Door Operators, Sash Pulleys, Wardrobe and Other Stanley Hardware, see Manufacturers' Index

"ROLL-UP" GARAGE DOORS





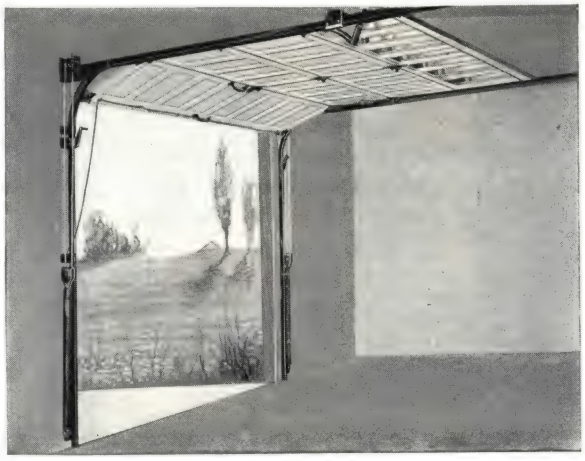
Stanley "Roll-Up" Garage Doors and Hardware offer the latest improvements in overhead garage door equipment.

Hardware

The hardware, consisting of specially designed hinges, track, springs, cables, braces, etc., is as simply constructed as this type of operation will permit. All parts, with the exception of the springs, are made of sturdy cold rolled steel. The springs are of heavy oil-tempered wire. The track is so formed that the rollers cannot slip out. The horizontal section of the track is suspended from any height of ceiling by chains, and securely braced by two sturdy turnbuckles. No special supports or extra construction is necessary.

Included with the hardware is a unique cylinder lock, an exclusive Stanley feature, which can be keyed or master keyed with the entrance door lock. It is cadmium plated to resist rust.

All working parts are applied on the inside of the door and within the building, insuring protection from the weather. Regularly furnished in a superior japanned finish.



Doors

The doors are made of Douglas fir, furnished in four sections, with vertical grained stiles and rails. Doors have mortised and tenon joints, doweled and assembled with waterproof glue. Regularly furnished unglazed.

Doors are attractively paneled and resemble one solid door when closed. Stock sizes 8x8 ft., 8x7 ft. 6 in., and 8x7 ft., all 1⅜ in. in thickness. Other sizes to order.

Operation

Ease of operation is the essential feature of the Stanley "Roll-Up" Garage Door. The door is so well counterbalanced that a slight upward pull causes it to slide easily up the track, around the curve and on to the horizontal track. There is no back slap at this point, as the spring checks the door at the full open position. Closing the door is equally simple, a rope being provided for returning it to the closed position.

The perfect balance permits doors to be left open in any position. When closed, they fit snugly at top, sides and bottom.

THOMAS MANUFACTURING COMPANY, INC.

Thomas Overhead Door Hardware

NEW CASTLE, IND.

REPRESENTATIVES

BOSTON, C. E. Harris Co., 120 Pearl Street
CHICAGO, Write factory office, Newcastle, Ind.
CLEVELAND, Gesing Brothers, 1037 Terminal Tower
NEW ORLEANS, H. G. Zimmer, 1811 Robert Street
NEW YORK, E. A. Neylon, 200 Varick Street
OMAHA, S. M. Hawkins, Box 300
PHILADELPHIA, R. C. Kratz, 830 Perry Building
SAN FRANCISCO, J. S. Payne, 149 New Montgomery Street
SEATTLE, Orville Ewing, 402 Mutual Life Building
ST. LOUIS, Z. G. Shaw, Maryland Hotel
ST. PAUL, J. R. Early, 1742 Dayton Avenue

Products

THOMAS OVERHEAD DOOR HARDWARE for private and public Garages, Farm and Industrial Buildings.

Also Thomas Bi-fold Hardware for Folding Partitions; Thomas-Aurora Hardware for Sliding Doors; Thomas Fire Door Hardware (Underwriters' approved).

For Thomas Swing-in Hardware for School Wardrobes, see Manufacturers' Index.

THOMAS OVERHEAD DOOR HARDWARE

For Private and Public Garages, Farm and Industrial Buildings

Thomas Overhead Door Hardware for garage, farm and industrial doors is made in sizes to carry any size or weight door. Counterbalanced motive principle, with roller and ball bearing hangers operating on enclosed track, easily and silently without slipping or jamming.

No springs to weaken or break.

Adaptable to Solid Type Stock Doors

Thomas Overhead Door Hardware is made for use on regular stock doors. Old doors, formerly hung on hinges or sliding hangers can be converted into *overhead* doors. Sets of Thomas Overhead Door Hardware include angles for binding two or more single doors together into one rigid unit.

Fittings Included

Thomas Overhead Door Hardware Sets include all necessary track, angles, hangers, cables, and cage for weights.

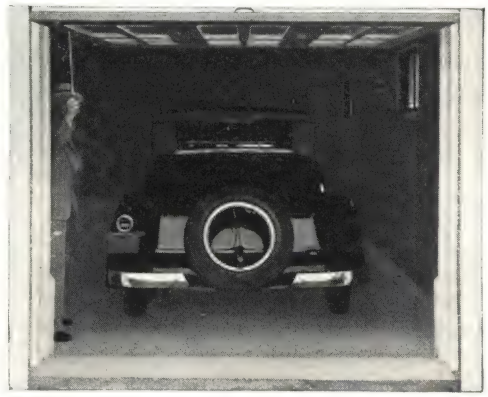
Installation

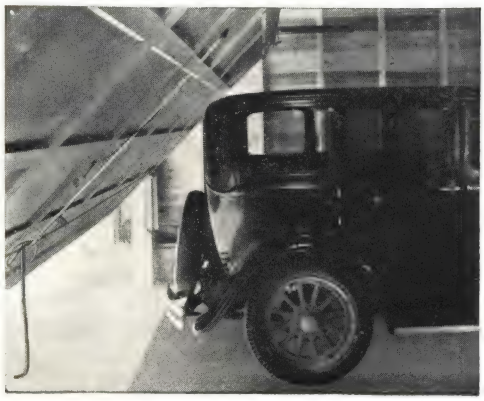
Installation of Thomas Overhead Door Hardware may be made by carpenter mechanics experienced in installation of swinging or sliding door hardware. Set No. 231 (for private garages) requires 6 by 10-in. space for weights hung on either side of door or at rear of garage 2 in. clearance on side of door 4½-in. headroom required.



Hardware Furnished Separately

Thomas Overhead Door Hardware is furnished separately to be installed by contractor. Doors and millwork supplied by carpenter contractor.





Catalogues and Prices

Write for A.I.A. file size folder illustrating and describing Thomas Overhead Door Hardware, showing adaptation and giving installation information. Thomas Overhead Door Hardware stocked by leading builders' hardware dealers.



ESTABLISHED 1876

THE J. G. WILSON CORPORATION

GENERAL OFFICES

11 East 38th Street, NEW YORK, N. Y.
P. O. Box 1194, NORFOLK, VA.

CABLE: "Wilcorp, New York"

BRANCH OFFICES

ATLANTA, GA., J. M. Van Harlingen
BOSTON, MASS., The J. G. Wilson Corporation
BUFFALO, N. Y., The J. G. Wilson Corporation
CHICAGO, ILL., H. B. Dodge & Company
HOUSTON, TEX., Walcott-Maisey & Paige
LOS ANGELES, CAL., The J. G. Wilson Corporation
PHILADELPHIA, PA., The J. G. Wilson Corporation
PITTSBURGH, PA., John A. Bricker, Jr.

For Rolling Steel Doors, Sectionfold Doors, "Sectionfold" Partitions, Rolling Partitions and Shutters, Rôlling Front and Disappearing Wardrobes, see Products Index

Wilson (REGISTERED) SECTIONFOLD DOORS OPERATING OVERHEAD

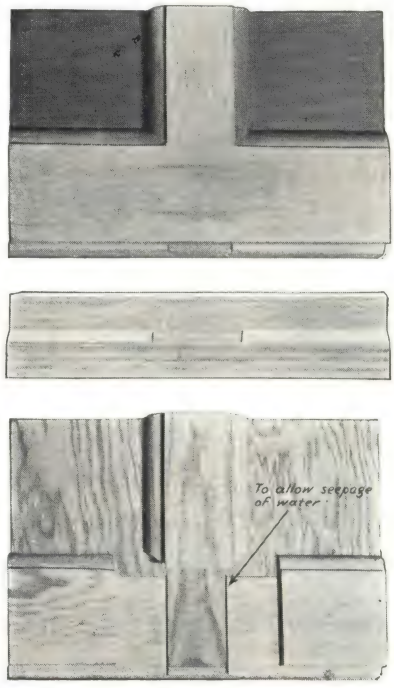
Wilson Sectionfold Doors operate *overhead* and give a clear unobstructed opening. The sections are designed so that they may be fitted with glass, wherever light is required.

The same painstaking care that has made other Wilson products, such as Sectionfold Partitions, Steel Rolling Doors, Venetian Blinds, Wardrobes, etc., leaders in their respective fields, has been used in designing and fabricating the Sectionfold Door.

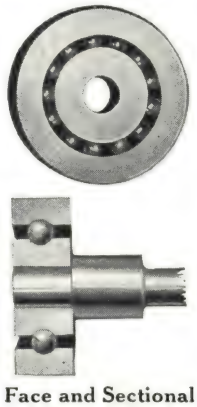
The experience and knowledge gained through fifty-five years manufacturing wood and steel commercial doors is in back of this new product. This experience has contributed largely to the unique means of counterbalancing employed. The absence of exposed springs, pulleys, and other fittings is an important feature. This single enclosed spring system removes the hazard of serious injury to the operator that may result in case of failure of an unprotected spring—assures a simultaneous movement of both lifting bands, thus eliminating any possible chance of a bind in the door, which is apt to result in the using of more than one spring.

Features of Wilson Construction

Sections — Each section is built from either redwood or a white pine. The stiles and rails of each individual section are mortised and tenoned with a wedged fit and held together with water resisting glue. The tenon of each rail extends through the stile in order to allow passage of any water that may have seeped between the panels and the stuck mouldings. This construction is shown in the illustration on this page. We recommend this precaution be taken in order to help eliminate the chances of rotting.



Details of Door Construction



Face and Sectional View of Steel Roller

The joint in the stile and rail is given additional strength by the design of the hinge. The bolt of the hinge extends clear through both the stile and rail holding these two members together, the bolt acting as a steel dowel.

Panels—Only the best selected and tested panels are used. These panels are built especially for exterior usage. They are constructed of three-ply fir veneers glued together with waterproof glue.

Hardware—Rollers are of solid steel (not pressed) ball bearing construction turning on a machined steel shaft. (See illustration below.)

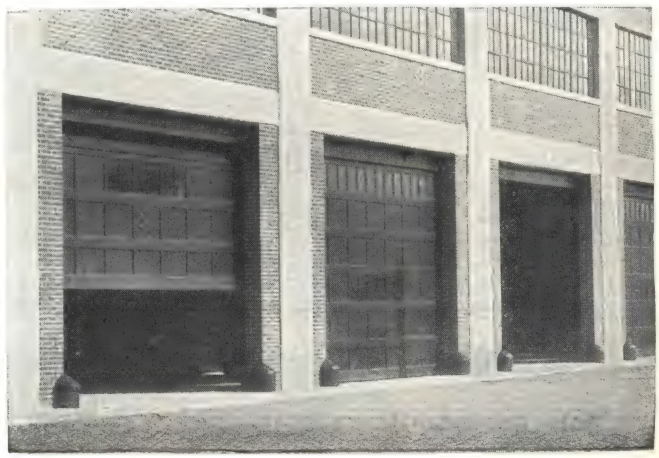
Trunnions and hinges are pressed steel, bolted to the section with through bolts. Each hinge is bolted across the stile and rail.

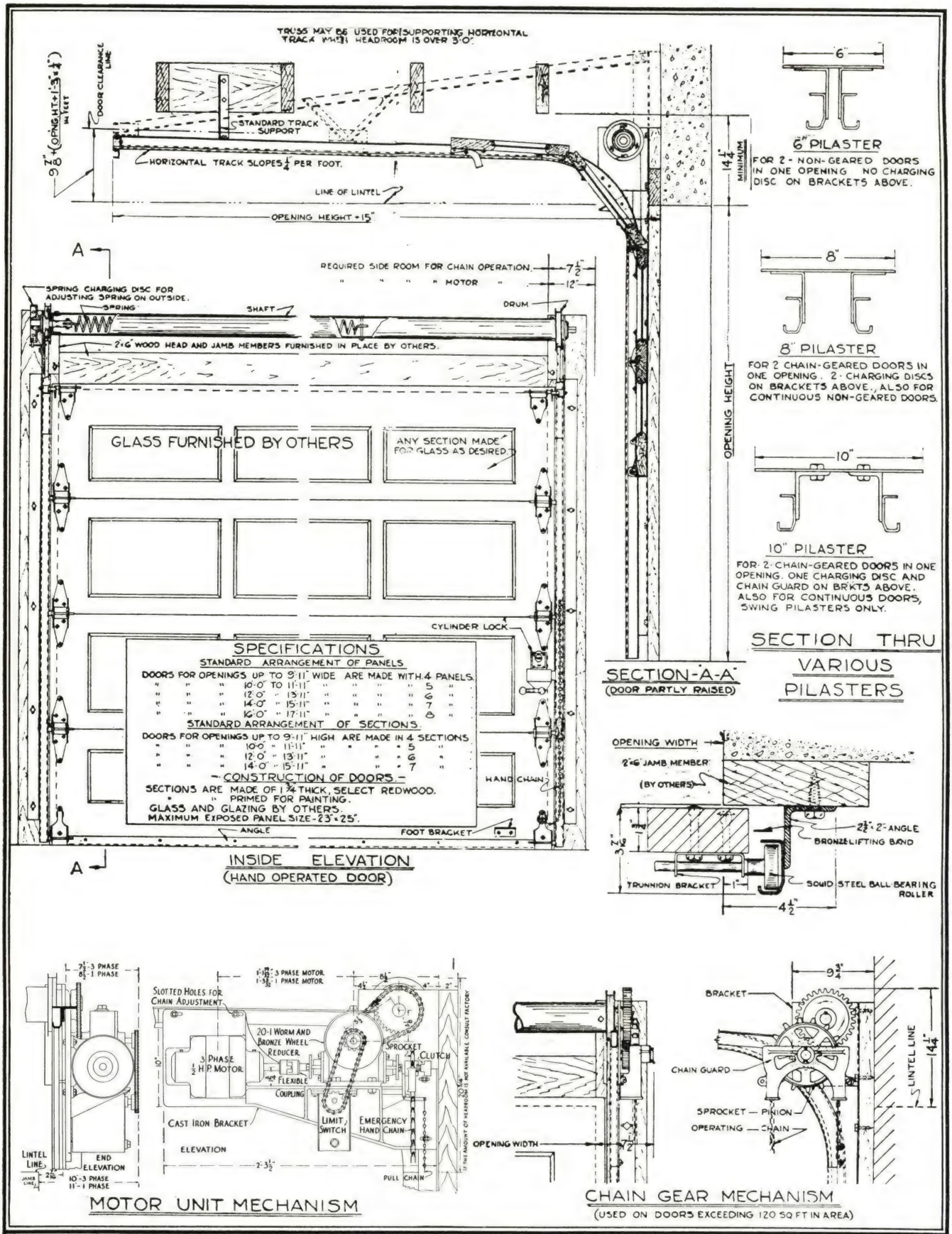
Track is of rolled steel, formed in section to give maximum strength, and is secured to the wall with continuous back angle.

Cylinder locks are supplied with all push-up doors. In chain operated doors, pin-locks only are furnished.

Counterbalancing—Ease of operation is accomplished by use of helical oil tempered springs enclosed in steel tubing, the amount of tension necessary to operate the door being applied through an adjusting wheel located on the outside face of the steel bracket. Pressed steel lifting drums are fastened directly to this shaft, assuring a simultaneous movement and guaranteeing a uniform lift force being applied to each band. This eliminates any chance of the door being forced into a bind when lifting.

Painting—A prime coat of paint is applied at the factory before shipment.





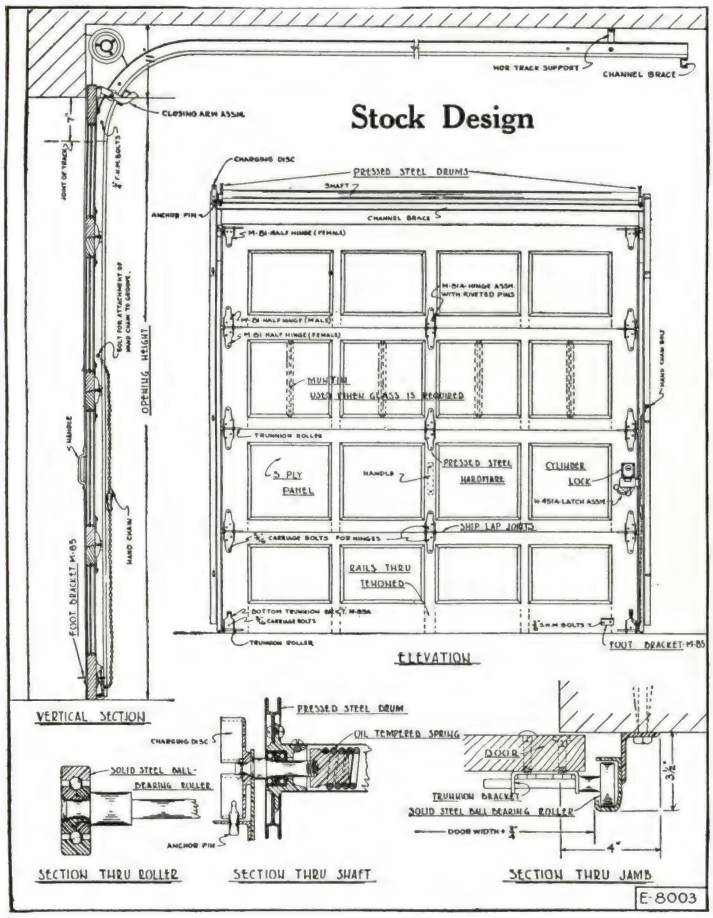
DETAILS OF WILSON SECTIONFOLD DOORS OPERATING OVERHEAD

SECTIONFOLD DOOR FOR PRIVATE GARAGES

Wilson Sectionfold Doors for private garages are shipped from the factory complete and ready for erection.

Complete erection instructions are furnished, by aid of which any competent mechanic can effect a satisfactory installation.

Wilson representatives are available in practically every large city of the United States for the installing of these Sectionfold Doors, and to give any necessary service.



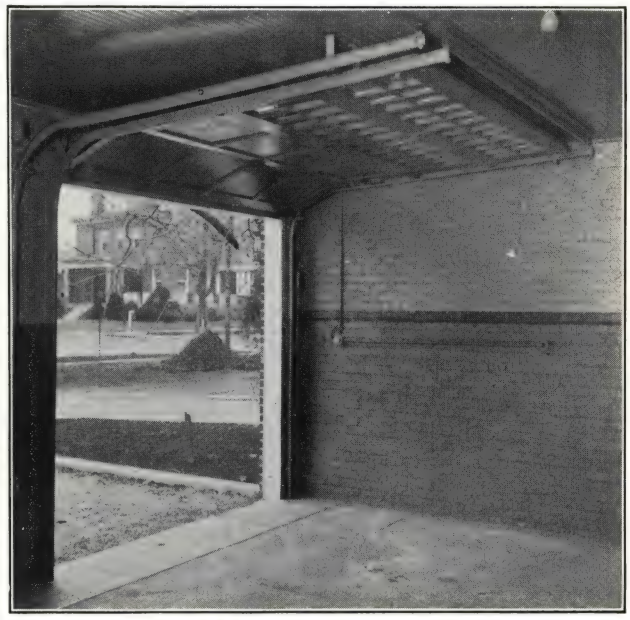
Data and Specifications

Wilson standard stock Sectionfold Doors are available in two sizes ready for immediate shipment; i.e., for openings 8 ft. wide by 8 ft. high, and 8 ft. wide by 7 ft. 6 in. high.

Both sizes are made in four sections of four panels each, as shown in the above drawings, of clear California redwood, 1¾ in. thick. The panels are all built of three-ply veneers glued with waterproof glue. The stiles and rails, in addition to being mortised and tenoned, are glued with waterproof glue, and steel doweled. All wood is thoroughly dried and treated to eliminate warping, shrinking, or swelling from atmospheric changes.

Wood panels in the third section may be omitted and the opening fitted to receive glass; the latter to be furnished and placed by others. Muntins will be placed, dividing the panels and providing eight lights of glass, if desired.

Sectionfold Doors are counterbalanced by means of oil tempered helical springs fully enclosed in steel tubing. The use of this principle eliminates exposed overhead springs and chains, which present a serious hazard. The shaft revolves on full race ball bearings. The proper amount of tension may be easily regulated by means of an accessible tension adjusting wheel.



Sectionfold Door in Open Position

The simplicity of this counterbalance insures unusual ease of operation, and eliminates the annoyance and noise of the exposed spring and other superfluous fittings.

The doors are lifted by bronze bands operating over pressed steel drums secured at each end of the shaft. The single spring enclosed in the shaft, giving a fixed movement to both drums, assures a simultaneous lifting power on both bands, doing away with any possibility of bind.

Each door is equipped with cylinder lock, accessible from both sides, bolts, handles, step plate, and chain arrangement to facilitate closing the door.



Special Paneling May Be Secured to Match Any Architectural Design

SCHOELKOPF MANUFACTURING CO.

Manufacturers of "Air-Lec" Automatic Door Operators

MADISON, WIS.

Air-Lec Door Operators

AIR-LEC Door Operators are an economy, as well as a convenience, because of the fuel saved during cold weather by keeping doors always tightly closed when not in use. Hundreds of installations in garages, industrial plants and public buildings have paid for themselves in a single season through fuel savings, lessened door damages and time saved by employees.

AIR-LEC Door Operators open and close swinging, sliding and folding doors of any size, quickly, quietly and smoothly. They are *powered* by compressed air from the regular air line, and *controlled* by switches placed in convenient locations throughout the building.

AIR-LEC possesses many exclusive features. Using air for power, rather than a motor, it has fewer parts that might get out of order. AIR-LEC handles doors in half the time ordinarily required. AIR-LEC uses air power for half the journey of the door, using this same air to cushion the remainder of the travel, eliminating slamming. Doors can be immediately reversed after dead center by touching the switch. AIR-LEC does not interfere with hand operation of doors. No harm will result from doors striking obstacles, because both air and spring are elastic forces.

Description

Current—For the switches, current is furnished by a 6-volt battery or a-c. transformer. (A hot-shot battery will last a year.)

Installation—Very easy and simple. All working mechanism is above the doors out of the way. Only 5-in. headroom required. AIR-LEC does not interfere at any time with the operation of either door by hand.

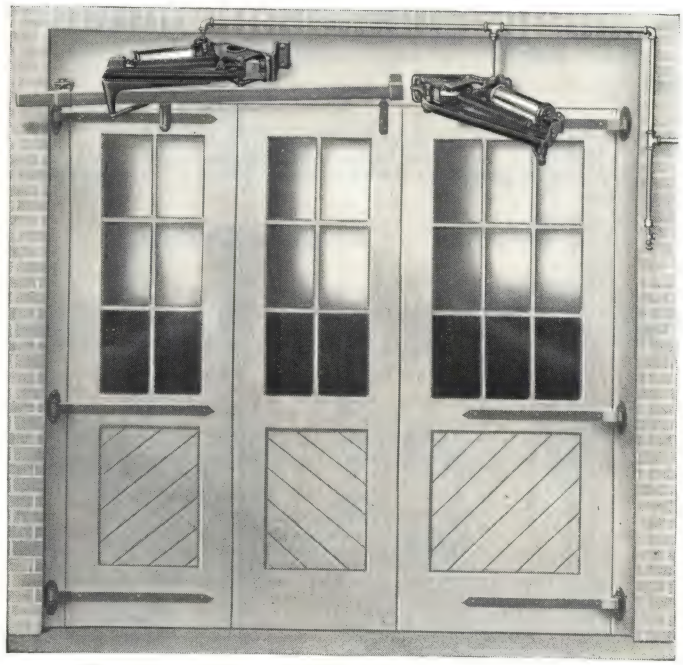
Design—Designed on the exclusive "over dead center" principle which insures exceptional economy of operation and smooth opening and closing on a "cushion of air."

Construction—Entirely of bronze, steel and malleable iron, and built to give 24-hour use for many years. Nothing to get out of order.

Uses—AIR-LEC is an ideal door operator for public garages, warehouses, bus garages, cold storage plants, factories, fire departments and the better private garages. A fusible link attachment makes it especially adaptable to fire doors in factories.

Service

Our engineers who, for nine years, have solved door problems, are prepared to advise architects and engineers concerning the types of doors most suitable; the selection of hardware and any other items pertaining to door operation.



Typical Installation of Air-Lec Automatic Door Operator

Guaranteed—AIR-LECS are guaranteed to open and close your doors at the touch of a switch, with a further guarantee of one year against defective workmanship and material.

Low Prices

AIR-LEC equipment for single sliding door up to 12 ft. wide $70.00

Double swinging door up to 10 ft. wide..... 98.00

Prices on AIR-LEC for larger doors furnished upon submission of specifications.

Suggested Specifications

AIR-LEC Door Operators, manufactured by SCHOELKOPF MANUFACTURING CO., Madison, Wis., to be supplied by owner for doors indicated. Carpenter contractor to bolt door operator in position securely and connect to door and make adjustments. Plumbing contractor to run a ½-in. galvanized pipe from air supply, including a settling trap and blow-off near door operators and connect same. Electric contractor to do the wiring to all the operating switches as indicated (100 ft. double annunciator wire and three operating switches regularly furnished with AIR-LEC).



Interchangeable Cylinder

AIR-LEC is selected by purchaser or factory according to apparent conditions. If after trial, it is found that more power is needed it is only necessary to order the next larger cylinder. Can be easily changed in a few minutes





Air-Lec for Sliding Doors

Made in five sizes for door travel of from 4 ins. to 20 ft. with considerable overlap

THE STANLEY WORKS

Member of the Producers' Council

Manufacturers of Electric Door Operators

NEW BRITAIN, CONN.

NEW YORK, N. Y., 100 Lafayette Street
CHICAGO, ILL., 61-67 West Kinzie Street
PHILADELPHIA, PA., 617 Filbert Street
LOS ANGELES, CAL., 1202 Washington Building
SAN FRANCISCO, CAL., 576 Monadnock Building
SEATTLE, WASH., 619 Mutual Life Building
CLEVELAND, OHIO, 1404 Builder's Exchange Building

For "Roll-Up" Garage Doors, Sash Pulleys, Wardrobe and Other Stanley Hardware, see Manufacturers' Index

STANLEY "ELECTRIC" GARAGE DOOR OPERATOR

STANLEY S.W.



A simple, practical and durable motor driven device for automatically opening and closing swinging doors on private garages of either the square or curved top design.

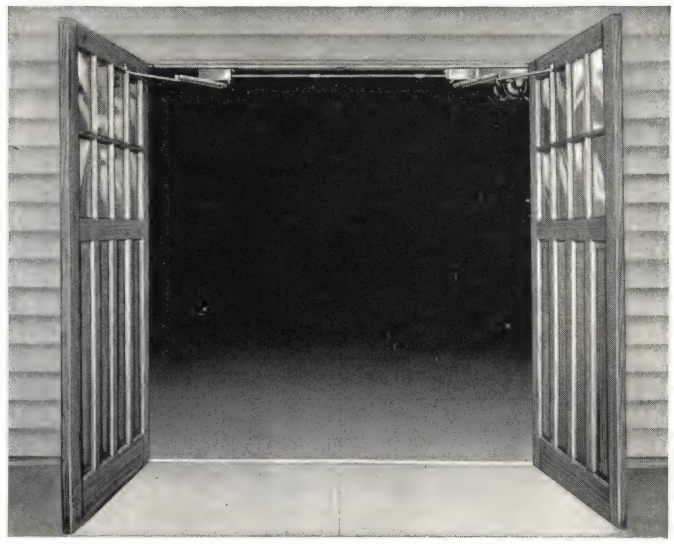
The operator is fastened to the underside of the soffit, and requires no head room above the doorway.

Geared arms open and close the doors through a safety slip clutch by merely pressing a button. There is one button for opening and another button for closing, located in a weatherproof box on top of a post which can be set beside the driveway.

The time of opening or closing is five seconds.

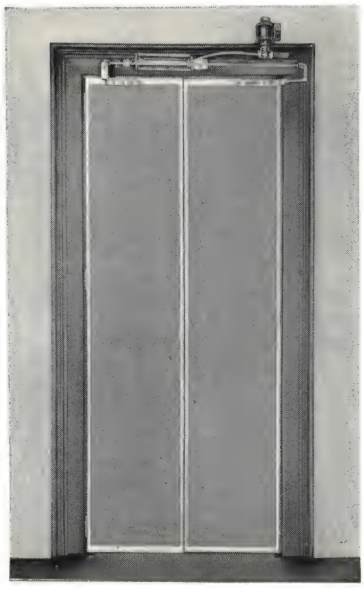
Designed for opening 8 ft. wide but can be furnished for other widths of openings at a slight additional cost.

For use on public garages it can be equipped with a photo electric light ray control which opens the doors automatically when the light ray is intercepted.



"STANLEYMAGIC" SELF-OPENING SERVICE DOORS

Photo-electrically Controlled



Designed for use between dining room and kitchen in hotels and restaurants.

Doors open in one-half a second. The person approaching the doors intercepts an invisible ray of light. This causes the doors to fly open, and after the person has passed through, they close gently with a checking action.

It eliminates kicking or bumping of doors, thereby preventing personal injuries, damage to doors, and breakage of dishes. It saves time and permits smooth uninterrupted service.

Furnished complete with one pair of special light weight rigid doors bound with aluminum channels; three pairs of ball bearing butts secured to steel reinforcing plates inside of doors; complete photo-electric control unit with light ray, and a rugged mechanical operator.

"Stanleymagic" doors with photo-electric control are also available for the convenience of crippled and wheel chair patients in hospitals; also for industrial application on doors to loading platforms, etc.

Our engineers will be glad to consult on any door operating problem.

THE YODER-MORRIS COMPANY

Manufacturers of Y-M Electric Door Operators, Doors and Door Hardware

5500 Walworth Avenue
CLEVELAND, OHIO

REPRESENTATIVES AND SERVICE DEPARTMENTS IN ALL PRINCIPAL CITIES

Y-M Electric Door Operators

Y-M Electric Door Operators have been designed and constructed so as to give satisfactory service under the most exacting conditions. Eight years of experience in this field has enabled our engineers to produce a most satisfactory line of door operators. Each operator is equipped with full automatic control and the necessary safety features, insuring full protection. There is a Y-M operator for every kind of door.

Y-M operators are particularly adapted to fire stations, and are in use in many large cities throughout the country. Due to their dependable service they are the choice of many discriminating fire chiefs and are widely recommended everywhere. Emergency-release door brackets permit manual operation of doors.



Y-M "Clearover" Doors

Y-M "Clearover" Doors

The Y-M "Clearover" Door, an overhead type door, is built to meet the demand for a quality product, combining ease of operation with lasting service and satisfaction over a period of years. Doors are of white pine unless otherwise specified, 1¾ in. thick, and can be installed in a small amount of headroom. Track and hinges are of 10-gauge steel. Ball bearing rollers are of 2½-in. diameter, floating on a fixed pin, insuring against binding.

Y-M Devices

Heavy Duty Roller Bearing Hinges—Are designed for large swinging and folding doors where the service demanded is extremely severe.

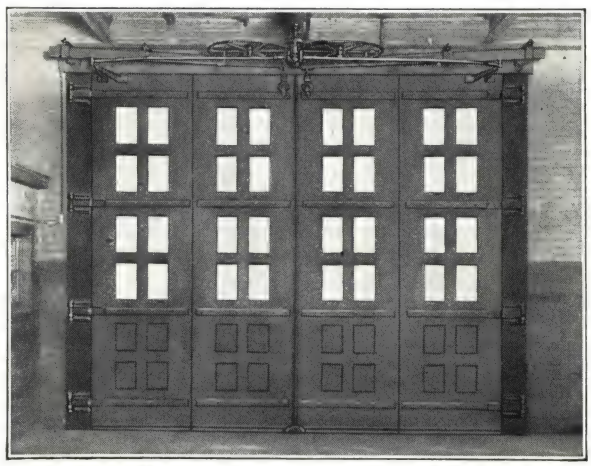
Remote Control Devices—Consist of push buttons of all kinds, ornamental control posts, key switches, and metal and rubber tread switches. Control can be secured from any number of posts desired. Wiring diagrams furnished with each operator.

Service

Our Engineering Department is always at your service and will gladly submit details and specifications upon request.



A Fire Department Installation of the Y-M Door Operator



Y-M Standard Operator Shown Installed on Four-fold Doors
Note Y-M 3-in. hinges on doors

THE CONDOR COMPANY

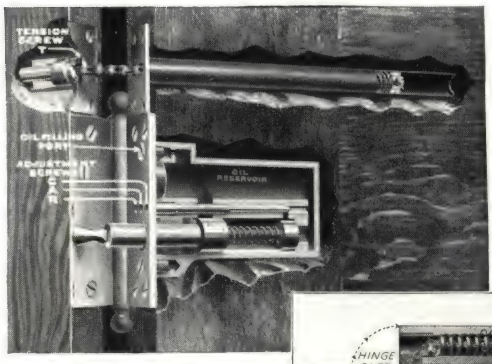
Manufacturers of Concealed Door Closers

1675 Eddy Street
SAN FRANCISCO, CALIF.

The Product

A door check that is concealed from view and operates satisfactorily has for years been the wish of architects and constructors of fine buildings. Such a door check is the Condor. It is invisible—does not mar the beauty of the room—does not collect dust.

It can be installed in many places where the overhead check cannot be used satisfactorily, such as doors with round tops, half doors, wickets.



Check and Closer

Advantages

It Is Concealed from View—Both check and closer fit into the door stile, consequently are entirely concealed from view when the door is closed.

It Is Sturdy and Will Last—An endurance test under normal conditions and under the supervision of Robert W. Hunt & Company, showed a successful operation of over 300,000 times without breakdown, repairs or adjustments.

It Is Readily Installed by a Carpenter—It is easily adjusted for varying conditions.

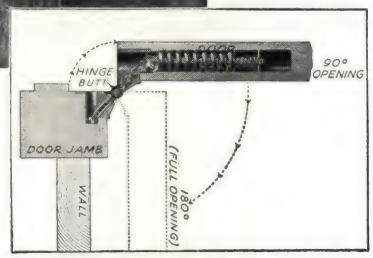
Price—The price is in line with other closers.

Successful Operation—The Condor Check may be installed in any type of metal or wood door having sufficient width of stile, and will operate successfully under practically all draft conditions.

Operations of the Condor Door Closer

The action of the Condor Check is positive and the adjustment is simple. Any degree of closing speed may be obtained by a slight turn of either or both adjustment screws "C" and "A." Doors equipped with the Condor Check may be operated to the full 180° opening.

Unique Hold-open Device—Holds door at either 90° or full opening. This modern hold-open device is as revolutionary as the Condor itself. It allows a freedom of door action never achieved in other hold-open features.



Hold-open Device

The standard opening at which this device holds the door is 90°. However, the door can be swung beyond this position with freedom, and without strain.

This unique device in no way encumbers the Condor, and easily withstands all draft conditions. It is optional on all sizes, without extra charge.

New Installations

In new installations it is advisable to have the doors mortised both for the check and closer, at the factory. Templates are furnished by THE CONDOR COMPANY for this purpose.

Additional Information

For catalogue and other descriptive literature, together with prices, name of nearest distributer and other information, address home office as above.

Territories open for exclusive representatives.

DIMENSIONAL DATA FOR CONDOR CLOSERS

Model	Minimum thickness wood door,	Dimensions of body of check, in.			Size of butt, in.	To match butt, in.	Minimum width of stile, in.	Dimensions of closer, in.	
		Length	Height	Width				Diameter of tube	Length of tube
A	1 1/8	3 1/4	2 9/16	13/16	4 x 3	3 x 3	3 5/8	Spring hinge	
B	1 3/8	3 3/4	2 15/16	1	4 1/2 x 3 1/2	3 1/2 x 3 1/2	4	7/8	9 15/16
B-1	1 5/8	3 3/4	2 15/16	1	4 1/2 x 4	4 x 4	4	1	9 15/16
C	1 3/4	3 7/8	3 3/8	1 1/8	5 x 4	4 x 4	4 1/2	1 1/16	10 1/8
C-1	1 3/4	3 7/8	3 3/8	1 1/8	5 x 4 1/2	4 1/2 x 4 1/2	4 1/2	1 1/16	10 1/8
D	2 1/8	4 3/4	3 7/8	1 3/8	6 x 5	5 x 5	5 1/4	1 5/16	13 11/16

Each check is supplied with a specially drilled ball bearing butt and all necessary screws. Brass or bronze finish is supplied at list price. Other finishes may be had at slight additional cost.

Model A for light half doors.
B and B-1 for light full door and metal one-half and three-quarter doors.
C and C-1 for standard office doors.
D for heavy doors.

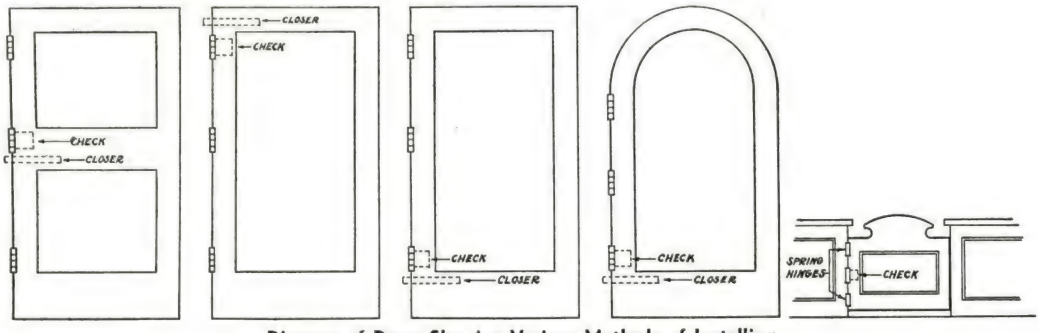


Diagram of Doors Showing Various Methods of Installing

GLYNN-JOHNSON CORPORATION

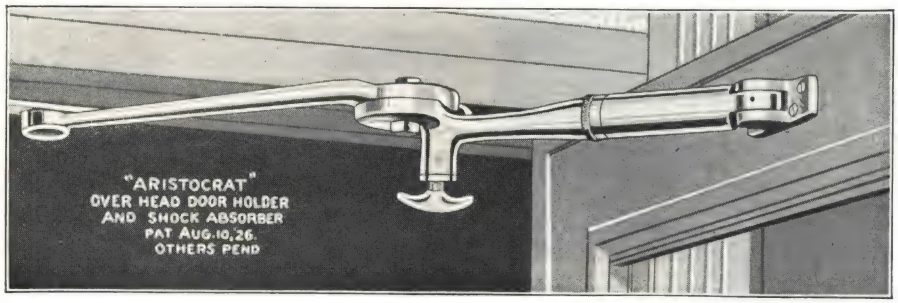
LAPORTE, INDIANA

ARISTOCRAT OVERHEAD DOOR HOLDER AND SHOCK ABSORBER STOP

The Aristocrat Overhead Door Holder and Shock Absorber Stop is an attractive, neat and unobtrusive device specially designed for entrance vestibule and exit doors.

In addition to its mechanical precision, it has exclusive hold-open features. Made in two types, positive and automatic release. Quarter turn of handle causes door to hold open when necessary. Doors can be held open at any angle up to 125°. Also prevents doors from swinging beyond a given point. Can be applied to all doors opening out.

An encased shock absorber of recoil action absorbs the slam, eliminating stress and strain on the door or loosening of butt plates.



This device will also work with overhead door checks or closers.

Holders can be furnished without hold-open adjustment if desired.

Cast bronze bearings and fittings with rustproof, triple-plated, malleable arms. Polished or brushed—bronze or brass. Special finishes on request. Also manufactured of cast phosphor bronze.

Type 01, for narrow doors up to 28 in. wide.

Type 02, for doors from 30 to 36 in. wide.

Type 03, for doors over 36 in. wide.

HERCULES DOOR HOLDER



Any door will stay where you want it when you use the Hercules. No springs or mechanisms to get out of order. Self-adjusting, troubleproof and silent in operation. Easily operated by raising or lowering tip of holder with foot. Threaded-in rubber tip acts as a non-skid shoe which grips floor surface. Will not cut ring in floor or mar floor coverings. Tips can be replaced without removing holder from door.

Made of cast bronze or brass, polished or satin finish; in three sizes.

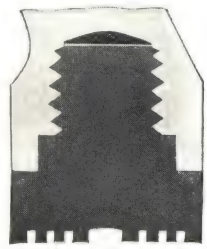
Type No. 3, for light inside doors with ½ in. or less floor clearance.

Type No. 4, for doors with 2 in. or less floor clearance.

Type No. 5, for doors with 3½ in. or less floor clearance.

Size numbers indicate inches of arm length.

The cross section illustrates the threaded-in feature of the Hercules rubber tip non-skid shoe. The ample shoulder acts as an additional support to prevent the tip from being forced or kicked out of the holder. The tip may be easily renewed without removing the device. The threaded-in rubber tip is an exclusive Glynn-Johnson feature.

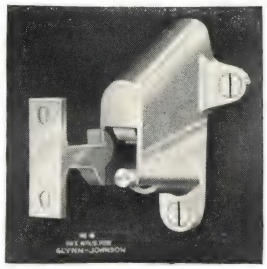


(Patent Pending)

AUTOMATIC DOOR HOLDER

GJ W-4 Wall Type Automatic Door Holder—(As shown.) Embodies all that is needed for doors that open back against the wall. All working parts enclosed. Tapered to prevent standing on it. Screw holes spread to give proper anchorage. Protrudes sufficiently to prevent door knob or pull from striking. Has encased bumper and shock absorber.

To operate, push door lightly against wall to engage which causes the door to hold. To release, push door and it automatically releases.



Sagging doors will not affect action of this holder. Cannot jam and is absolutely foolproof.

Can be mounted any place on the wall, from top to bottom of door. Protrudes approximately 2¾ in.

Cast bronze or brass; polished or satin finish.

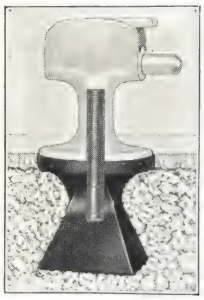
GJ F-4 Automatic Floor Type Holder—Same as above, except for floor installations.

SEMI-AUTOMATIC DOOR HOLDER AND BUMPER

A door holder and bumper of sturdy bronze construction. Semi-automatic in its operation and serves as door holder or bumper. Encased brass plunger which absorbs shock of a slamming door. Extension on the bottom of the hook acts as a strike plate. Will not twist or turn out of alignment.

½-in. diameter steel stud and expansion shield or mounting block for embedding in concrete. Also furnished with 6-in. riser base for doors swinging over a step.

Cast bronze or brass; polished or satin finish.

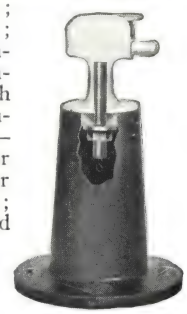


Type F-9CB
Concrete Mounting Block
Height, 3½ in.
Base diameter, 2¾ in.
To be inserted in concrete



Door Holders for Concrete Floors—***Type F-9***—Height, 3¼ in.; height to center, 2⅛ in.; width over all (hook engaged), 3¼ in.; base diameter, 2¾ in. Equipped with ½-in. steel stud and expansion shield. ***Type F-10***—Height 5 in.; height to center of plunger, 3½ in.; width over all (hook engaged), 4⅝ in.; base diameter, 5 in. Equipped with ⅝-in. steel stud and double expansion shield. Weight, 6 lb.

For Wood Floors—***Type F-8***—Height, 3¼ in.; height to center of plunger, 2⅛ in.; width over all (hook engaged), 3¼ in.; base diameter, 2¾ in.

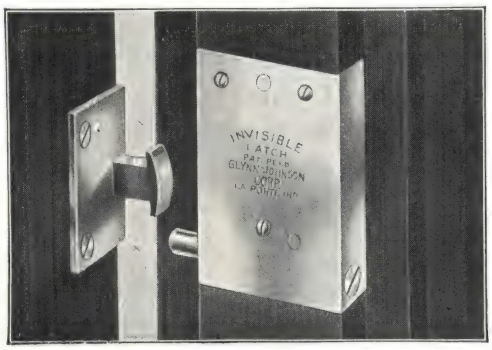


Type F-9R6
Special Base Riser
Height 6 in.
Base diameter 6 in.
For special installations where the door swings over a step

INVISIBLE LATCH

The Invisible Latch is designed for neatness of trim, eliminating knobs and pulls. Gives quick, lively action and is so designed that it may be fitted to all types of secret doors and panels. Wall space that has not been utilized heretofore now can be made to provide more closet or compartment space—Give More Room—for any number of articles without showing any hardware to mar the appearance of the panel.

The Invisible Latch will operate in any position, left or right hand, top or bottom. It may be set in flush or on top of stop, or bottom of shelf. Manufactured of cast brass.

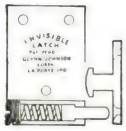


With the template, which is supplied with each device, accurate installation of the invisible latch is assured. It is absolutely jamproof, having only two moving parts, with plunger action free and independent of the locking and releasing feature. It is not affected by shrinking or swelling of doors or panels so long as the door can be opened and shut. The door or panel, on which it is installed, moves but $\frac{3}{32}$ in. to release.

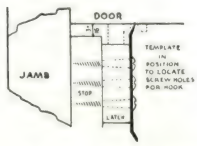
For regulating the tension of the plunger, to accommodate various sizes and weights of doors and panels, a screw at the back of the latch (shown in the illustration) regulates the action. To operate, simply a light push locks it —a slightly harder push releases the latch.

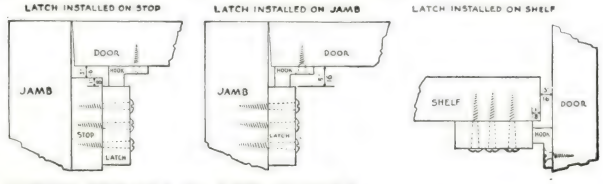
Type A: for the smallest panels up to cabinets and closet doors. Height, 1⅞ in.; width, 1¼ in.; thickness, $\frac{7}{16}$ in.

Type B: for installation on medium and large doors. Height, 2⅜ in.; width, 1¼ in.; thickness, ½ in.



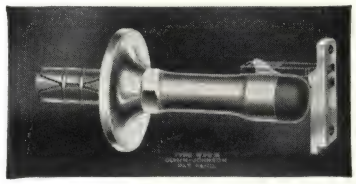






DOOR HOLDERS AND BUMPERS WITH STRIKE PLATE HOOKS

A glance at the illustration of Type F-20 shows the supporting feature of the "prop" design, which means rugged strength and absolute rigidity. There is no side thrust, because when functioning as a holder there is a straight forward pull, no breaking of hooks. As a bumper there is a straight forward contact. The shock is quietly absorbed by the exclusive feature of the threaded-in, loss-proof rubber tip.

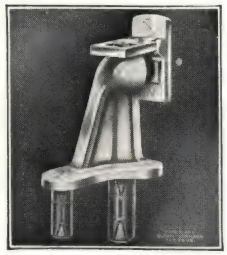


Wall Type W-20 and W-20x

The special designed hook plate does not protrude, and when not engaged acts as a strike plate, protecting the door.

Type W-20 also shows how effectively the above features are incorporated in the wall type door bumper and holder.

We also make a complete line of bumpers in all sizes without the hold-open feature. Write for complete catalogue.



Floor Type F-20 and F-20x

Wall Type W-20 and W-20x—Projection, over-all length, 3½ in.; over-all length with hook engaged, 4 in.; base diameter, 2⅜ in.

Type W-20, wood screws.

Type W-20x, for stone. Equipped with $\frac{5}{16}$-in. steel stud and expansion shield. Strike plate and hook: height, 2⅛ in.; width, 1 in.; thickness, ⅜ in.

Threaded steel studs of any length can be furnished for anchoring through marble.

Cast bronze or brass; polished or satin finish. Special finishes on request.

Floor Type F-20 and F-20x—Height, 3 in.; height to center of bumper, 2⅜ in.; base, 2⅞x2½ in.

Type F-20, wood screws.

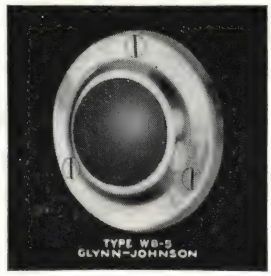
Type F-20x, for concrete. Equipped with $\frac{5}{16}$-in. steel stud and double expansion shield. Strike plate and hook: height, 2⅛ in.; width, 1 in.; thickness, ⅜ in.

Cast bronze or brass; polished or satin finish.

GJ FLUSH BUMPER

Type GJ WB-5—Serves a long needed requirement where knobs or pulls strike walls. Gives maximum opening for doors set in reveals.

Mounted on back of door acts as bumper against wash stands, tubs, furniture, etc. This bumper eliminates protruding hazards.



Patent pending

Live pure gum rubber of the highest quality is used; this insures a cushionlike surface with shock absorbing properties. No loss of tips; rubber inserted from the back. Outside diameter over all, 2⅜ in. *Protrudes but ¾ in.*

Cast bronze or brass; polished or satin finish.

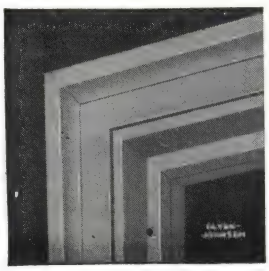
When mounted on back of doors, order in dull finish so it can be painted same finish as door.

GJ DOOR SILENCER

All doors can be controlled to a minimum of quietness in closing. This silencer eliminates the rattle of doors due to draft which causes the latch to become noisy.

Precision work in its construction enables this silencer to combine the action of air, rubber and spring tension to absorb all noise in closing. Plunger recedes sufficiently when door strikes it to close properly. All metal parts, brass. End of plunger is of rubber.

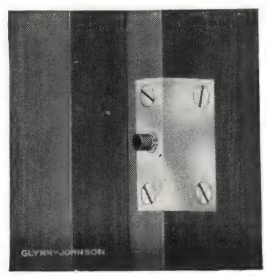
Easily installed in metal frames. Drill hole $\frac{7}{16}$ in. on edge of stop strip. Tap and screw silencer in place.



At Left:
Type GJ66 for Metal Frames, Installed



Patents pending
Door Silencer, Actual Size
For metal frames



At Right:
Type GJ67 for Wood Frames Installed
Patents pending

ANGUS HOPKINS, INC.

MANUFACTURERS AND AGENTS

Maxine Sliding Door Mountings
Woven Wire Meshwork in All Metals
271 West 125th Street
NEW YORK, N. Y.

Products

MAXINE DOOR MOUNTING with Concealed Control for the operation of low railing sliding gates; WOVEN WIRE MESH work of all descriptions.

Also Folding Gates.

Service

ANGUS HOPKINS, INC., maintain a service department to assist the architect and builder with all matters relative to the design and installation of wire cagework in all metals.

THE MAXINE SLIDING DOOR MOUNTING

(Patent No. 803341, June 2nd, 1931)

The Maxine Sliding Door Mounting provides an improved new type of automatic door closer, concealed and positive in action, for the low railing type sliding doors of bank tellers' cages and partitions of similar construction.

The mounting is designed for metal or wood railings, and is an integral part which combines harmoniously with the balance of the installation.

Outstanding Features

(1) Noiseless in operation and eliminates gate slamming.

(2) Concealed mechanism is safeguarded against damage.

(3) No projecting arms or brackets to tear clothing or cause injury.

(4) Clean in operation—no oil leaks to mar floor or soil clothing of employees.

(5) Being bottom hung, it assures additional strength and gives a clean, unobstructed appearance to the installation.

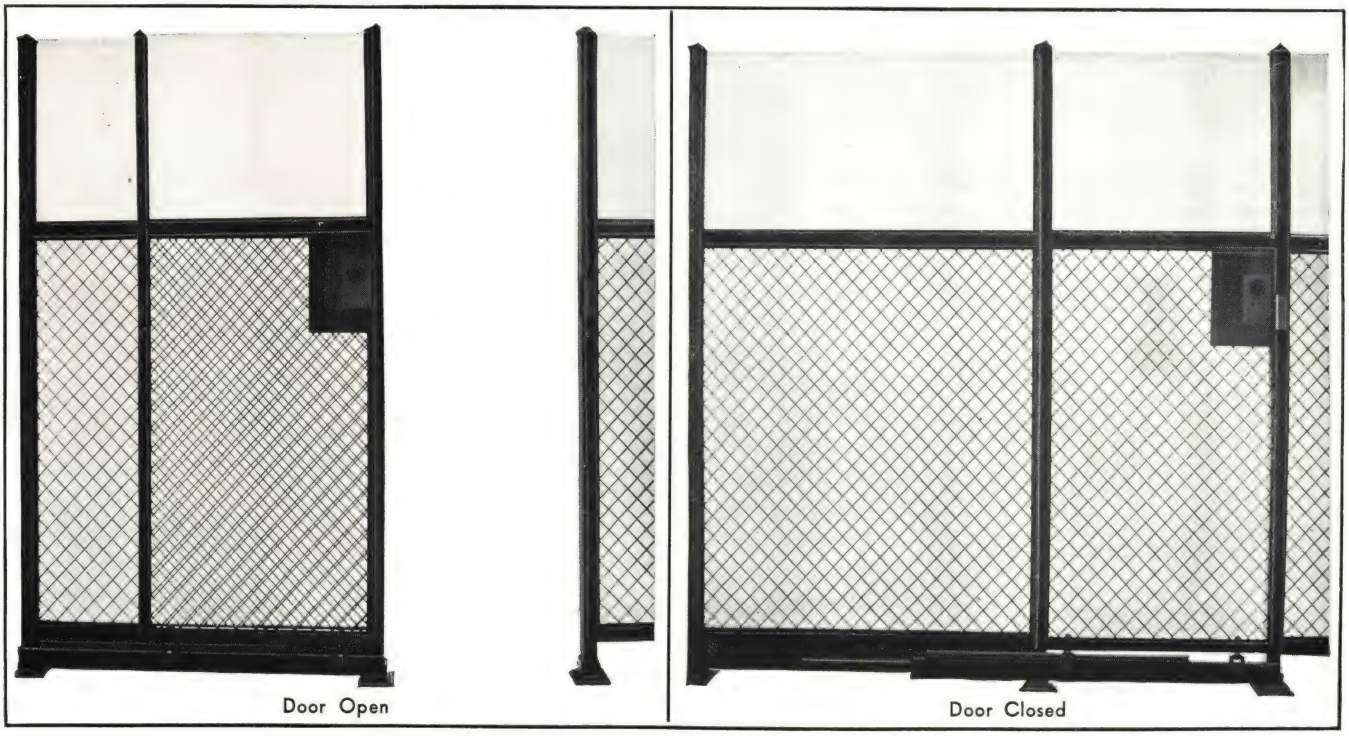
Construction and Method of Mounting

The Maxine Door Mounting is constructed of the highest grade steel and brass throughout, insuring strength and durability. Skilled workmanship assures mechanical perfection and renders smooth, easy action of the gate in operation.

There is no interference with adjacent cage gates or passageways when gate is opened.

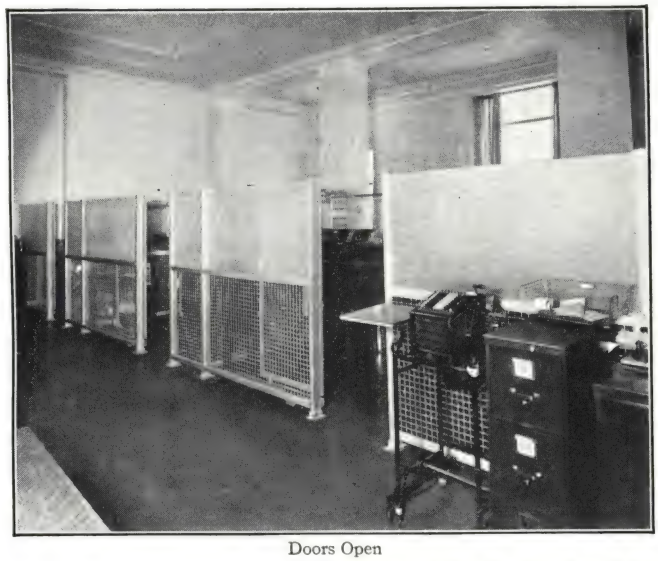
The check, entirely enclosed within a steel rail, consists of steel springs within brass twin air cylinders, with a common air chamber and regulating valve.

The mounting complete is so assembled and mounted on gate as to hang clear of the floor and presents a smooth, unobstructed entrance surface for rolling money trucks, etc.

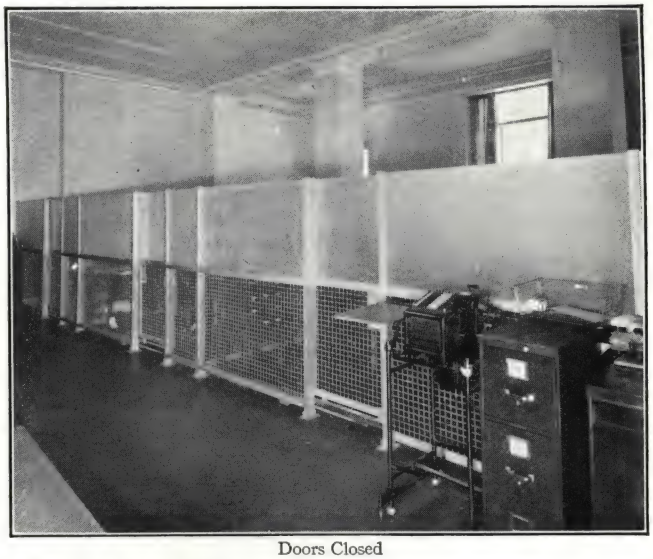


Door Open — Door Closed

Typical Installation of the Maxine Sliding Door Mounting



Doors Open



Doors Closed

Installation of Wire Work with Marine Equipment in the Chemical Bank & Trust Co., Waldorf Astoria Hotel, New York, N. Y.

Maxine Installations

Bank	Location	Architect
Chemical Bank & Trust Co.	Waldorf Astoria Hotel, New York, N. Y.	Schultz & Weaver
Chemical Bank & Trust Co.	23rd Street and 10th Avenue, New York, N. Y.	Farrar & Watmough
Central Hanover Bank & Trust Co.	42nd Street and Madison Avenue, New York, N. Y.	Shreve, Lamb & Harmon
	Greenwich Street, New York, N. Y.	Cross & Cross
	Franklin Street, New York, N. Y.	Cross & Cross
Bankers Trust Co.	16 Wall Street, New York, N. Y.	Shreve, Lamb & Harmon
Chase National Bank	45th Street and Madison Avenue, New York, N. Y.	York & Sawyer
Agricultural National Bank	Pittsfield, Mass.	Halsey, Helmer & McCormack
National City Bank	Forest Hills, N. Y.	National City Bank
National City Bank	Jackson Heights, N. Y.	National City Bank
Reading Trust Co.	Reading, Pa.	Hoggson Bros.
Central Home Trust Co.	Elizabeth, N. J.	Hoggson Bros.
Security Central National Bank	Portsmouth, Ohio	Hoggson Bros.
N. Y. Title & Mortgage Co.	41st Street and Madison Avenue, New York, N. Y.	Horace Luckman
First National Bank	Bayshore, L. I., N. Y.	Morgan, French & Co.
Farmingdale Bank	Farmingdale, N. Y.	Morgan, French & Co.
Lawyers Mortgage Co.	Mt. Vernon, N. Y.	Renwick, Aspinwall & Guard

WOVEN WIRE MESHWORK

We also specialize in the design and production of complete installations for bank cagework, including gate-locking devices, etc., with or without Maxine Mountings.

In addition to having complete facilities for the quantity production of standardized woven wire cagework, we are prepared to work up and produce special and ornamental designs in various metals, such as aluminum, brass, bronze and copper.

General Use—The following is a partial list of the many uses for Angus Hopkins wire work:

Cashier's cages	Safety gates
Elevator shafts	Window guards
Office partitions	Skylight screens
Stair enclosures	Fire escapes
Locker rooms	Basement storerooms
Department partitions	Employees' wardrobes

Woven Wire Meshwork Installations

Waldorf Astoria Hotel, New York, N. Y.
New York Stock Exchange, New York, N. Y.
International Telephone & Telegraph Co., New York, N. Y.
St. Michael's Church, New York, N. Y.
Chatham Phenix Bank & Trust Co., New York, N. Y.
Packard Motor Car Co., New York, N. Y.
Studebaker Corporation, New York, N. Y.
Remington Arms Co., New York, N. Y.
Borden's Farm Products Co., Inc., New York, N. Y.
Sheffield Farms Co., Inc., New York, N. Y.
American Railway Express Co., New York, N. Y.
J. P. Morgan Co., New York, N. Y.
Columbia University, New York, N. Y.
First National Bank, Tampa, Fla.
First National Bank, Lake Geneva, Wis.
C. Brewer & Co. Ltd., Honolulu, P. I.
Banca DeBogota, S. A.
Roig Commercial Bank, Porto Rica.
Miami County Trust Co., Miami, Fla.
Lima Girls' High School, Lima, Peru
Eighth Avenue Subway, New York, N. Y.
Y. M. C. A., Hoboken, N. J.
Hudson County Jail, Jersey City, N. J.
New York Evening Journal Building, New York, N. Y.
Police Headquarters, Brooklyn, N. Y.
R. H. Macy Co., New York, N. Y.
Standard Oil Building, New York, N. Y.
A. S. P. C. A., Brooklyn, N. Y.
Goethals Bridge, Elizabeth, N. J., to Holland Hook, S. I., N. Y.
S. S. Hamburg, Hamburg-American Line
Irving Trust Co., New York, N. Y.
New York University, New York, N. Y.
Public School No. 71, New York, N. Y.
Public School No. 81, New York, N. Y.
Bank of America, New York, N. Y.
National Savings Bank, Albany, N. Y.
Corn Exchange Bank & Trust Co., New York, N. Y.

INDEPENDENT LOCK CO.

Manufacturers of a Complete Line of Liquid Door Closers in Two Types; Also Screen Door Closers

FITCHBURG, MASS.

ILCO BLOUNT TYPE DOOR CLOSERS

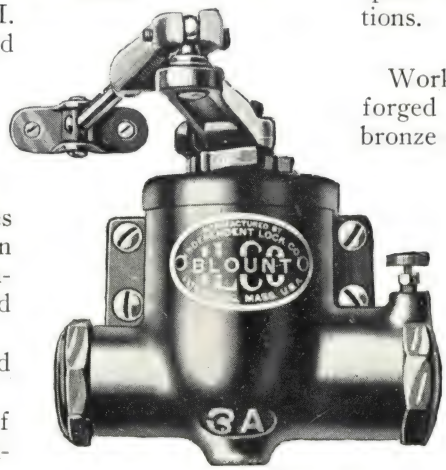
Construction

Ilco Blount Type Door Closers incorporate all the desirable features found in the first successful liquid door closer sold in this country which was designed by Eugene I. Blount. Spring is of clock wound type, of specially tempered steel, and wound on a large diameter.

One-piece drop forged steel crankshaft (three-bearing). Special patented design of non-porous steel combination packing nut assures long wear and smooth bearing on crankshaft. Channel and port construction prevents leakage of liquid into spring chamber.

Made for right-hand or left-hand doors. Can be easily reversed.

Liquid—Special Ilco mixture of correct viscosity. Not affected by extreme temperatures.



Ilco Blount Type Door Closer

Piston—Operated by crank and forged steel connecting link. Even and smooth action.

Adjustment—Simple adjustment controls speed of closing and varying draft conditions.

Materials

Working parts are of malleable iron or drop forged steel. Can also be supplied in solid bronze or other metals.

Finishes

Regular finishes are gold bronze, maroon bronze, prime coat, white enamel, paint (any color), polished nickel, or dead black. Also special finishes to sample or specifications.

Guarantee

All Ilco Liquid Door Closers are guaranteed against defects for two years.

Regular Closers	With Holder Arm		Used for
	Type "A"	Type "B"	
No. 1	HA 1	HB 1	Heavy screen doors or very light inside doors.
No. 2	HA 2	HB 2	Light inside doors not exceeding 7x3 ft.
No. 3	HA 3	HB 3	Heavy inside doors not exceeding 7x3 ft. or light outside doors 7 ft. x 2 ft. 8 in.
No. 4	HA 4	HB 4	Extra heavy inside or outside doors not exceeding 7½x3 ft.
No. 5	HA 5	HB 5	Medium weight outside doors not exceeding 7½x4 ft.
No. 6	HA 6	HB 6	Heavy outside doors not exceeding 8½x4 ft.

ILCO UNIVERSAL TYPE DOOR CLOSERS

Construction

Ilco Universal Type Door Closers may be used either right-hand or left-hand without change. Designed with unusually liberal safety factor to insure positive operation under abnormal conditions, such as heavy draft, etc.

Combine the best features of the Blount type, such as the one-piece drop forged steel crankshaft, non-porous steel combination packing nut, forged steel connecting link, with the additional advantages offered by the Universal spring construction.



Ilco Universal Door Closer

Furthermore, the Universal Type Door Closer is equipped with double adjusting valves for extremely accurate door closing regulation in accordance with the latest scientific development. The first regulating screw controls the closing of the door to within 6 in. of the jamb (approximately), and the second regulating screw controls the final closing.

Mounting—A full size mounting template is packed with each door closer for simple and accurate installation and also for drilling metal doors. (Templates will be supplied gratis to the architect upon request.)

Finishes and Guarantee

Same as for the Blount type described above.

(We recommend closers in size as per table below for standard doors under ordinary conditions)

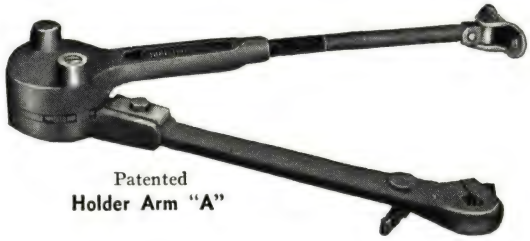
Regular Closers	With Holder Arm		Used for
	Type "A"	Type "B"	
No. 31	HA 31	HB 31	Heavy screen doors or very light inside doors.
No. 32	HA 32	HB 32	Light inside doors not exceeding 7x3 ft.
No. 33	HA 33	HB 33	Heavy inside doors not exceeding 7x3 ft. or light outside doors 7 ft. x 2 ft. 8 in.
No. 34	HA 34	HB 34	Extra heavy inside or outside doors not exceeding 7½x3 ft.
No. 35	HA 35	HB 35	Heavy outside doors not exceeding 8x4 ft.

ILCO HOLDER ARMS

Made in two types, "A" and "B". Both holder arms are designed so that they may be adjusted to hold the door open at any degree desired.

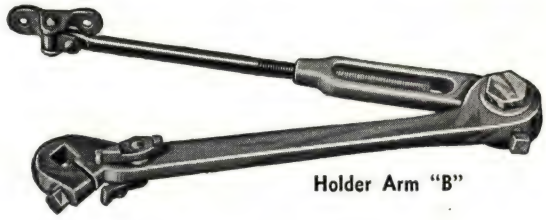
Ball and Socket Type—Holder arm "A" is a newly developed ball and socket type having many advantages over the old-style friction types. The principle used is entirely new as applied to holder arms, and involves the use of two hardened steel ball bearings which seat automatically in sockets accurately placed in the hardened tool steel position disc when proper hold-open position is reached. In this type of holder arm the ball bearings drop automatically into place when the desired position is reached and it is not necessary to apply any force to the door to make the holder arm function. Similarly, it is not necessary to apply an extreme force to release the door from its hold-open position as a very light push will cause the ball bearings to ride out of their sockets smoothly and efficiently. The position disc can be set to hold the door open at any pre-determined position which may be varied to suit each individual condition. Not a friction holder.

Friction Type—Holder arm "B" is of the ordinary friction type adjusted to the desired position by nut and setscrew. For use on all types of doors. A slight push or pull will release the door from its hold-open position and the door will close in the usual manner.



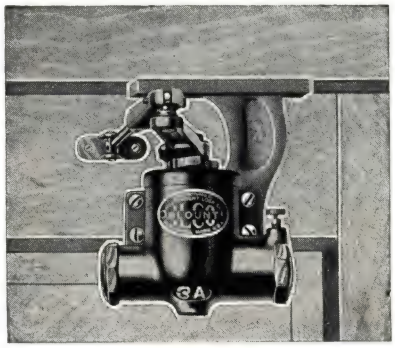
Patented
Holder Arm "A"

The arms regularly furnished with Ilco Blount Type and Ilco Universal Type door closers allow for opening of the door approximately 90 degrees. When opening between 90 and 180 degrees is desired, extra long door check arms must be specified

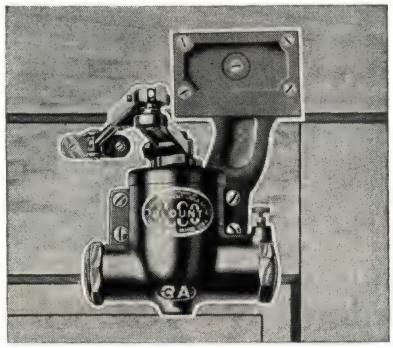


Holder Arm "B"

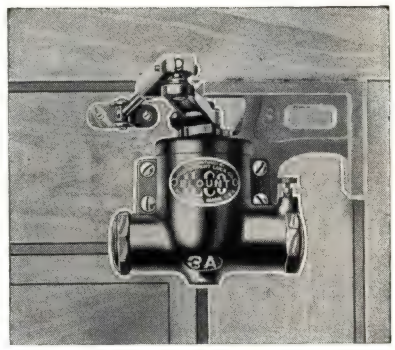
BRACKETS FOR ILCO DOOR CLOSERS



Soffit Bracket



Flush Bracket



Corner Bracket

Brackets may be applied to either right-hand or left-hand doors without change

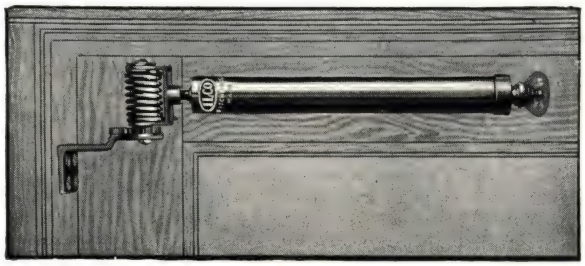
Ilco door closers are the result of many years of development and improvement by the originators of the liquid door closer. The present models incorporate the most widely accepted features and improved construction.

The patented wrought steel combination packing nut in particular, is unquestionably one of the greatest strides in recent years toward the elimination of leakage of liquid into the spring chamber, with its resultant inefficiency.

The Ilco Blount Type door closer complies with United States Government Specifications for all bureaus, including the Navy and War Departments, and is used extensively on vessels, shore buildings, hospitals and post offices.

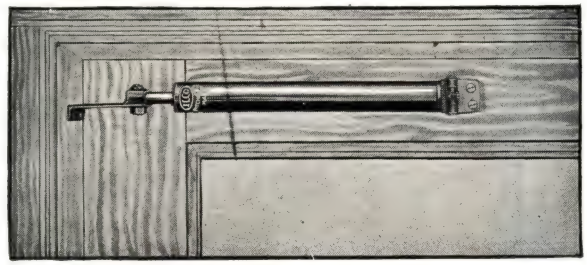
Complete catalogue will be mailed on request.

SCREEN AND COMBINATION DOOR CLOSERS



Senior

Recommended for heavier types of screen and storm doors, also for light weight inside doors, such as pantry, bathroom and toilet doors, either right or left hand. Heavy brass barrel, steel hinge and bracket, strong spring



Junior

Recommended for lighter types of screen and storm doors, also very light inside doors. Brass barrel, steel hinge and bracket, strong spring. Very simple adjustment for air checking power on both Junior and Senior models

NORTON LASIER COMPANY

Manufacturers of Door Closers

466 West Superior Street
CHICAGO, ILL.

DISTRICT OFFICES

BOSTON, MASS., C. E. Harris Co., 120 Pearl Street
CLEVELAND, OHIO, The Gesing Brothers Co., 1037 Terminal Tower Building
DALLAS, TEX., J. H. North, 1002 Woodlawn Avenue
DETROIT, MICH., D. W. Blanchard, 875 Seward Avenue
LOS ANGELES, CAL., Royal R. Moss, 1502 E. Washington Street
MEMPHIS, TENN., U. G. Owen, 130 No. McLean Street
MINNEAPOLIS, MINN., A. M. Stark, 615 So. Third Street
NEW YORK, N. Y., Door Hardware Equipment Co., 200 Varick Street
OMAHA, NEB., S. M. Hawkins, 2820 No. 33rd Street
PHILADELPHIA, PA., Kratz Hardware & Supply Co., Perry Building
PORTLAND, ORE., J. C. Hertsche, 443 Sherlock Building
ST. LOUIS, MO., Z. G. Shaw, Maryland Hotel
SAN FRANCISCO, CAL., B. R. Blackburn, 163 Second Street
TORONTO, CANADA, Toronto Lock & Mfg. Co.

Product

L. C. N. Door Closers—a complete line of closers, including Overhead Types, Concealed Floor Types, and Screen Door Types in a complete range of sizes and finishes.

Construction and Operation

L. C. N. Door Closers represent the most advanced development of the Norton Lasier Company.

Lewis C. Norton invented the first door closer in 1880 and the present-day L. C. N. Closer represents the latest development of a lifetime of effort in that direction.

The outstanding features of the L. C. N. Closers consist of a powerful coil which exerts a closing force against a liquid cushion which acts as a checking medium.



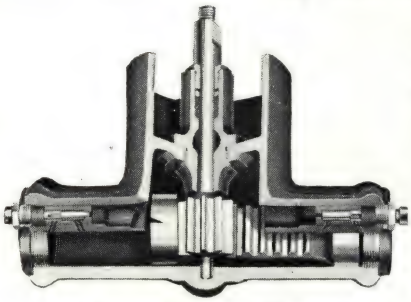
Standard L.C.N. Overhead Closer with Hold-open Feature

Two-speed control secured by one regulating screw, giving either a quick release or quiet closing.

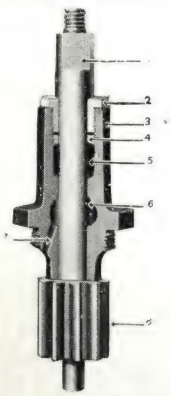
Back check action using standard screw.

Positive leak-proof shaft and packing design.

Full rack and pinion control.



Sectional View of Closer
Showing large spring housing, sturdy rack and pinion construction, and three-point bearing



1. Shaft—Highly polished special steel, ground to one ten-thousandth of an inch.
2. Tobin Bronze Bearing—At point of greatest stress secures amazing results in door closer efficiency.
3. Shaft Housing—When cemented to shell insures rigidity of shaft, consequently smooth operation of closer.
4. Gland Nut—To hold packing firmly against the shaft and shaft housing; will last for life of closer.
5. Graphite Flax Packing—Located between two large bearings to prevent side thrust and consequent leakage.
6. Air Chamber—To destroy capillary attraction; therefore no liquid allowed to reach packing No. 5.
7. Oil Duct—To return any liquid to cylinder which might creep up shaft.
8. Heavy Duty Gear—Accurately cut teeth, riveted and keyed to shaft No. 1 originating the monopiece shaft.

Detail of Shaft, Pinion, Bearings and Packing

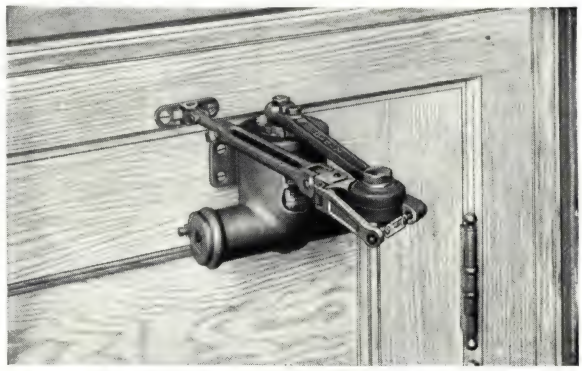
Types and Finishes

L. C. N. Closers are made in both overhead and floor type, concealed and otherwise.

L. C. N. Fusible Link Closers and regular type closers are listed as standard by the Underwriters' Laboratories, Inc.

Concealed closers located in the transom bar, as shown in enclosed cut, are the latest developments for correctly controlling any door.

Finishes of the L. C. N. Closers include any painted finish;

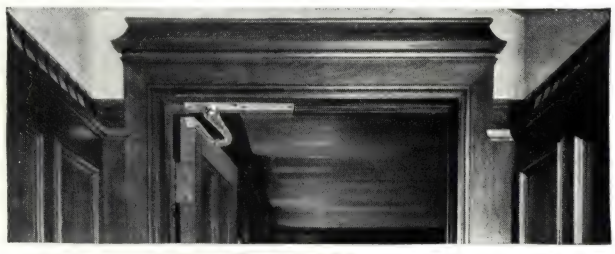


Fusible Link Closer

also plated polished and unpolished or to match samples submitted.

The general design of the L. C. N. Closer has been worked out so as to present a very pleasing appearance to the eye. The materials contained in the makeup of this closer are of the highest quality and the workmanship is of the best.

L. C. N. Closers have been adopted as standard equipment throughout in some of the architectural landmarks of America—such as the Penobscot Building, Detroit; Terminal Tower Building, Cleveland; Board of Trade Building, Chicago; and other prominent buildings.



Concealed Closer

Data and Service

The L. C. N. Catalog contains complete description and data covering sizes, types, and prices. All contract installations will be adjusted by our service department. Closers are positively guaranteed to operate and control doors satisfactorily for two years.

A demonstration of L. C. N. Closers can be arranged without expense or inconvenience as representatives are available in all principal cities. They will be glad to supply facts or any special data that may be required.

THE OSCAR C. RIXSON COMPANY

Manufacturers of Rixson Floor Checks, Hinges and Casement Hardware

CHICAGO, ILL.

REPRESENTATIVES

ATLANTA, GA., Luke Seawell, 144 Spring St., N. W.
LOS ANGELES, CALIF., John M. Freeman, 912 East Third St.
NEW ORLEANS, LA., Fred J. Allen, 202 Balter Bldg.
NEW YORK, N. Y., George Pariot, 101 Park Ave.
PHILADELPHIA, PA., John H. Jarvis, 608 Otis Bldg.
WINNIPEG, CANADA, D. A. McDonald, 126 Lombard St.

The Company and Its Reputation

For more than 25 years THE OSCAR C. RIXSON COMPANY has been engaged in the manufacture of improved mechanisms in builders' hardware, including floor checks, door checks, casement hardware, hinges, etc. These products have been specified and used on thousands of jobs, ranging from the moderate cost residence to the largest and most expensive types of apartment, hospital, hotel, office and monumental buildings.

Rixson Hardware Represents Quality and Practicability

The best obtainable materials are used in the manufacture of Rixson Hardware Specialties, many of which are protected by patents. Their quality and the ease with which they are installed at the job, make them welcome to both the architect and the contractor. Rixson records of long lived service assure you of that dependability which other users know so well.

Rixson Service to Architects

Representatives of THE OSCAR C. RIXSON COMPANY are fully qualified and willing to furnish every possible assistance and co-operation to architects, builders, etc. You are invited to make use of this co-operation.

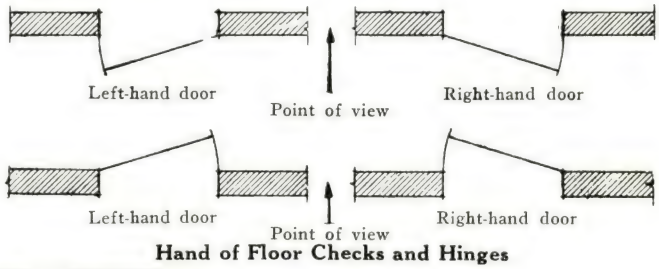
Our Engineering, Designing and Service Departments at the home office are also at your disposal and will gladly assist in the solution of special problems.

The Purpose of This Catalogue

In the following pages THE OSCAR C. RIXSON COMPANY presents concise information concerning the Rixson Floor Checks, Door Stays and Holders, Hinges and Casement Hardware. This information is presented in such manner that both detail drawings and specifications may easily be prepared therefrom, with a good idea of cost of items desired.

The Hand of Doors

In handing Rixson devices we have established the following rule: facing a door swinging away from you—if it opens to the right hand it is a right-hand door—if it opens to the left hand it is a left-hand door. See diagram below.



Hand of Floor Checks and Hinges

GENERAL INDEX

Specification Data for Floor Checks ..... **Plate 1**
Floor Checks and Closers ..... **Plates 2 to 9**
Single Acting, Offset Type ..... Plates 2, 3 and 4
Single Acting, Center Hung Type ..... Plates 5, 6 and 7
Double Acting, With and Without Automatic Hold-open Feature ..... Plates 8 and 9
Architectural Bronze and Aluminum Thresholds ..... **Plates 10 and 11**
Door Stays and Holders ..... **Plate 12**
Concealed Transom Operators ..... **Plates 13 and 14**
Hinges ..... **Plates 15, 16 and 17**
Adjustable Ball ..... Plate 15
Friction ..... Plate 16
Olive Knuckle ..... Plate 17
Casement Hardware ..... **Plates 18 to 22**
Casement Holders ..... Plate 18
Casement Operators ..... Plates 19 to 22

COMPARATIVE LIST OF SYMBOLS RELATING TO STANDARD FINISHES

United States standard	Description of finishes	Rixson			Corbin	Lock-wood	Norwalk	Penn	Russwin	Sargent	Reading	Yale
		Steel	Brass	Bronze								
USP	Primed for painting	FS										
US1B	Japanned, bright black				J	J	J	J			J	Jap.
US1D	Japanned, dead black				D	JF				J	DJ	
US2G	Galv'd electro	F2			G	Z	G	Gal	G		GL	
US3	Brass or brass plated, bright	F4P	AP		A or L	13½	1B	PB	10	B	31	AZ10
US4	Brass or brass plated, dull	F5P	A1P		EA	13	K	DB	9	OB	37	AY22
US5	Brass or brass plated, oxidized	F6P	A6P		KA	43	K3	DBR	9C	OE	371	AY21
US6	Brass or brass plated, oxidized, sanded	F6PS	A6PS		SKA	51	HK3	BS7L	O9C	RD	33	AX28
US8	Antique copper mottled, bright	F12P	A12P	B12P	R	7½	O	AC	7½	AB or A5B	24	CZ27
US9	Bronze or bronze plated, bright	F7P		BP	B or N	1	1	PBZ	11	P	1	BZ10
US10	Bronze or bronze plated, dull	F1BP		B1P	DB	34	DB	DBZ	11D	OP	7	BY22
US11	Bronze or bronze plated, oxidized	F8BP		B8P	HB	23	DB3	DBZR	11C	O6P	221	BY21
US12	Bronze or bronze plated, oxidized, sanded	F8BPS		B8PS	SHB	36½		BZS7L	O11C	RP	223	BX13
US14	Nickel plated, bright	F14P	A14P	B14P	E	5	NP	PN	4	N	80	NZ10
US15	Nickel plated, dull	F15	A15	B15	DE	90	DN	DN	14	LN or L5N	77	NY10
US16	Nickel plated, sanded	F15S	A15S	B15S	SE	5S		NS		RN	78	NX10
US18	"Rustproof" black	F3			F	31	RI	RP	46	BB	87	FX80
US19	Dull black plated, oxidized, sanded	F13S	A13S	B13S	KF	6	HW	IRP	47	BN	87½	FX90 or BX80
US20	Statuary bronze	F9P	A9P	B9P	KB	38	2	PBZ4	2	A	2	BY25
US20A	Statuary bronze, dark	F10P	A10P	B10P	LB	2	2D	BBZ6	2D	A3B	2	BY65
US21	Statuary bronze, sanded	F9PS	A9PS	B9PS	SKB	38S	H2	BZS4L	O2	RA	2½	BX25
US22	Verd antique	F16PS	A16PS	B16PS	V	85	VA	V	36	V2A or VA	94	BX67
US23	Silver plated, oxidized, dull		A32PS	B32PS	KS	72	S3	DSR	8C	LS	42	SY52
US24	Gold plated, dull		A34PS	B34PS	DG	80	T	DG	19	G	57	GY10
US25	Nickeline, white metal, bright				NK	95	NM	Nickeline	44	EM	Nicolene	NZ40
US26	Bright chromium plated			B19P	CR		CP	BCH	24	CM	CP	DZ10
US26D	Dull chromium plated			B19PS	CP Dull		DCP	DCH	34	DCM	DCP	DY10
	Old iron and old iron plated	F18P	A17P	B17P								

The above list of finishes represents a fair comparison of the different manufacturers. When exact finish is wanted specify symbol of finish desired and submit sample.

RIXSON SINGLE AND DOUBLE ACTING FLOOR CHECKS

For nearly a quarter of a century this Company has been successful manufacturers of floor checks and consequently Rixson Floor Checks have become a by-word wherever a closing device is considered for the better class of entrance, vestibule and interior doors. To substantiate the above it is only necessary to consider the thousands of office buildings, monumental structures, stores of all kinds, from the most pretentious to the ordinary, as well as the countless thousands of residences where Rixson Floor Checks are on duty at all times closing doors innumerable times daily without the slightest attention. This bears witness to the "In-built Quality" of Rixson Products.

As types of buildings change and new conditions present themselves this company is always found studying these changed conditions trying to meet them with "Rixson Quality" Products. This company will never present an article not measuring up to "Rixson Standard" and even though a device becomes obsolete we will always endeavor to maintain a service on it. This should be considered when specifying as it assures *permanent satisfaction.*

NOTE: Architects are urged to specify by name and number assuring Genuine Rixson Products.

A SUGGESTED SPECIFICATION FOR FLOOR CHECKS

(1) All exterior and vestibule double acting doors shall be provided with Rixson Double Acting Floor Check—

No. 30 for doors not over 2 ft. 10 in. wide.

No. 40 for doors not over 3 ft. 6 in. wide.

(2) Interior double acting doors unless otherwise mentioned shall be provided with Rixson Double Acting Floor Check—

No. 10 for doors not over 2 ft. 8 in. wide.

No. 15 for doors not over 3 ft. wide

(Where hold-open feature is wanted.)

No. 12 for doors not over 2 ft. 8 in. wide.

No. 16 for doors not over 3 ft. wide.

(Where doors are not wanted with hold-open feature.)

(2A) Interior double acting doors as called for on plans and in details shall be provided with Rixson Double Acting Floor Check No. 30.

(This specification for interior doors subject to severe use or of such size that Nos. 10-12, 15-16 would not be suitable.)

(3) All exterior and vestibule single acting doors shall be provided with Rixson Single Acting Floor Check—

No. 20, 120 or 21 as called for in details for doors not over 2 ft. 8 in. wide.

No. 25, 125 or 26 as called for in details for doors not over 3 ft. 6 in. wide.

(4) All exterior and vestibule doors shall be provided with Rixson Door Stay and Holder No. 38 in bronze metal of correct size.

(5) All interior single acting self-closing doors shall be provided with Rixson Single Acting Floor Check—

No. 18 or 18½ (as required by detail) for ordinary doors not over 3 ft. wide.

(6) Interior single acting self-closing doors as called for on plans and in details shall be provided with Rixson Single Acting Floor Check—

No. 20 or 21.

(This specification for doors over 3 ft. wide or subject to severe use where No. 18 or 18½ would not be suitable.)

Note: *See Plates Nos. 10 and 11 for Architectural Bronze and Aluminum Thresholds designed for use with Rixson Floor Checks.*

SINGLE ACTING FLOOR CHECK

NO. 18—OFFSET TYPE (PATENTED)

For Interior Doors

Note: No. 18 recommended for use with interior, single acting, self-closing doors not over 3 ft. wide.

For interior doors over 3 ft. wide or doors subject to severe use, Rixson Single Acting Floor Check No. 20 is recommended.

This check is patterned after the Rixson Nos. 20 and 25 Single Acting Floor Checks which have proven their ability to furnish highly satisfactory service for entrance and vestibule doors over a period of many years. (See following page.)

Like the larger (Nos. 20 and 25) models, the No. 18 check is built of the best grade forgings, castings, etc., and offers equally satisfactory service in operation.

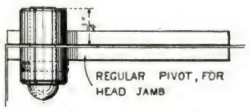
Special pivot No. 19 should be specified as an intermediate pivot for doors 8 ft. high or over. Segment head doors require special pivot No. 19 in place of regular top pivot.

See illustrations below for construction details, dimensional drawings, etc.

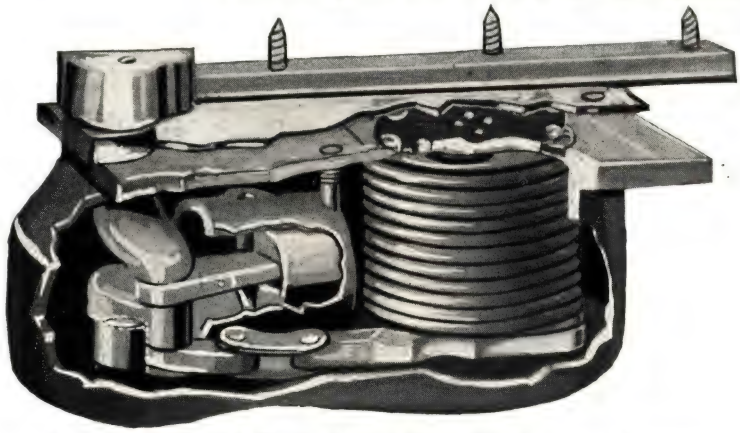
PRICE LIST RIXSON NO. 18 SINGLE ACTING FLOOR CHECK

No.		Each
18	With dull or polished brass or bronze floor plate and malleable iron top pivot and steel arm cap primed for paint.....	$21.00
18	With dull or polished brass or bronze floor plate, bronze top pivot and arm cap.....	24.00

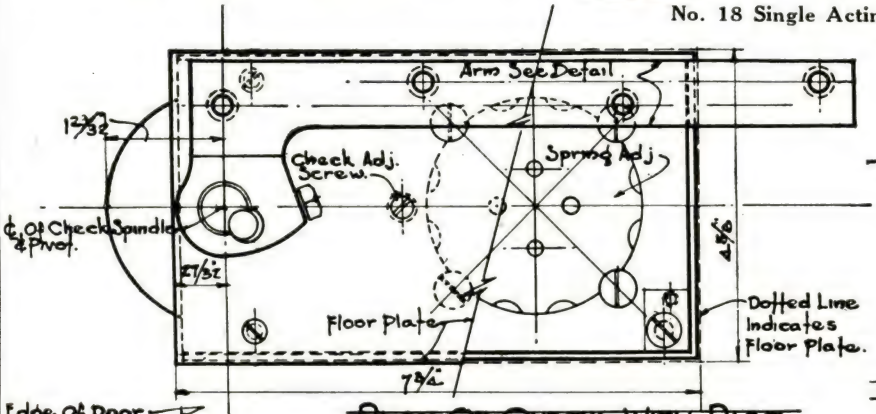
For ordinary plated finishes, except as noted below, add $1.00.
For chromium and verd antique, add $3.00.
For white metal and aluminum floor plate, top pivot and arm cap, add $3.00.
Gold and silver plating, price on application.
For No. 19 pivot in addition to regular top pivot, add $5.00.
No. 19 pivot furnished in place of bronze top pivot for segment head doors at no additional cost.
The above prices include cement boxes.
Dull brass furnished unless otherwise ordered.
See plate No. 1 for suggested specification for floor check.
When ordering state hand. (See first page regarding hand.)

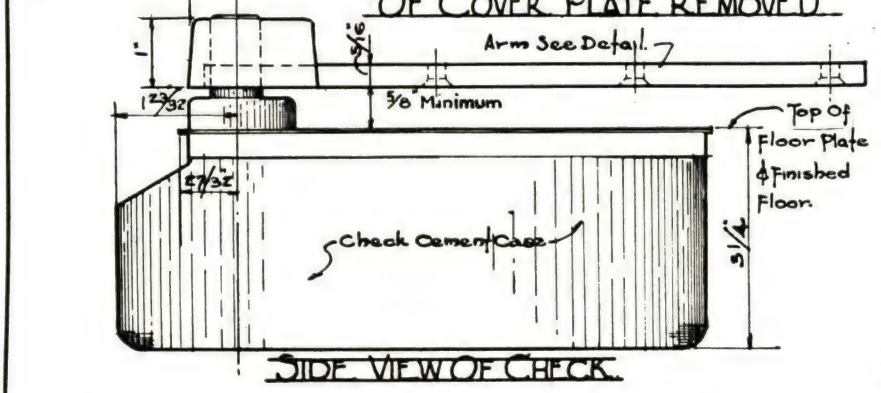


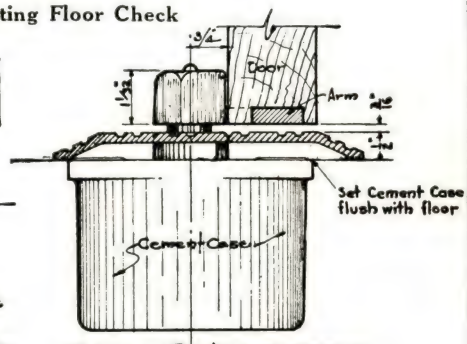
Regular Top Pivot for No. 18 Check



No. 18 Single Acting Floor Check

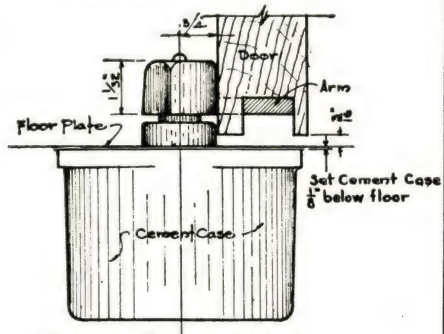






METHOD OF INSTALLING CHECK WITH RIXSON THRESHOLD

Note: For further details on thresholds see Drawing T-5-6-700



METHOD OF INSTALLING CHECK WITH FLOOR PLATE

RIXSON	FLOOR CHECK—SINGLE ACTING—OFFSET TYPE For Interior Doors	Plate 2

SINGLE ACTING FLOOR CHECKS

NO. 20 AND NO. 25—OFFSET TYPE (PATENTED)

For Entrance and Vestibule Doors

Note: No. 20 is recommended for use with exterior and vestibule single acting doors not over 2 ft. 8 in. wide. Also used for the heavier and larger interior doors for which Nos. 18 and 18½ are not suitable.

No. 25 is recommended for exterior and vestibule single acting doors not over 3 ft. 6 in. wide.

Rixson Single Acting Floor Checks Nos. 20 and 25 permit entrance and vestibule doors to open all the way back (180 degrees) and will close the doors from that point. To meet varying conditions the spring power is adjustable (see drawing below) so as to secure any desired spring tension. The whole device is filled with Rixson Checking Fluid, which has high lubricating qualities and will not freeze at 40 degrees below zero. The top pivot is made of special, tough, hard bronze and the pivot-bolt is of case-hardened steel.

Should the door drag on the threshold or on the head jamb, the connection between the drop-forged steel arm on which the door rests and the spindle of the device is such that the door can be raised or lowered at any time. The value of this adjustment feature is readily appreciated.

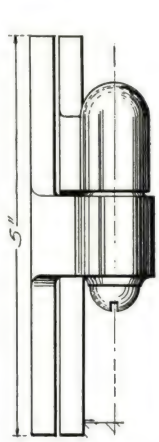
Cast metal doors weighing 475 lb. have been mounted on this floor check with entire satisfaction because the weight of the door comes on a drop-forged and case-hardened steel spindle which is supported in the device on ten ¼-in. ball bearings which run in a case-hardened ball race.

Special pivot No. 19 should be specified as an intermediate pivot for doors 8 ft. high or over. Segment head doors require special pivot No. 19 in place of regular top pivot.

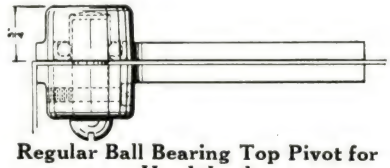
PRICE LIST RIXSON NOS. 20 AND 25 SINGLE ACTING FLOOR CHECKS

No.	Description	Each
20	For vestibule doors and for outside doors not over 2 ft. 8 in. x 8 ft. dull or polished brass or bronze	$30.00
25	For large vestibule doors and for outside doors not over 3 ft. 6 in. x 8 ft. dull or polished brass or bronze	38.00
19	Intermediate pivot	4.50

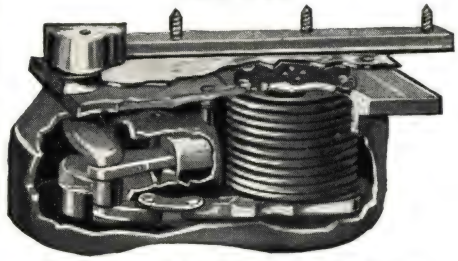
For ordinary plated finishes other than noted below, add $1.00.
For chromium and verd antique, add $3.00.
For white metal and aluminum floor plates and pivots, add $4.00.
Gold and silver plating price on application.
Above prices include cement cases and regular top pivot or No. 19 pivot in place of regular pivot.
Packed with wood screws unless otherwise ordered.
Finish, dull brass unless otherwise specified.
See Plate No. 1 for suggested specification for floor checks.
In ordering state hand wanted. (See first page regarding hand.)
Can be supplied with Hold-open feature when so ordered. State degree of Hold-open.



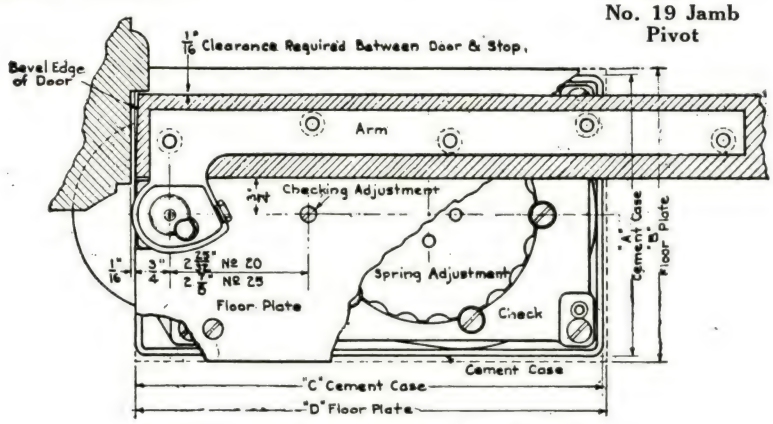
No. 19 Jamb Pivot



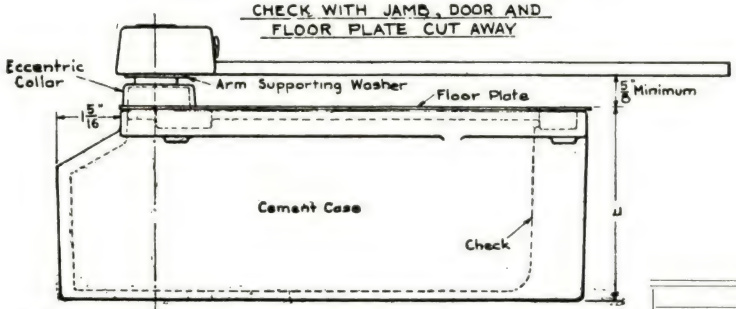
Regular Ball Bearing Top Pivot for Head Jamb



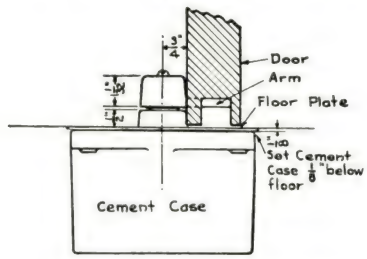
Nos. 20 and 25 Single Acting Floor Checks



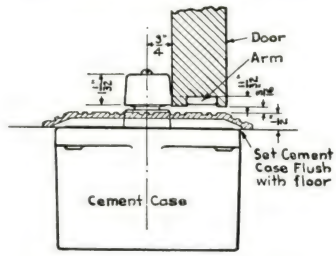
CHECK WITH JAMB, DOOR AND FLOOR PLATE CUT AWAY



BLUE PRINT TEMPLATES FURNISHED ON REQUEST



METHOD OF INSTALLING CHECK WITH FLOOR PLATE



METHOD OF INSTALLING CHECK WITH RIXSON THRESHOLD

DIMENSION IN INCHES

	A	B	C	D	E
No. 20 Check	5	5 1/16	8 25/32	8 13/16	3 5/8
No. 25 Check	5 7/8	6 1/8	9 13/16	9 7/8	4 1/16

FLOOR CHECKS—SINGLE ACTING—OFFSET TYPE
For Entrance and Vestibule Doors

Plate 3

SINGLE ACTING FLOOR CHECKS NO. 120 AND NO. 125

OFFSET TYPE (PATENTED)

For Entrance and Vestibule Doors

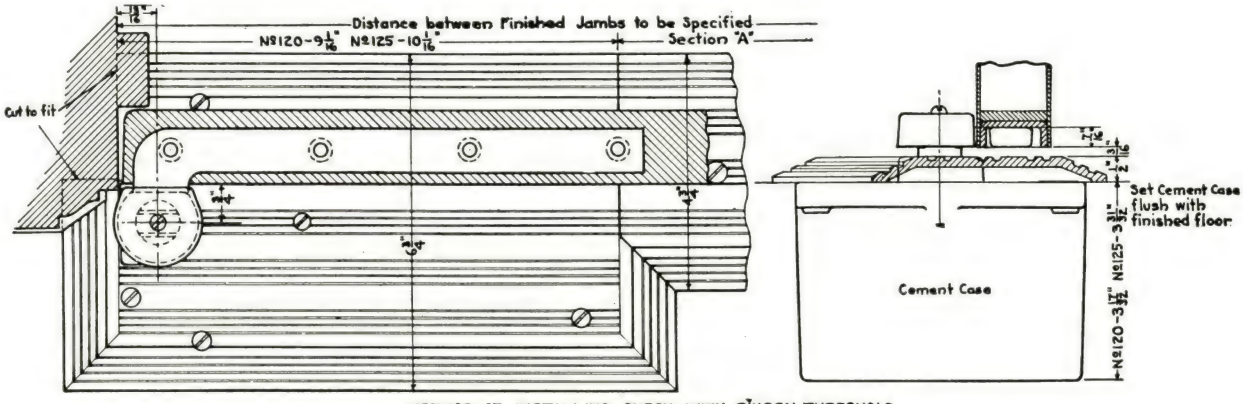
On heavy doors and on doors where the vertical adjustment afforded by the regular No. 20 and No. 25 floor checks is not desirable Rixson No. 120 and No. 125 serves a very definite purpose as the door cannot drop down on the spindle of the check and ride on the threshold. The spindle of floor checks No. 120 and No. 125 is tapered as in the single acting floor checks Nos. 21 and 26 and double acting floor checks Nos. 30 and 40 and a specially designed arm fits snugly upon it. The entire weight of the door must rest upon the spindle of the check.

The regular ball bearing top pivot as furnished with No. 20 and No. 25 floor checks (see Plate 3) is used with these checks and when advisable the Rixson Intermediate Pivot No. 19 (Plate 3) can be used but the pivot pin must be retracted so that no part of the weight of the door rests upon it.

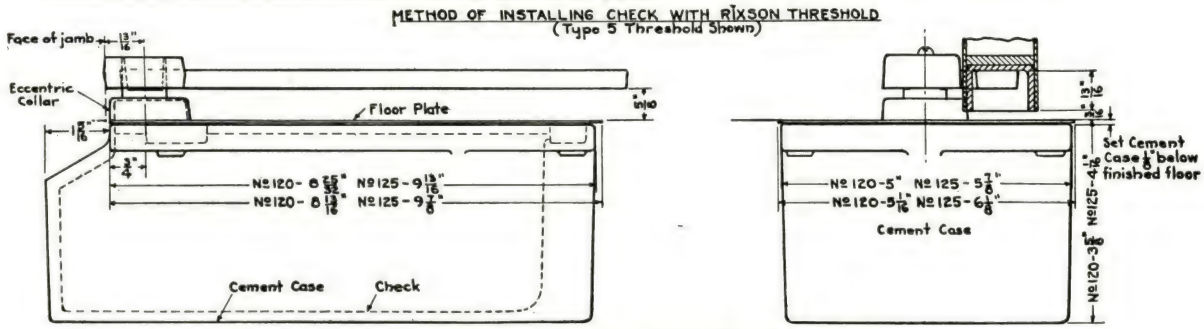
When regular top pivot is used this check is also suitable for doors of a minimum thickness of 1⅜ in. When No. 19 side pivot is used minimum thickness of door can be 1½ in.

Price same as No. 20 and No. 25, respectively.

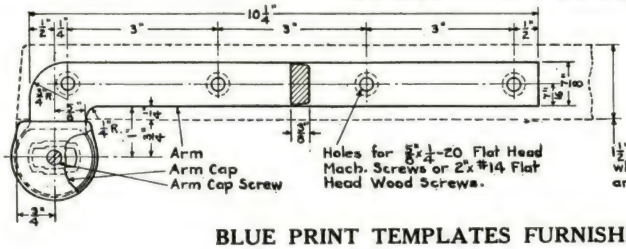
Can be supplied with Hold-open feature when so ordered. State degree of Hold-open.



METHOD OF INSTALLING CHECK WITH RIXSON THRESHOLD
(Type 5 Threshold Shown)



METHOD OF INSTALLING CHECK WITH FLOOR PLATE



Note: For further information on thresholds see Drawing T-5-6-700. No. 120 & 125 Checks take the same thresholds as No. 20 & 25 For information on No. 19 Pivot and No. 20-5 Top Pivot see Drawing T-20-5.

BLUE PRINT TEMPLATES FURNISHED ON REQUEST

SINGLE ACTING FLOOR CHECK

NO. 18½—CENTER HUNG TYPE (PATENTED)

For Interior Doors and Office Rail Gates

Note: No. 18½ is recommended for use with interior single acting, self-closing doors not over 3 ft. wide.

For interior doors over 3 ft. wide or doors subject to severe use, Rixson Single Acting Floor Check No. 21 is recommended.

The center hung arm design of No. 18½ check eliminates all hardware from either face of the door.

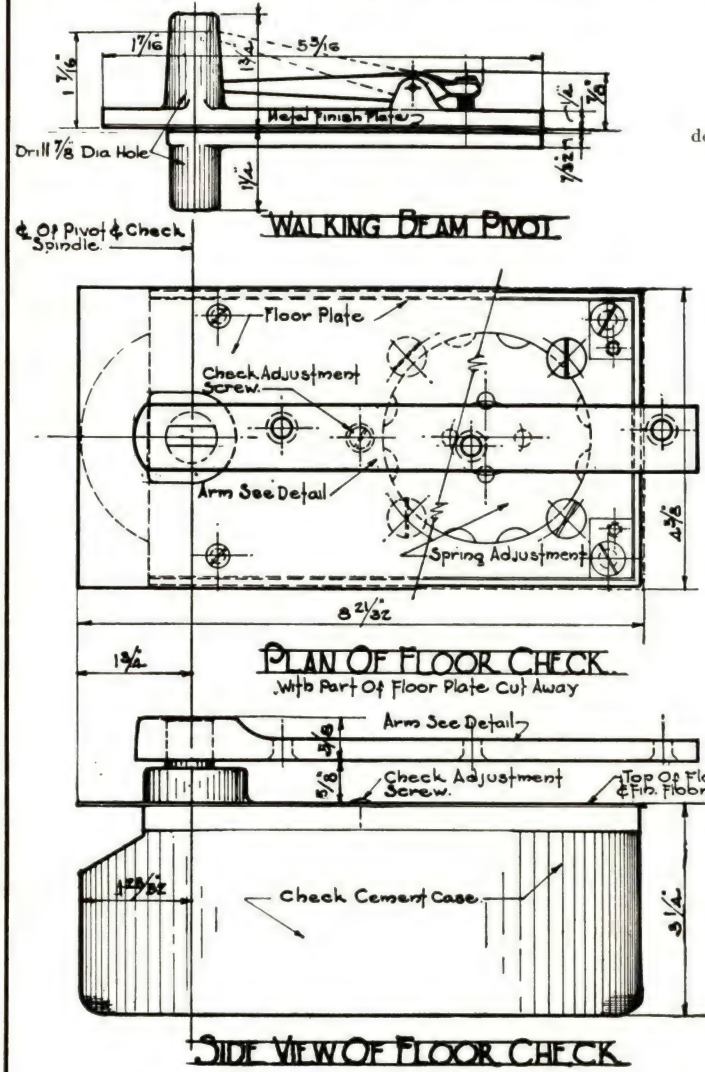
This check is identical in construction to the Rixson No. 18 Single Acting Floor Check (Offset Type) except that it has a centering arm and pivot for use on doors where the offset type of check is not desirable.

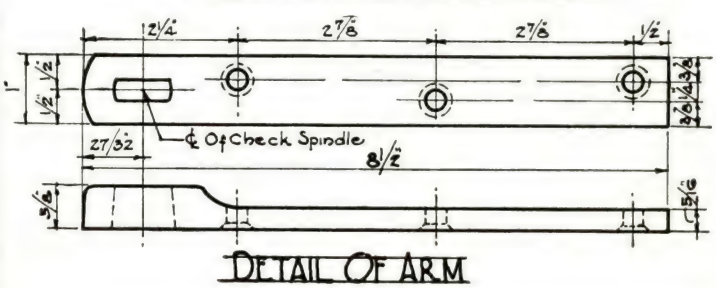
For Office Rail Gates—When ordering for use on office rail gates, prefix the letter "G" to the No. 18½, so that the special bronze rail gate top pivot and arm will be furnished without additional charge. (See detail G-10 treatment, Plate 8.)

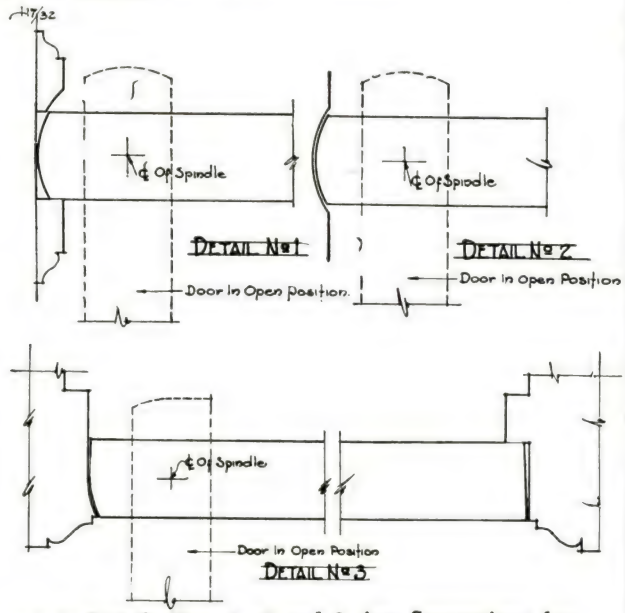
PRICE LIST RIXSON NO. 18½ SINGLE ACTING FLOOR CHECK

No.	Description	Each
18½	In dull or polished brass or bronze finish.....	$21.00
G-18½	In dull or polished brass or bronze finish.....	24.00

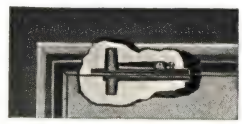
For ordinary plated finishes except as noted below, add $1.00.
For chromium and verd antique, add $3.00.
For white metal and aluminum floor plate and pivot, add $3.00.
Gold and silver plating, price on application.
Dull brass furnished unless otherwise ordered.
The above prices include cement box.
When ordering state hand. (See first page regarding hand.)
See plate No. 1 for suggested specification for floor check.
Can be supplied with Hold-open feature when so ordered. State degree of Hold-open.



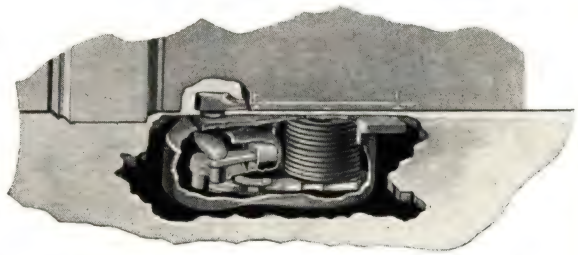




Details Nos. 1, 2 and 3 Are Suggestions for Detailing Doors Using Center Hung Type Single Acting Floor Checks



Walking Beam Top Pivot



No. 18½ Single Acting Floor Check

SINGLE ACTING FLOOR CHECKS

NO. 21 AND NO. 26—CENTER HUNG TYPE (PATENTED)

For Entrance and Vestibule Doors

Note: No. 21 is recommended for use with exterior and vestibule single acting doors not over 2 ft. 8 in. wide. Also used for the heavier and larger interior doors for which Nos. 18 and 18½ are not suitable.

No. 26 is recommended for exterior and vestibule single acting doors not over 3 ft. 6 in. wide.

Rixson Single Acting Floor Checks Nos. 21 and 26 are suitable for use with entrance and vestibule doors opening to ninety degrees, and for doors without mullions, as shown by drawings below.

By the use of this type of floor check the usual projecting knuckles of the bottom arm and top pivot are eliminated and the floor plate centers under the door.

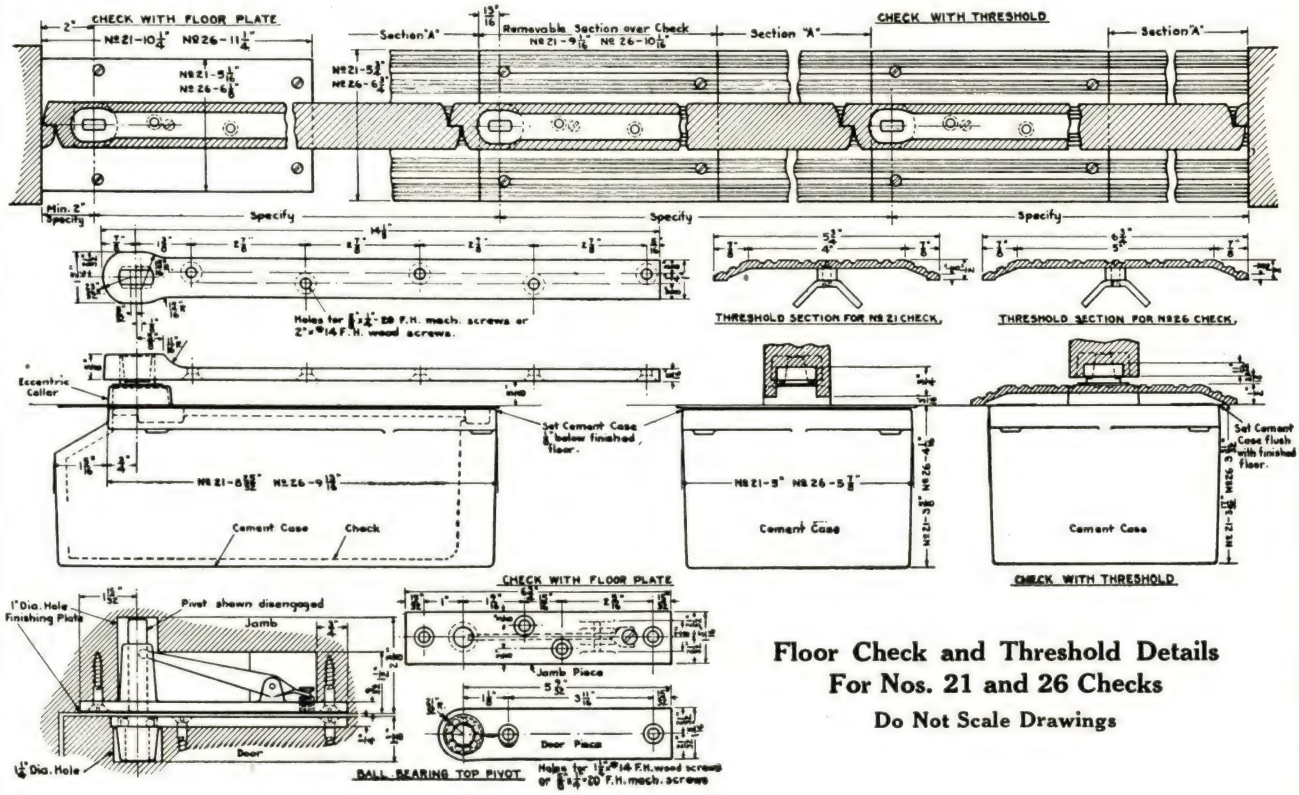
Floor plates of Nos. 21 and 26 are made to extend back over the depressed portion of cement case and can be cut to fit jamb at the job.

Operating mechanism is the same as in our Nos. 20 and 25, respectively, the only difference being in the manner of application.

PRICE LIST RIXSON NOS. 21 AND 26 SINGLE ACTING FLOOR CHECKS

No.	Description	Each
21	Dull or polished brass or bronze.....	$30.00
26	Dull or polished brass or bronze.....	38.00

For ordinary plated finishes except as noted below, add $1.00.
For chromium and verd antique, add $3.00.
For white metal and aluminum floor plate, add $3.00.
Gold and silver plating, price on application.
The above prices include cement boxes.
When ordering state hand. (See first page regarding hand.)
See Plate No. 1 for suggested specification for floor checks.
Can be supplied with Hold-open feature effective at 90 degrees when so ordered.



Floor Check and Threshold Details For Nos. 21 and 26 Checks

Do Not Scale Drawings

RIXSON	FLOOR CHECKS—SINGLE ACTING—CENTER HUNG TYPE For Entrance and Vestibule Doors	Plate 6

SINGLE ACTING FLOOR CHECKS NO. 21 AND NO. 26

CENTER HUNG TYPE (PATENTED)

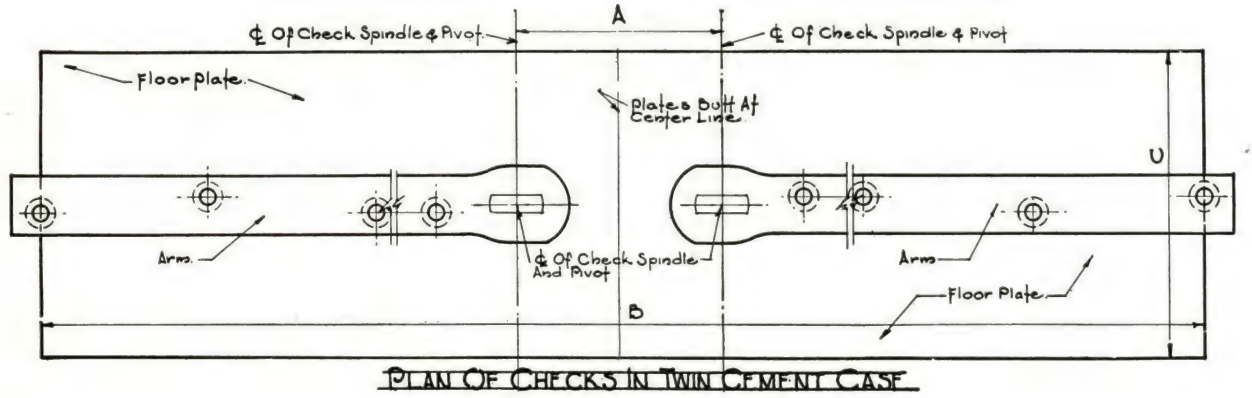
For Entrance and Vestibule Doors Hung Back to Back

On doors hung back to back without mullions Rixson No. 21 and No. 26 single acting center hung type floor checks with twin cement cases give greater opening width between doors at right angles: a feature very important on theatres, office and public buildings. Installation is very simple. Rabbets and stops can be designed the same as for regular No. 21 and No. 26 floor checks depending on layout of doors.

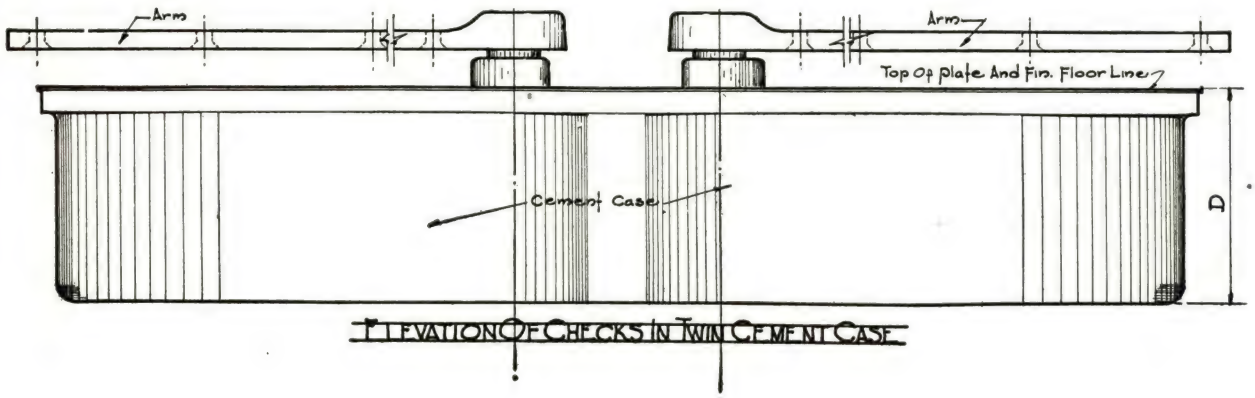
Due consideration must be given to clearance required for push and pull bars.

Price same as regular No. 21 and No. 26.

Can be supplied with a Hold-open feature effective at 90 degrees when so ordered.



PLAN OF CHECKS IN TWIN CEMENT CASE



ELEVATION OF CHECKS IN TWIN CEMENT CASE

DIMENSIONS FOR NO. 21 AND 26 FLOOR CHECKS IN TWIN CEMENT CASE

Dimensions in Inches

	A	B	C	D
Check No. 21....	3½	20	5 1/16	3 5/8
Check No. 26....	3½	22	6⅛	4 1/16

BLUE PRINT TEMPLATES FURNISHED ON REQUEST

DOUBLE ACTING FLOOR CHECKS

NO. 10 AND NO. 15 WITH AUTOMATIC HOLDER (PATENTED)
NO. 12 AND NO 16 WITHOUT AUTOMATIC HOLDER (PATENTED)

For Interior Doors and Office Rail Gates

Note: For interior, double acting doors not over 2 ft. 8 in. wide, we recommend:
No. 10 where hold open feature is desired;
No. 12 where hold open feature is not desired.
For interior, double acting doors over 2 ft. 8 in. wide but not exceeding 3 ft. in width, we recommend:
No. 15 where hold open feature is desired;
No. 16 where hold open feature is not desired.
For interior, double acting doors over 3 ft. wide, or interior doors subject to severe use, Rixson Double Acting Floor Check No. 30 is recommended.

Rixson Double Acting Floor Checks Nos. 10, 12, 15 and 16 have been specially designed for pantry doors, gates in office railings, etc. They permit the door to swing in both directions, yet bring it quietly to rest at center without rebound or "flip-flap."

Nos. 10 and 15, when door is opened to 90 degrees, automatically hold the door in that position so that no door holder is required. Nos. 12 and 16 correspond in all respects to Nos. 10 and 15, respectively, *except* that they *do not* have the automatic door holding feature.

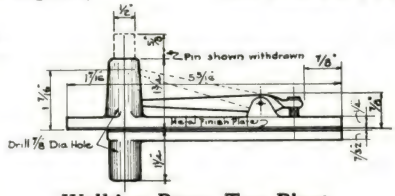
We recommend either brass or bronze natural color finish for floor plates. A cast iron floor box, which we call "cement case," must be used when the check is set in masonry floor. Cement case is furnished only when ordered.

For Office Rail Gates—When ordering for use on office rail gates, prefix the letter "G" to the number (i.e., G-10, G-15, etc.) so that the special bronze rail gate top pivot and arm will be furnished without additional charge. (See detail of G-10 treatment, below.)

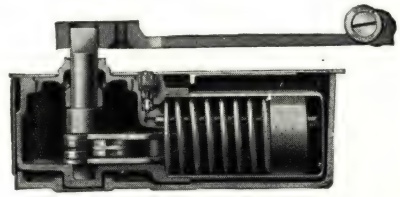
PRICE LIST RIXSON NOS. 10, 12, 15 AND 16 DOUBLE ACTING FLOOR CHECKS

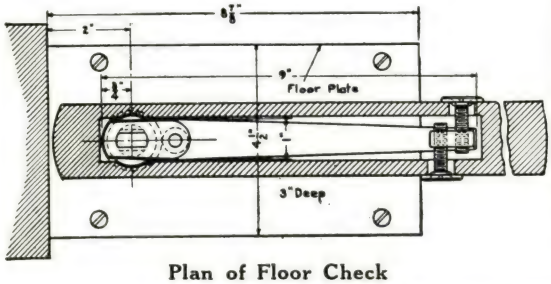
No.	Description	Each
10	With automatic holder } For Inside Doors up to 2 ft. 8 in. wide	$15.00
12	No automatic holder }	
15	With automatic holder } For Inside Doors up to 3 ft. wide	18.00
16	No automatic holder }	

Cement case, fits all four sizes $1.00.
Above prices are for dull or bright brass or bronze.
For any ordinary plated finish except as noted below, add $1.00.
For chromium and verd antique, add $2.00.
For white metal and aluminum, add $2.50.
Gold and silver plating, price on application.
See Plate No. 1 for suggested specification for floor checks.

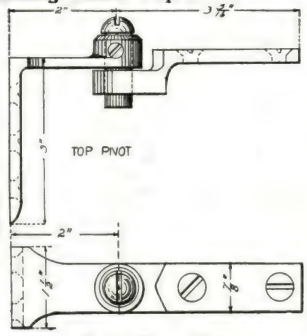


Walking Beam Top Pivot

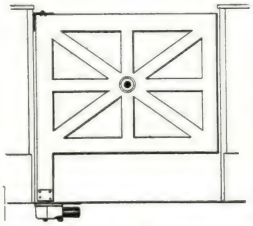

Nos. 10, 12, 15 and 16 Double Acting Floor Checks

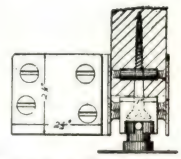


Plan of Floor Check



G-10 Top Pivot


Elevation


G10 Adjustable Bottom Shoe

JUNIOR DOUBLE ACTING FLOOR CHECK
For Light Interior Doors Only

Note: Rixson Junior is recommended for use with light interior double swing serving doors not over 2 ft. 8 in. wide.

Rixson Junior has been developed for operating the double swing serving door to pantry or dining room in the moderate cost home. For this service on light doors Rixson Junior will give the same satisfactory service as the larger floor checks, at a considerable saving in cost. Rixson Junior permits the door to swing in both directions, closing it gently without any rebound or "flip-flap."

All wearing parts are of case-hardened steel and are immersed in a lubricating liquid which also serves to check the closing speed of the door. The checking action is regulated by a needle valve which is accessible through the floor plate. An unusually durable compression spring provides the closing power.

Furnished With or Without Automatic Door Holder—When opened to right angle the Rixson Junior will automatically hold the door in that position until released by a slight push. This eliminates the necessity of a separate door holder.

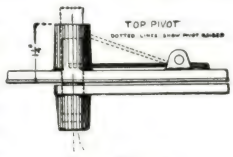
There are some doors which it is desirable to have "self-closing" at all times; Rixson Junior can be supplied *without* the hold-open feature when desired.

Price is the same for either style.

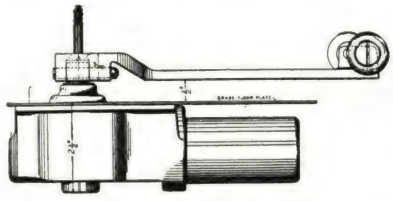
PRICE LIST RIXSON JUNIOR DOUBLE ACTING FLOOR CHECK

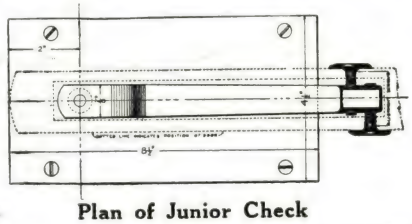
No.	Description	Each
Junior	Dull or polished brass or bronze	$10.00

Ordinary plated finishes except as noted below, add $1.00.
Chromium and verd antique, add $2.00.
White metal and aluminum, add $2.50.
Gold and silver plating, price on application.
Dull brass furnished unless otherwise ordered.
Cement case, $1.00.
A cast iron floor box, which we call "cement case" must be used when the check is set in masonry floors. Furnished on order only.



Top Pivot


Elevation of Junior Check


Plan of Junior Check

RIXSON

FLOOR CHECKS—DOUBLE ACTING
For Interior Doors

Plate 8

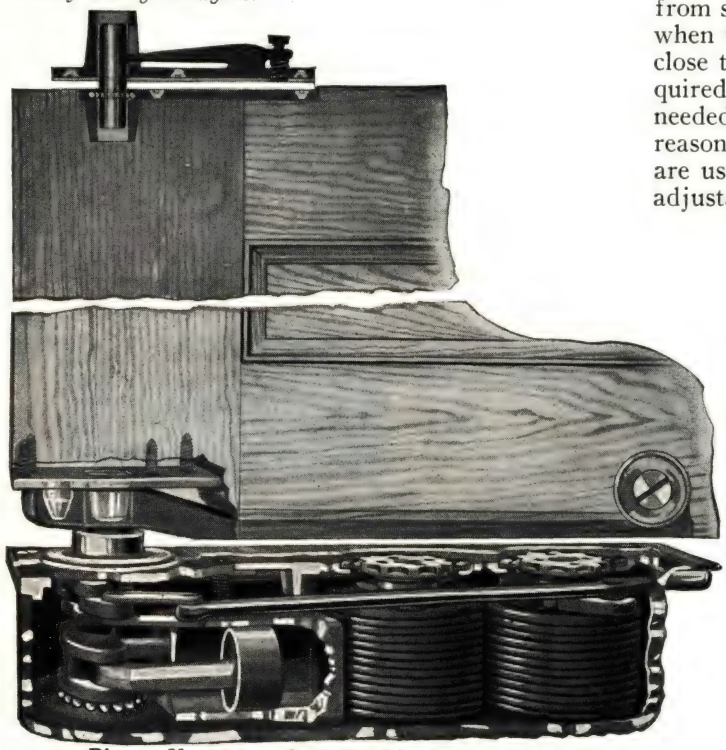
DOUBLE ACTING FLOOR CHECKS

NO. 30 AND NO. 40 (PATENTED)

For Entrance and Vestibule Doors

Note: No. 30 is recommended for use with exterior and vestibule double acting doors not over 2 ft. 10 in. wide. Also used for interior doors subject to severe use, or of such sizes that Nos. 10, 12, 15 and 16 checks would not be suitable.

No. 40 is recommended for exterior and vestibule double acting doors not over 3 ft. 6 in. wide, or on doors subjected to very strong draughts.



Rixson Nos. 30 and 40 Double Acting Floor Checks

Rixson Double Acting Floor Checks Nos. 30 and 40 are designed with two springs and two checks for the following reasons: due to the inrush of air on windy days it takes a great deal of spring power to close the door after it has been opened inward, but it takes very little checking resistance to keep the door from slamming because the wind acts as a check; but when the door is opened outward, the wind tends to close the door, so that very little spring power is required, but a great deal of checking resistance is needed to keep the door from slamming. For these reasons two springs and two checking mechanisms are used in this design, each spring and check being adjustable independently.

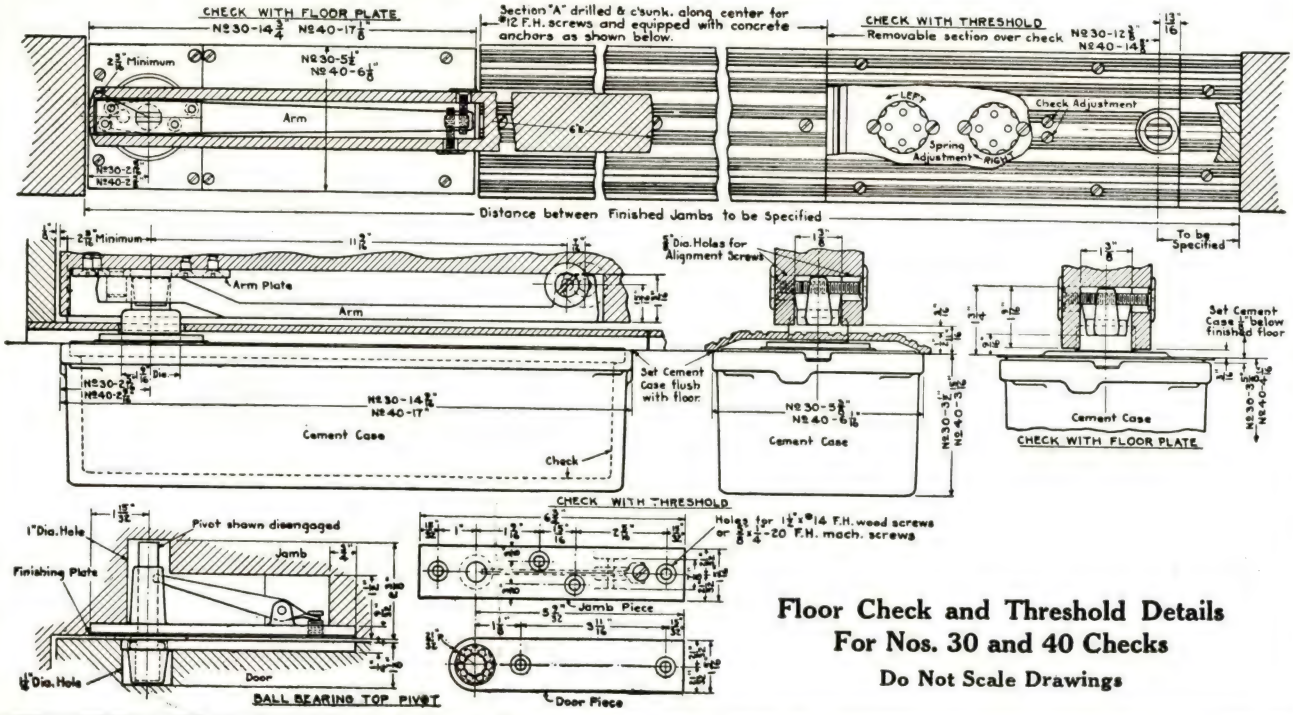
The spindle, links and other parts subjected to wear are of drop-forged steel and case hardened. The spindle runs on $\frac{5}{16}$-in. steel balls and the whole device is filled with our non-freezing checking fluid which possesses high lubricating qualities.

We recommend either brass or bronze, natural color finish for floor plates.

PRICE LIST RIXSON NOS. 30 AND 40 DOUBLE ACTING FLOOR CHECKS

No.	Description	Each
30	For outside doors not over 2 ft. 10 in. x 7 ft. 6 in.....	$44.00
40	For outside doors not over 3 ft. 6 in. x 7 ft. 6 in.....	60.00

For ordinary plated finishes except as noted below, add $1.50.
For chromium and verd antique, add $3.00
For white metal and aluminum, add $4.50.
Gold or silver, price on application.
Above prices include cement case.
Dull brass furnished unless otherwise ordered.
Use No. 40 on doors subjected to heavy draughts.
See Plate No. 1 for suggested specifications for floor checks.



Floor Check and Threshold Details For Nos. 30 and 40 Checks

Do Not Scale Drawings

RIXSON	FLOOR CHECKS—DOUBLE ACTING For Entrance and Vestibule Doors	Plate 9

ARCHITECTURAL THRESHOLDS OF RIXSON DESIGN

BRONZE **ALUMINUM**

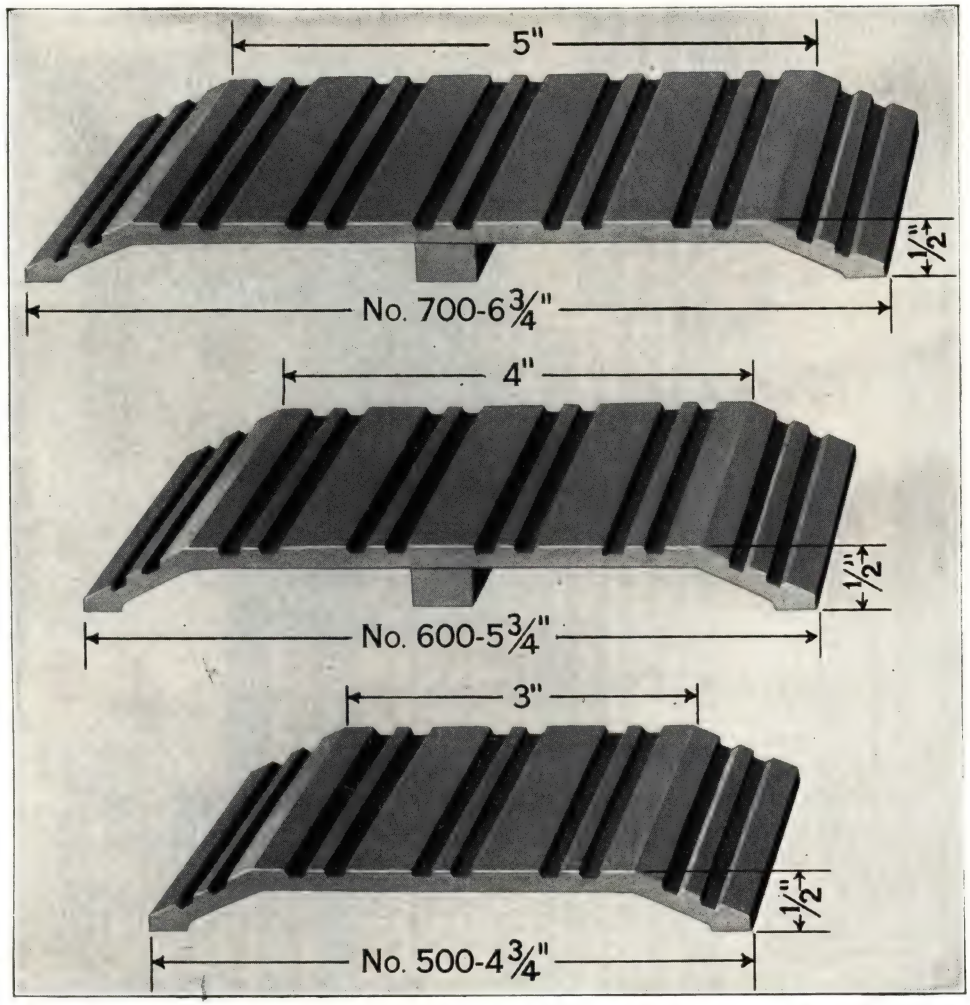
EXTRUDED (PATENT PENDING)

A symmetrically pleasing design of threshold adapted for use with Rixson Floor Checks or where floor checks are not used.

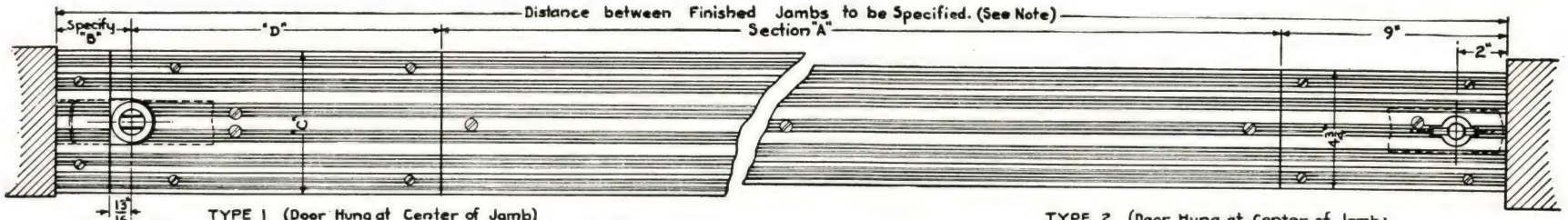
When considering thresholds and floor checks it is essentially logical to specify Rixson Floor Checks and Rixson Thresholds by number and type assuring the utmost in satisfaction and quality.

This Company, being the most successful manufacturers of floor checks and with the longest experience, is eminently qualified to furnish thresholds as an installation integral with floor checks.

NOTE: See page 12—Plate 11 for details of thresholds for use with Rixson Floor Checks



The Pleasing Design of Rixson Threshold Should Guarantee Its Use Also Where Floor Checks Are Not Required

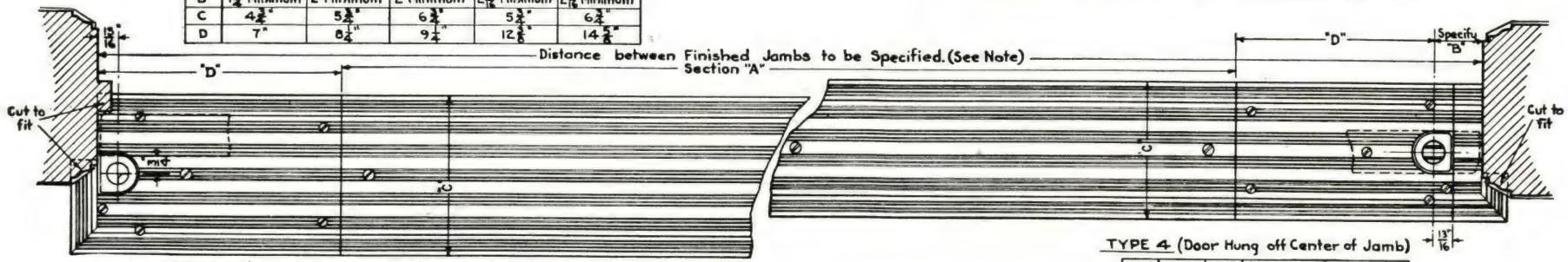


TYPE 1 (Door Hung at Center of Jamb)

	18"	21	26	30	40
B	1¾" Minimum	2" Minimum	2" Minimum	2 7/16" Minimum	2 9/16" Minimum
C	4 3/4"	5 3/4"	6 3/4"	5 3/4"	6 3/4"
D	7"	8 1/16"	9 1/4"	12 5/8"	14 5/8"

TYPE 2 (Door Hung at Center of Jamb)

JUNIOR	10	12	15	16

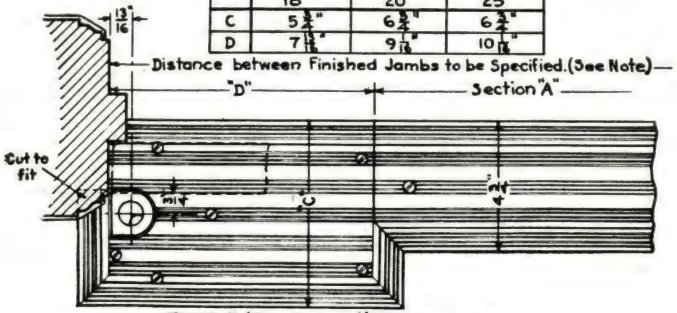


TYPE 3 (Door Hung off Center of Jamb)
Standard for doors 1¾" and less in thickness

	18	20	25
C	5 3/4"	6 3/4"	6 3/4"
D	7 15/16"	9 1/16"	10 1/16"

TYPE 4 (Door Hung off Center of Jamb)

	18"	21	26
B	1¾" Minimum	2" Minimum	2" Minimum
C	4 3/4"	5 3/4"	6 3/4"
D	7"	8 1/4"	9 1/4"



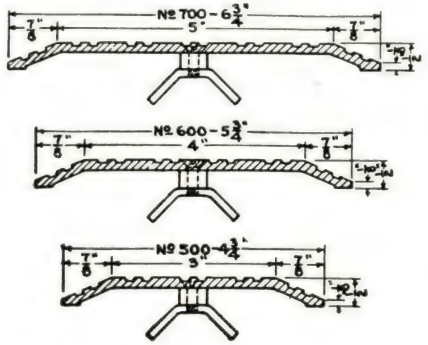
TYPE 5 (Door Hung off Center of Jamb)
Standard for doors 1¾" and less in thickness

	20	25
C	6 3/4"	6 3/4"
D	9 1/16"	10 1/16"

SECTION "A"

When specified with Concrete Anchors – is drilled & c'sunk. along center for #12 Oval Head screws.

When specified with Wood Screws – is drilled & c'sunk. along each edge for 1½" x #12 Oval Head wood screws.



IMPORTANT

The EXACT DISTANCES between FINISHED JAMBS, (not door stops), and between CHECK SPINDLES and FINISHED JAMBS must be specified. We are NOT RESPONSIBLE if the length ordered does not fit the opening.

In setting thresholds, the floor checks and cement cases should be at hand. The entire assembly should be blocked up in the door opening so that the check spindles are properly located and the sections of threshold line up perfectly.

When pouring concrete floors openings should be left between jambs so that checks and threshold may be grouted in accurately after the finished jambs are in place.

CAUTION

Template drawings are revised from time to time. We are not responsible for difficulties arising from the use of obsolete drawings. Always request our latest print for each installation.

DO NOT SCALE DRAWINGS

THRESHOLD DETAILS
FOR USE WITH RIXON FLOOR CHECKS

RIXSON

ARCHITECTURAL BRONZE AND ALUMINUM THRESHOLDS OF RIXSON DESIGN

Extruded (Patent Pending)

Plate 11

DOOR STAYS AND HOLDERS

NO. 38 AND NO. 39 (PATENTED)

For Holding Doors Open

Note: We recommend Rixson (No. 38) (No. 39) Door Stay and Holder for all exterior and vestibule doors.

Because of the special release feature embodied in the No. 38 holder damage cannot result to either door or holder when the door is thrown open violently or forced shut without releasing the thumb turn.

The curved spring arms of Rixson Door Stays and Holders furnish a shock absorbing action when the door is opened, relieving the strain on the hinges. Entrance doors to public buildings, roof doors opening against brick reveals, etc., require the protection this device affords.

Made in two styles, as follows:

No. 38 only holds the door open when a thumb piece "E" is turned. (See Fig. 1.)

No. 39 holds the door open automatically; it has a wedge shaped stationary block that engages spring arms "B" when the door is pushed open. It is released by a slight pull.

Heavy traffic doors, or doors made of soft wood, should have anchor piece "C" attached with bolts through door. (See Fig. 2.)

PRICE LIST RIXSON DOOR STAYS AND HOLDERS NOS. 38 AND 39

Size, in.	Suitable for doors of following widths	Price, each		
		Steel		
		Electro gal. or black rustless	Gal. and painted statuary bronze	Phosphor bronze
23	2 ft. 2 in. to 2 ft. 5 in.	$4.60	$5.00	$ 8.00
27	2 ft. 6 in. to 2 ft. 9 in.	4.75	5.20	8.50
31	2 ft. 10 in. to 3 ft. 2 in.	5.00	5.50	9.00
36	3 ft. 3 in. to 3 ft. 8 in.	5.50	6.00	10.00

Bolts with nuts and washers for anchor piece "C," add to list for steel $0.15.

Add to list for bronze $0.30.

Plating on phosphor bronze only, finishes B8P to B14P, add to list $1.50.

Chromium plate on phosphor bronze only, add to list $3.00.

Packed 2 in a box with screws.

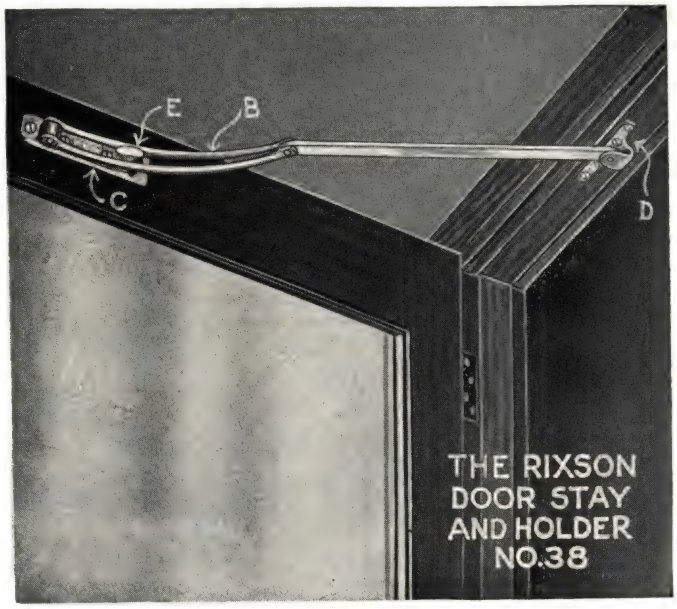
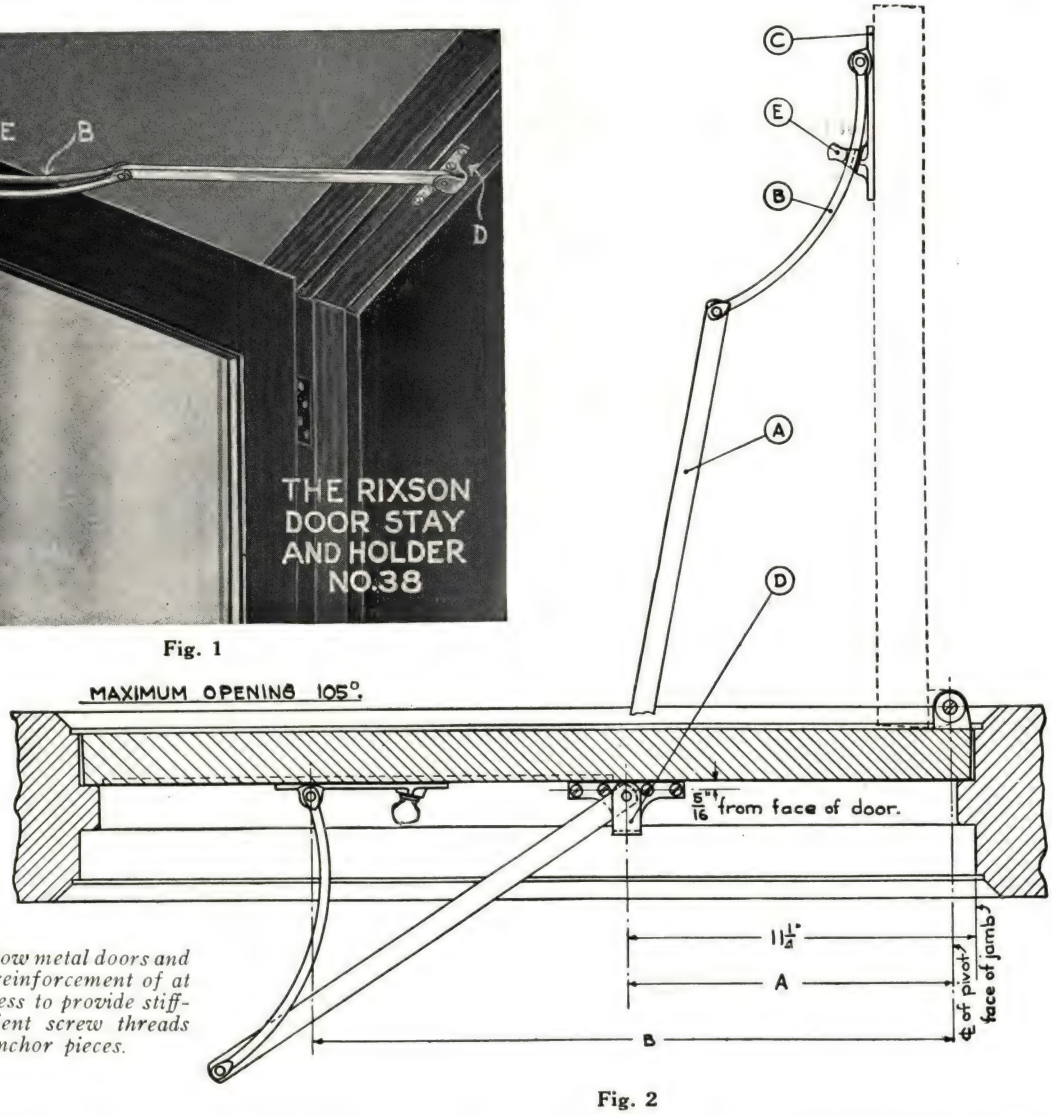


Fig. 1



Note: Hollow metal doors and trim require a reinforcement of at least 3/16" thickness to provide stiffness and sufficient screw threads for mounting anchor pieces.

Fig. 2

CONCEALED TRANSOM OPERATOR NO. 48
(PATENTED)

Rixson Concealed Transom Operator No. 48 is used for operating transoms over interior doors in hotels, hospitals, office and public buildings, etc. *It is not recommended for operating transoms in exterior walls.* No hinges are required when this device is used.

Made of cold rolled steel, with all bearings bronze bushed and all steel parts electrogalvanized. Operating handle is cast brass or bronze. The simplicity of the construction is shown in Fig. 8; the efficiency of a screw mechanism, as employed in this operator, is so well understood that further description is unnecessary.

No. 48 will operate bottom hung transoms (see Fig. 8) and also top hung or center pivoted transoms.

The handle can be located in any position on the casing by blocking out the jamb (at screws E-E) at the lower end of the operator. The upper end of jamb must not be blocked out.

Bending plate F and rod C does not interfere with the proper operation, as this adjustment is provided for in the construction of the operator.

Fig. 8 shows a left-hand operator.

The length of the operator is governed by the height of the door. Installations for center pivoted and top hung transoms must also take into consideration the height of the sash. For doors 7 ft. high, with bottom hung transoms, we carry in stock operators 2 ft. 3 in. long from center of pivot to center of handle; this locates the handle about 5 ft. from the floor, a location which has been found very practicable, as handles located lower than this have been known to catch and tear the clothing of passersby.



Fig. 8

Instructions for Detailing

Round the lower edge of transom sash, hinged at bottom, as shown in typical installation, or detail the transom as shown. The upper edge of transom sash, hinged at top, requires similar detailing.

Detail indicates method of forming rebate and shows offset arm required for center pivoted transom sash.

Use offset sash arm on top or bottom hung transom when sash is placed an inch or more back from edge of jamb, or where construction will not permit arm, shown in Fig. 8, to be screwed into place.

Top or bottom hung transom sash should not exceed 2 ft. 0 in. in height.

Minimum height for center pivoted transom sash not less than 3 ft. 0 in.

The jamb on which the operator is mounted should be set 1¼ in. from the back.

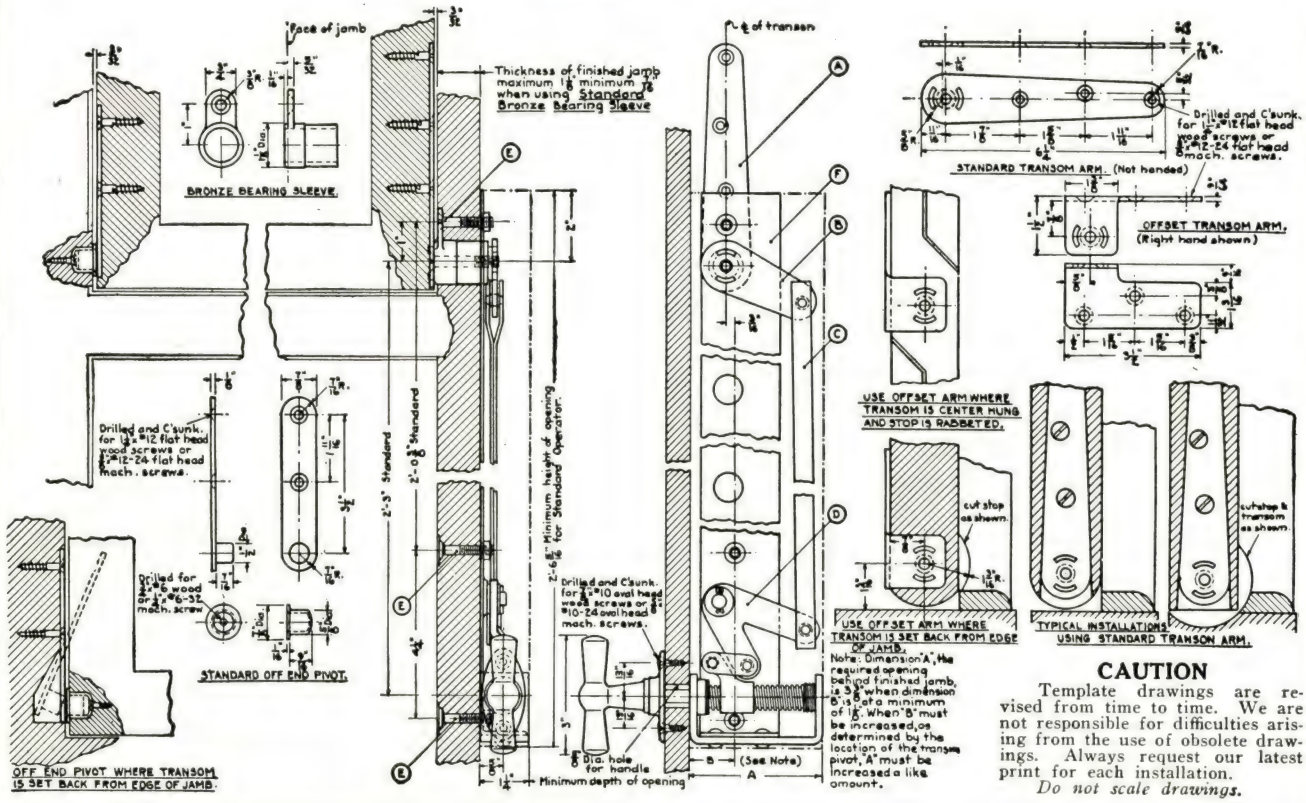
PRICE LIST

No extra charge for operators up to 3 ft. 6 in. long.

Prices given are for operator complete with T handle.

	Each
Complete with T handle in in brass or bronze metal, dull or bright.....	$7.00
For plated but not sanded finishes, except as noted below.....	7.50
For sanded and plated finishes, except as noted below.....	7.80
For chromium	8.50

Gold and silver plating, price on application.
Weight standard length, 6 lbs.



CAUTION

Template drawings are revised from time to time. We are not responsible for difficulties arising from the use of obsolete drawings. Always request our latest print for each installation.

Do not scale drawings.

RIXSON

TEMPLATE DETAILS FOR CONCEALED TRANSOM OPERATOR No. 48

Plate 13

CONCEALED TRANSOM OPERATOR NO. 50

(Patents Pending)

Designed particularly for use in metal partitions where space is limited and action must be positive. Mechanically correct and of the usual high standard of Rixson quality, this device is recommended for the most exacting specification and will render the utmost in satisfaction.

A very efficient screw and sector mechanism supplies ample power to operate practical center hung transoms. This operator will fit in a space 2-in. deep and $1\frac{3}{16}$ in. wide and requires only two and one-half turns of the handle to open the transom to a maximum of 60 degrees.

Made of cold rolled steel; bearings bronze bushed; steel parts electrogalvanized; operating handle cast brass or bronze.

This device is recommended for center pivoted sash of moderate size and for light top or bottom hung sash not to exceed 14 in. in height.

Owing to the varying shapes of metal frames upper and lower brackets must be furnished to fit particular shapes. Submit details.

Instructions for Ordering

A right-hand door takes a right-hand operator when the fixture is placed on the lock side of the door. Fig. 1 shows a right-hand operator.

When transoms occur on corridor side and open out but are operated from room side of door the mechanism must be reversed at factory. State "Reversed Mechanism" when so ordering. The right-hand operator shown in Fig. 1 would then be "Left-hand Reversed Mechanism."

The length of the operator is governed by the height of the door. In the case of center and top hung transoms the height of the sash must also be considered.

For doors 7 ft. with center pivoted transoms we carry in stock operators 3 ft. long from center of pivot to center of handle. (See detail.) This brings the handle about 5 ft. from the floor, which has been found the best location as torn clothes have resulted from handles placed lower.

State hand wanted.
Give height of door.
Give height of transom.
Give thickness of door jamb.
State if transom is to be hung at bottom, center or top.
Give thickness of transom bar.
Give finish wanted on handle.
Number of hinges needed.

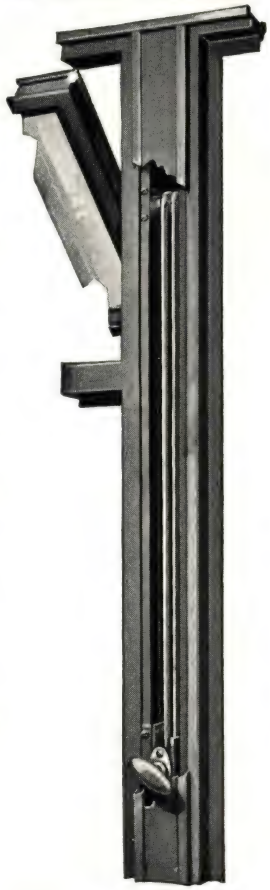


Fig. 1

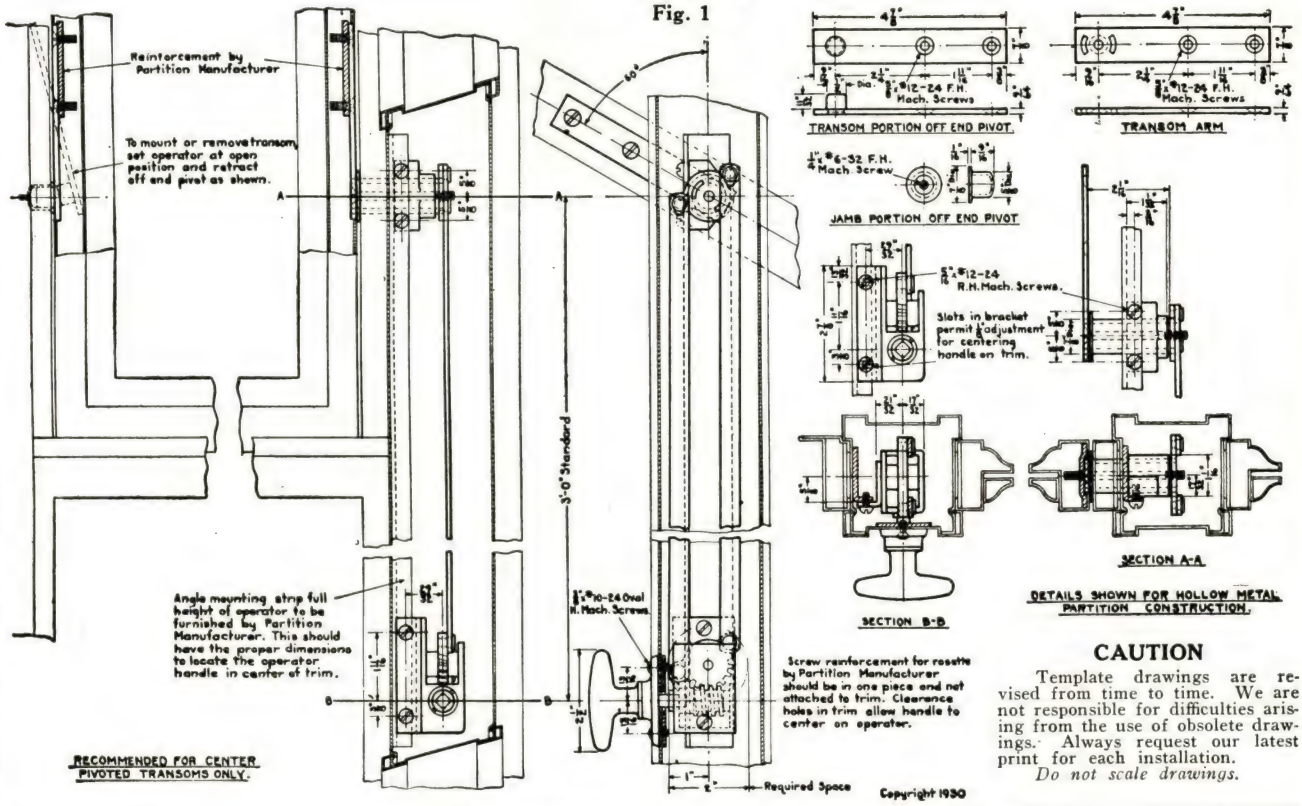
PRICE LIST

No extra charge for operators up to 3 ft. 6 in. long.

Prices given are for operator complete with knob handle.

	Each
Complete with handle in brass or bronze metal, dull or bright	$5.00
For plated but not sanded finishes, except as noted below	5.50
For sanded and plated finishes, except as noted below	5.80
For chromium	6.50

Gold and silver plating, price on application.
Weight standard length, 4 lbs.



CAUTION

Template drawings are revised from time to time. We are not responsible for difficulties arising from the use of obsolete drawings. Always request our latest print for each installation.

Do not scale drawings.

RIXSON

TEMPLATE DETAILS FOR CONCEALED TRANSOM OPERATOR No. 50

Plate 14

ADJUSTABLE BALL HINGES

(Patented)

Note: These hinges are especially recommended where a bronze hinge of distinctive appearance and superior wearing qualities is desired, particularly on metal doors.

Rixson (Patented) Adjustable Ball Hinges embody mechanical features that are of particular advantage with metal doors.

On account of the special bronze used, etc., we are able to guarantee these hinges when used one pair to the door on heavy doors, such as hollow metal corridor doors in office buildings. Due to the warpage often encountered with wood doors, we recommend the use of a pair and a half on each wood door.

Friction is virtually eliminated in that the pivot A, cup bearing B and the steel ball are all of hardened steel.

The up and down adjustment feature is easily used. To raise or lower the door it is only necessary to remove Cap D; the pivot and in turn the door can be raised or lowered by turning the slotted disc, on which the pivot rests, with a large screw driver. Pivot A has a key (C) which fits in a slot in the knuckle and prevents the pivot from turning.

Rixson Adjustable Ball Hinge No. 3 is made in two widths: the narrow No. 3 hinge has the same overall dimensions as the No. 2 hinge but is much heavier, therefore suitable for use with extra heavy doors; the wide No. 3 hinge is furnished blank or with screw holes located to order.

We do not supply this hinge in steel.

PRICE LIST RIXSON (PATENTED) ADJUSTABLE BALL HINGES

No.	Description	Price per pair	
		5x4½	5x8
2	Cast bronze, polished or dull.....	$ 9.00	
3	Cast bronze, polished or dull.....	11.25	$20.00

For plated but not sanded finishes, except as noted below, add $1.25 for 5x4½ size, $2.50 for 5x8 size to above prices.

For polished nickel, imitation half polished iron and sanded plated finishes, except as noted below, add $1.75 for 5x4½ size, $3.50 for 5x8 size, to above prices.

For chromium and verd antique finishes, add $3.00 for 5x4½ size, $5.00 for 5x8 size, to above prices.

Gold or silver plating on application.

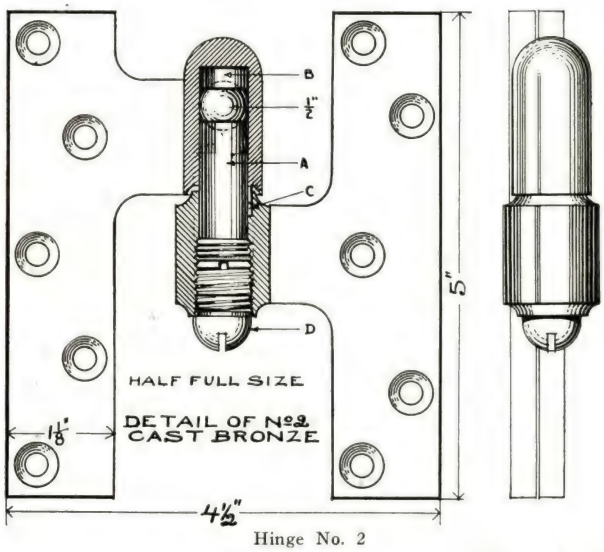
When ordering state hand wanted. (See page 1.)



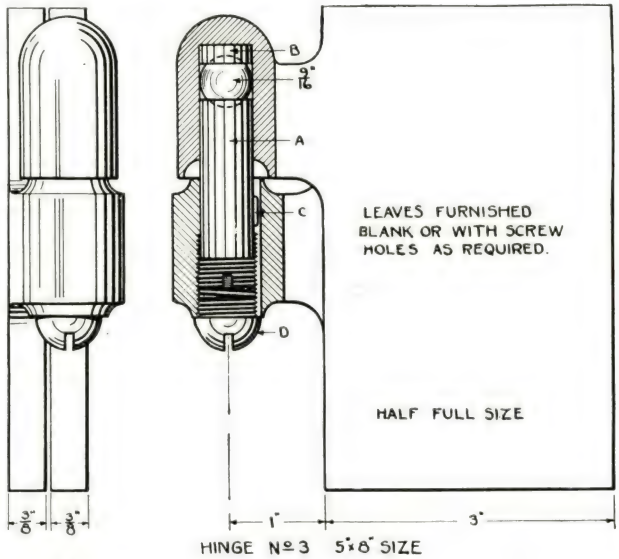
Hinge No. 2



Hinge No. 3



Hinge No. 2



Rixson Adjustable Ball Hinges

FRICTION HINGE NO. 85

(Patented)

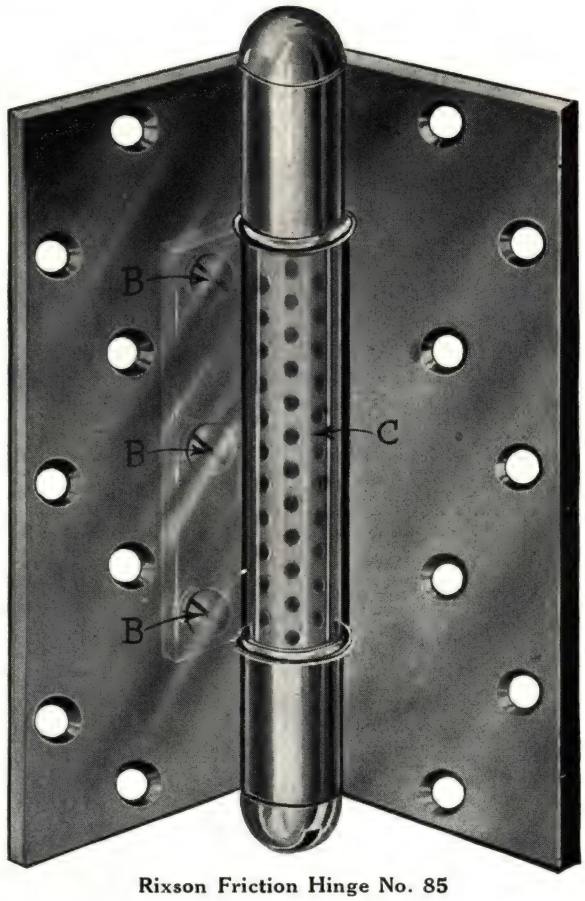
Note: This hinge is recommended for use on hospital and hotel room doors and inswinging casement windows.

Rixson Friction Hinge No. 85 is designed on the simple mechanical principle of a brakeband. *It prevents slamming and holds the doors or sash open at any point; it is not affected by normal drafts.* The center knuckle has a flat extension which passes around the pin. Screws (B) are threaded into this extension and friction is applied by simply turning these screws with a large screwdriver. There is a perforated sleeve (C) surrounding the pin; the perforations retain the grease which serves as a lubricant to eliminate all possible chance of noise. Friction is distributed over an unusually large area, an essential feature which permits easy and accurate adjustment and prevents wear. Being of the loose pin type, application is simple. This friction hinge has been on the market for more than ten years and there are thousands of pairs in use. A list of installations will be gladly furnished upon request. Wood screws for use with this hinge are specially made, being threaded clear up to the head to insure a good hold.

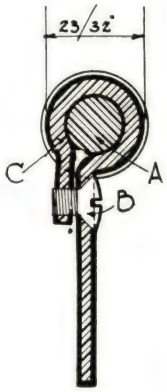
PRICE LIST RIXSON NO. 85 FRICTION HINGES

	Description	Price per pair			
		3½x3½	4x4	4½x4½	5½x4½
FS	Steel, sanded, prime coated	$2.10	$3.00	$3.50	$4.50
F2—F3	Steel, electrogalvanized or black rustless	2.50	3.40	4.00	5.25
	Steel, planished plated, F4 to F13, incl.	2.90	3.90	4.50	5.25
	Steel, planished plated, F14, F15, F15S and F5S to F13S, incl.	3.10	4.10	4.75	5.50
	Steel, polished plated, F4P to F13P, incl.	3.50	4.50	5.00	5.85
	Steel, polished plated, Rixson finishes, F15P, F15PS and F5PS to F13PS, incl. and F17PS	3.75	4.75	5.25	6.25
	Steel, polished plated, chromium F19P and F19PS	4.50	5.75	6.50	7.75

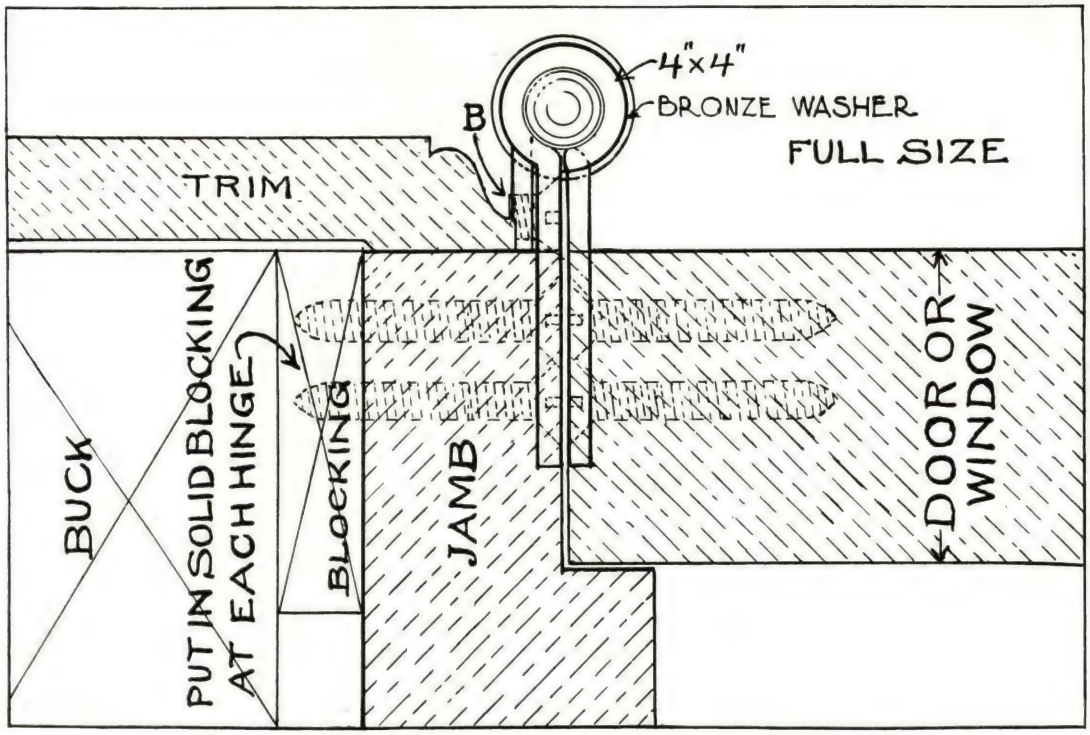
Gold or Silver Plating: Price on application.
When ordered to template add 30¢ per pair, list, to above prices.
When machine screws are specified all sizes are packed with ½-in. 12-24 machine screws.
This hinge is not "handed."



Rixson Friction Hinge No. 85



Cross Section Rixson Friction Hinge No. 85, Showing Adjusting Screw "B"



Installation Detail Friction Hinge No. 85

RIXSON	FRICTION HINGE NO. 85	Plate 16

OLIVE KNUCKLE HINGES

(Patented)

Note: We recommend that the sand blasted finish be used and painted or stained at the job to match woodwork. No. 80 is intended for use on light doors up to 1½ in. thick. No. 81 is recommended for heavier doors. No. 84¼ is a cabinet hinge for use on bookcase and cupboard doors.

The knuckle of this hinge is a copy of the popular but expensive French Olive Knuckle Hinge. The leaves have been so designed as to make them readily adaptable to American construction and easier to paint than their French prototypes.

The increasing demand for this type of hinge, not only in fine residences but also for hospitals, hotels and apartment houses, shows that its advantages are well appreciated and that its moderate cost makes possible its choice in preference to ordinary hinges, even where large quantities are involved.

These hinges are made in cast malleable iron, selected for its unbreakableness, and also in brass and bronze metal. Architects interested in "half polished iron" hardware should ask to see sample as we feel confident that our Olive Knuckle Hinge in this finish will meet with approval. We do not make these hinges in steel or ordinary cast gray iron, nor in plated iron. These hinges have been used in some of the finest residences in the country; a list of references will be gladly furnished.

Painters' Instructions — *Note: These hinges can be finished to match natural hardwood as well as painted woodwork.* To match natural finish woodwork or stained woodwork, give the hinges one coat of yellow ochre, let this coat dry, then stain or varnish same as woodwork.

To match painted woodwork, just paint the hinges same as the woodwork; the sand blasted finish which is primed makes the paint stick perfectly.

PRICE LIST RIXSON OLIVE KNUCKLE HINGES

	Description	Price per pair		
		No. 80 5"x3½"	No. 81 6"x4¼"	No. 84¼ 3"x2¼"
FS	Malleable iron, sanded	$1.80	$2.40	$1.15
F2	Malleable iron, electrogalvanized	2.50	3.25	1.75
F3	Malleable iron, black rustless	2.50	3.25	1.75
F18P	Malleable iron, half polished and oiled	4.50	5.25	3.25
	Brass or bronze metal, unpolished	5.25	6.50	3.25
	Brass or bronze metal, unpolished, sanded	5.75	7.00	3.70
	Brass or bronze metal, polished or dull	7.00	8.50	4.50
	For plated but not sanded finishes except as noted below	8.00	9.70	5.10
	For polished nickel, imitation half-polished iron and sanded and plated finishes except as noted below	8.25	10.00	5.30
	For chromium and verd antique	9.50	11.50	6.00

All hinges have bronze washers.

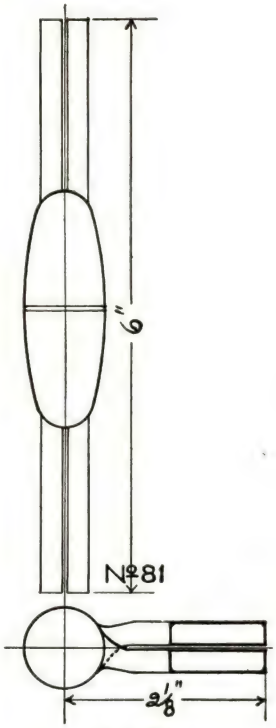
Malleable iron hinges will not be furnished in plated finishes.

Gold or silver plating on application.

White metal furnished only in quantity and on special quotation.

Add 40¢ per pair, list, for hinges made to template. When made to template, the No. 80 is regularly packed with ½ in. x 12-24, the No. 81 with ⅝ in. x¼-20 and the No. 84¼ with ⅜ in. x 10-24 machine screws.

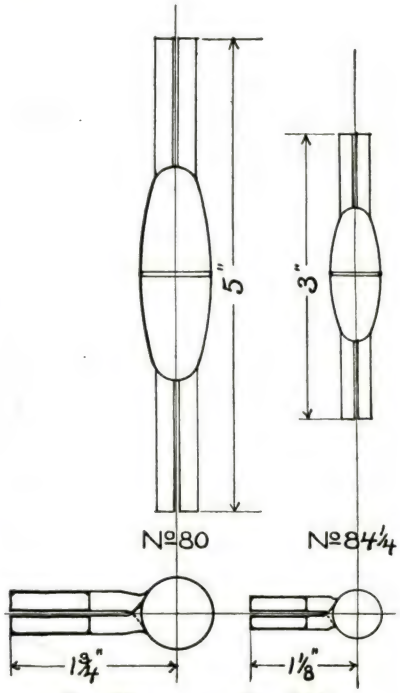
State "hand" wanted when ordering. (See first page regarding hand.)



No. 81
(Half size detail)



Olive Knuckle Hinge
No. 80—5x5 in.
No. 81—6x6 in.



No. 80 **No. 84¼**
(Half size details)

RIXSON | OLIVE KNUCKLE HINGES | Plate 17

CASEMENT HOLDERS (TUBULAR)

(Patented)

Brass and Bronze Nos. 34½, 35, 35½ and 35¾

Steel Nos. 134½, 135, 135½ and 135¾

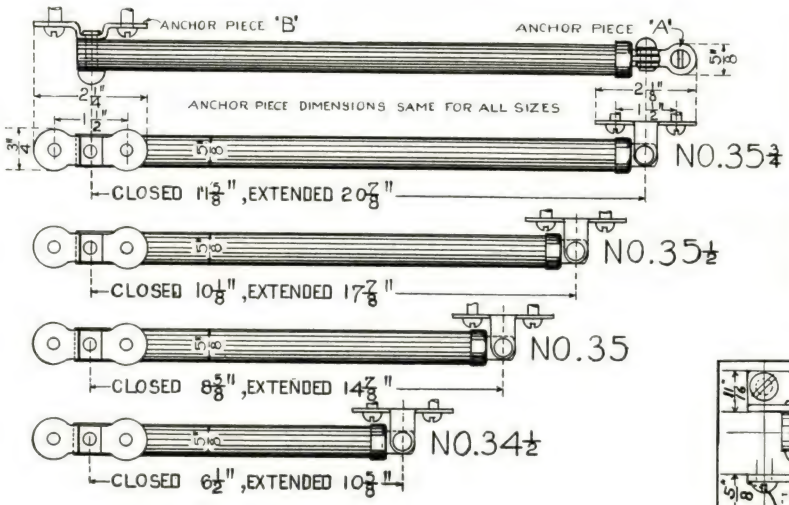
More than a half million Rixson Casement Holders in use to day attest the reliability and popularity of this simple and sturdy device.

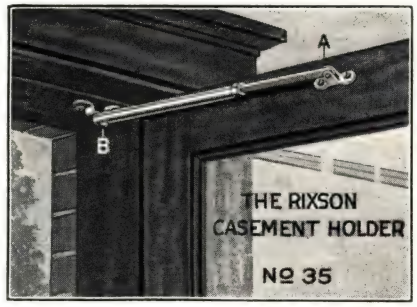
Casements: This holder permits the window to open a little beyond right angle; about 100 degrees. It holds the sash at any point automatically.

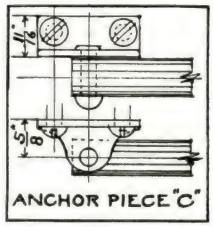
Friction is adjustable so that the resistance required to hold the sash can be set to suit even very small and light sash.

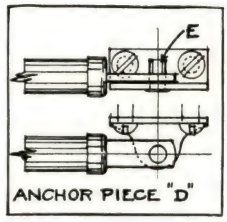
Transoms: For an inexpensive yet substantial means of holding transoms this device surpasses chains. It holds the transom at any point. Now made in brass, bronze and steel and in four sizes to suit varying sash dimensions.

Anchor pieces "A" and "B" furnished but anchors "C" or "D" supplied at no additional charge when required. Anchor "C" suitable for steel sash and where the holder is applied on the outside of sash. This anchor can also be supplied on the rod end. Anchor "D" has the disconnecting feature for use with reversible casement hinges such as our No. 90 Casement Hinge.









PRICE LIST

	Each			
	No. 34½	No. 35	No. 35½	No. 35¾
Brass or bronze, dull or bright and black lacquered	$2.00	$2.25	$2.50	$3.00
Plated finishes except as noted below	2.45	2.70	3.00	3.50
Plated chromium and verd antique	4.75	5.00	5.50	6.00
Gold and silver, price on application.				
Steel planished only:	No. 134½	No. 135	No. 135½	No. 135¾
Sanded and primed for paint, cadmium or black	$1.50	$1.70	$2.00	$2.50
Unpolished plated finishes, except as noted below	1.50	1.70	2.00	2.50
Imitation half polished iron	1.70	1.90	2.20	2.70
Chromium: polished or dull and verd antique	4.00	4.50	4.75	5.25
Gold and silver plating not furnished on steel.				
All above packed 6 in carton. Weight per carton	3 lbs.	3¾ lbs.	4¼ lbs.	4½ lbs.

CASEMENT WINDOW OPERATORS

CASEMENT OPERATOR NO. 94 (PATENTED)

For Hinged Windows Swinging Out

Note: We recommend application above the stool, but when desired and so ordered, we will furnish rosette to finish hole in apron where handle passes through.

This operator has the same efficient arm with noiseless sliding block that is embodied in the popular Rixson Casement Operator No. 95.

Rixson Casement Operator No. 94 is made of steel stampings, with a hard bronze driving screw, providing a construction that is both simple and strong, with few working parts.

The case is very narrow and this fact allows installation on stools only 1½ in. wide. When used with steel windows on an exceptionally narrow stool, or where no stool occurs, a steel base plate can be supplied at small extra cost. Special anchor pieces are furnished to suit various types of steel windows. The sash is locked in position at all times, eliminating rattle. Only three and one-half turns of the handle are required for one complete operation.

Handles—The data given regarding handles for Rixson Casement Operator No. 95 applies in its entirety to Casement Operator No. 94 (see following page) in so far as finishes, styles and prices are concerned. The following construction features, however, should be noted regarding handles for Rixson Casement Operator No. 94: Unless otherwise ordered handles are furnished for stools 4½ in. wide; all steel handles are squared 3 in. back from ends to facilitate cutting to suit various stool widths.

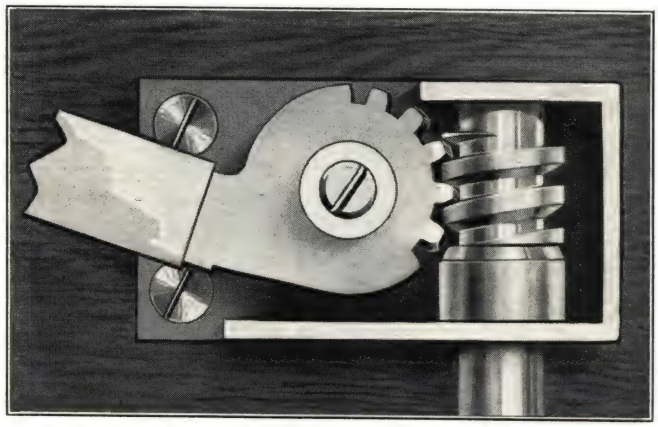
PRICE LIST—OPERATORS ONLY

Steel		Each
A or B	Sanded, primed for paint; electrogalvanized or lacquered	$3.00
	Plated but not sanded finishes	4.00
	Sanded plated finishes	4.30
	Special sash plate "X" in combination with Casement Hinge No. 90	.50
	Steel base plate add to list	.50
	Brass or bronze, dull or bright	5.00
	For plated but not sanded finishes except as noted below	6.00
	For sanded and plated finishes except as noted below	6.30
	For chromium and verd antique finish	8.00
	Gold or silver plating, price on application.	
	For special sash plate "X" add to list	1.00
	Brass or bonze base plate	1.00

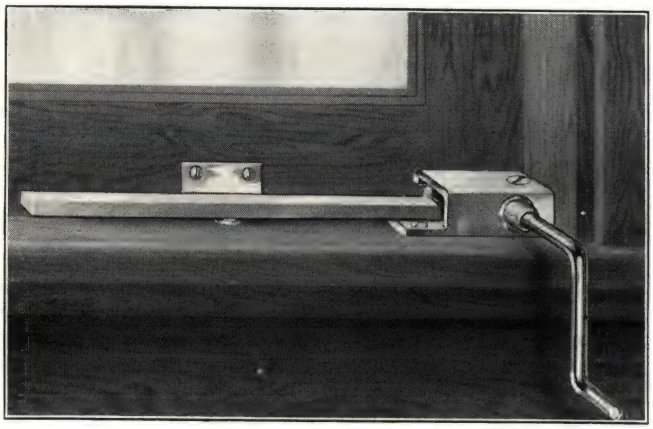
Handles
Regular Length—See Plate 20

	Steel, brass plated, Crank Handle No. 5, Tee Handle No. 6	$0.30
	Cast iron guide, plated or galvanized	.20
	Brass or bronze crank handle, Handle No. 7	1.00
	Brass or bronze crank handle, Handle No. 8 or 9	1.50
	For plated finishes on Handles Nos. 7, 8 and 9, add to list	.50

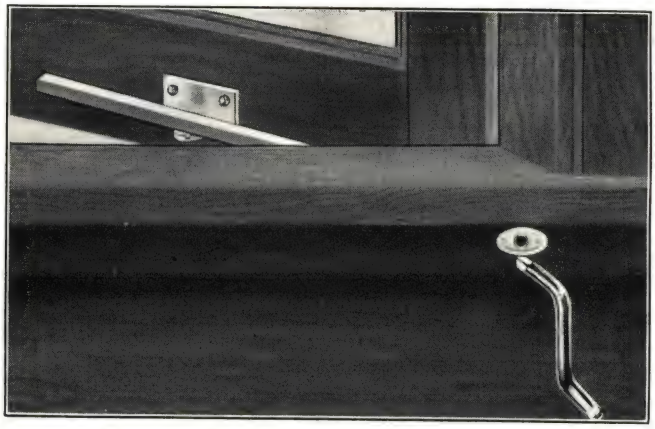
Additional charge for extra long handles as noted on Plate 20.
Operators packed two in carton. Weight, 1½ lb. each operator.



Operating Mechanism Casement Operator No. 94



Rixson Casement Operator No. 94 Mounted Above Stool



Operator No. 94 Installed Below Stool, with Detachable Handle

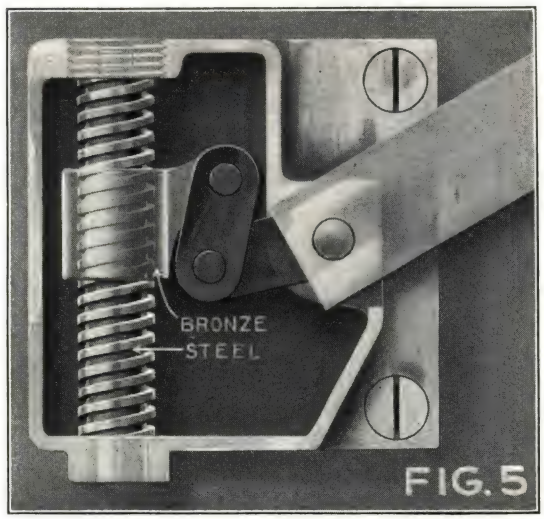
CASEMENT WINDOW OPERATORS

CASEMENT OPERATOR NO. 95 (PATENTED)

For Hinged Windows Swinging Out

Rixson Casement Operator No. 95 has been on the market for more than ten years, having been used during that period in all types of buildings, both public and private, with complete satisfaction to the users.

It permits the opening or closing of outswinging casement windows without disturbing the fly screens. A window equipped with Rixson Casement Operator No. 95 is always locked in position and cannot be moved except by turning the handle. When closed, the window is held absolutely tight, eliminating all rattle.



Operating Mechanism Casement Operator No. 95

This device may be installed so it is concealed or exposed, as desired. (See Figs. 6 and 7.)

The mechanism being of the screw type develops ample power to handle sash in sizes up to 2 ft. 6 in. wide. (See Fig. 5.) The driving screw is of steel with double square threads and the traveler that runs on this screw is of cast bronze, doing away with all possibility of these two parts ever rusting together.

The slide which runs inside the arm is covered with fiber to eliminate friction and make the device noiseless.

In the iron operator the case and sash plate are made of malleable iron because of its unbreakableness.

Where required a sash plate $1\frac{1}{16}$ in. high can be supplied.

Handles—A handle for each operator is not essential, but when so ordered can be furnished made fast to the operator without additional charge.

Unless otherwise ordered, detachable handles are furnished suitable for stools $5\frac{1}{2}$ in. wide as this has been found to be the average width. Handles suitable for stools up to 12 in. in width will be furnished at list prices. All handles are squared 3 in. back from ends to facilitate cutting to suit various stool widths.

When operator is ordered for concealed installation a brass rosette, which trims the hole bored in the apron for the operating handle, will be furnished without additional charge. (See Fig. 7.) Where extremely long handles are to be used, a guide which fastens on the inside edge of the stool can be furnished in galvanized or plated finish (see handle No. 9, plate 22); this guide prevents the handle from chafing the edge of the stool.

OPERATORS ONLY—HANDLES NOT INCLUDED

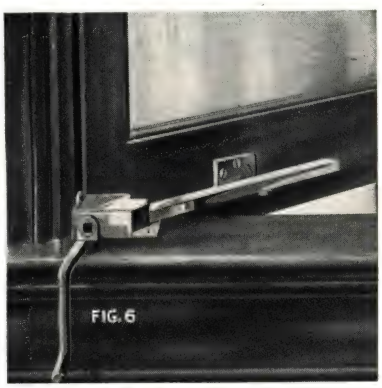
		Each
F-2 or 3	Iron, electro-galvanized or black rustless finish.	$3.75
	For special sash plate "X" used in combination with Casement Hinge No. 90 add to list..... No plated iron operators furnished.	.50
A or B	Brass or bronze, dull or bright.....	6.00
	For plated but not sanded finishes except as noted below.....	7.00
	For sanded plated finishes except as noted below	7.30
	For chromium finish.....	9.00
	For special sash plate "X" add to list.....	1.00

Gold or silver plating, price on application.

Handles
Regular length—see above

		Each
	Steel, brass plated, Crank Handle No. 5, Tee Handle No. 6.....	$0.30
	Cast iron guide, plated or galvanized.....	.20
	Brass or bronze crank handle. Handle No. 7..	1.00
	Brass or bronze crank handle. Handles Nos. 8 or 9.....	1.50
	For plated finishes on Handles Nos. 7, 8 and 9, add to list.....	.50

For handles to be used with stools more than 12 in. wide add 30¢ to the above prices for each additional 12 in. or fraction thereof.
Operators packed two in carton. Weight, 2 lb. each operator.



Installation Above Stool



Concealed Installation

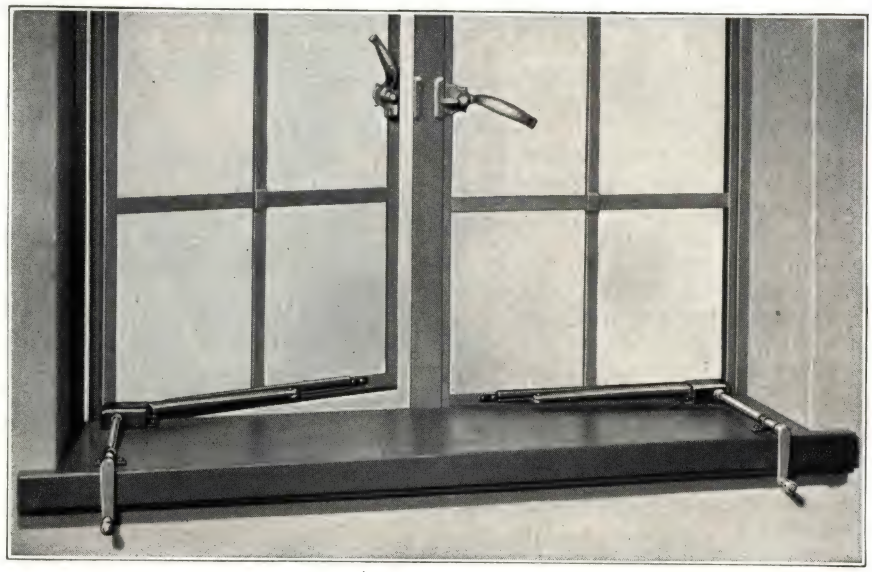
CASEMENT WINDOW OPERATOR NO. 194

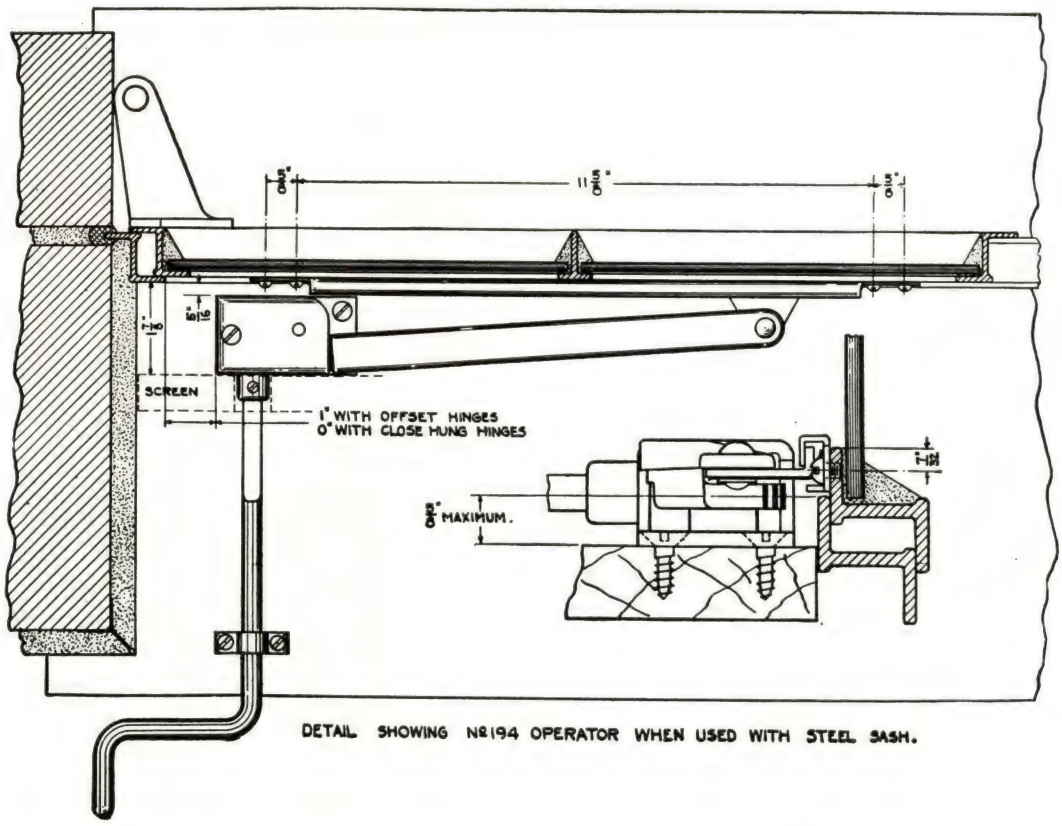
For Steel Hinged Windows Swinging Out
(Patented)

A wonderfully neat and effective method of control of outswinging steel casements is afforded by Rixson's No. 194 Casement Operator.

The simplicity of design and the ease of application makes this device a most attractive one. The sliding bar attached to the sash has standard perforations for screws and the raised arm permits application without the need of blocking to clear the frame. This is a very advantageous feature and should be considered both from the viewpoint of appearance and cost of installation.

Priced as the No. 94 for wood sash (Plate 19).



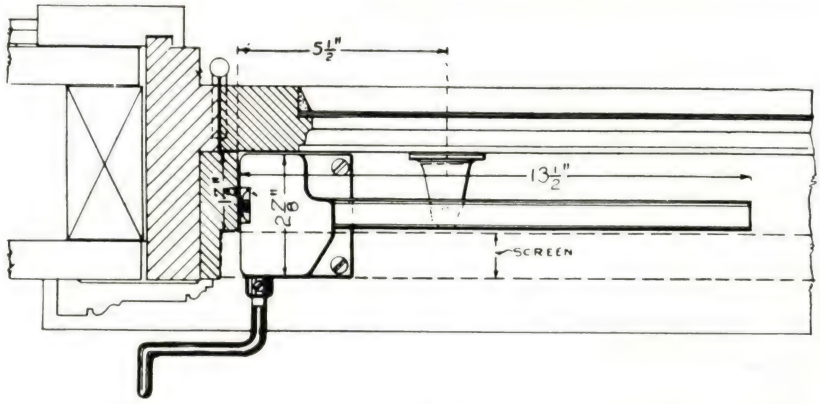


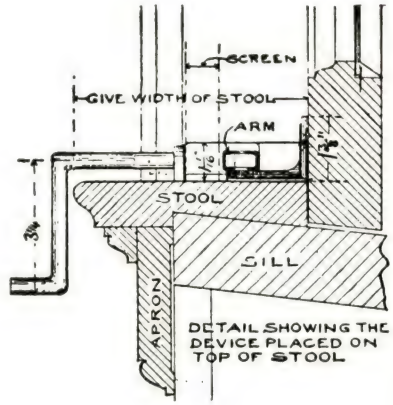
DETAIL SHOWING NO 194 OPERATOR WHEN USED WITH STEEL SASH.

RIXSON

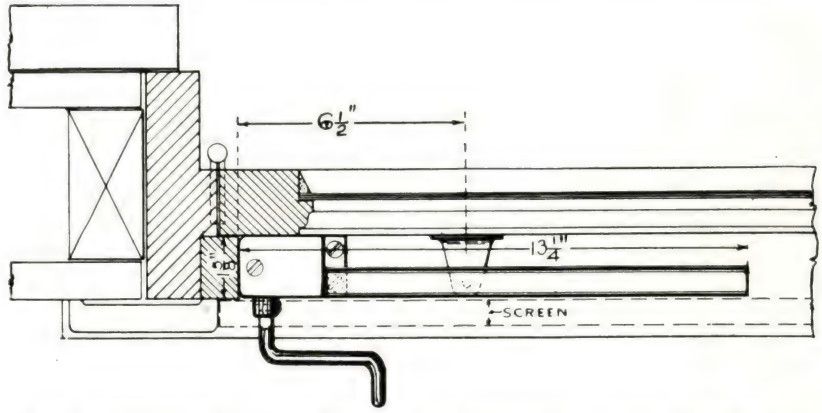
CASEMENT WINDOW OPERATOR NO. 194
For Steel Hinged Windows Swinging Out

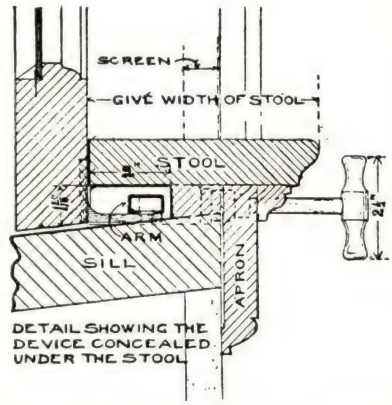
Plate 21



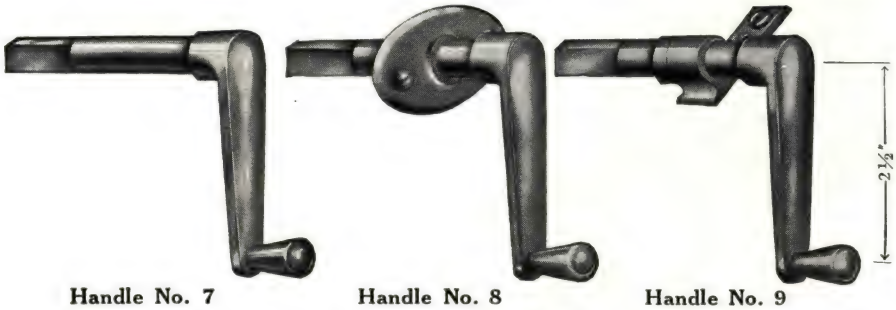


No. 95 Casement Operator as Applied in Ordinary Frame Construction

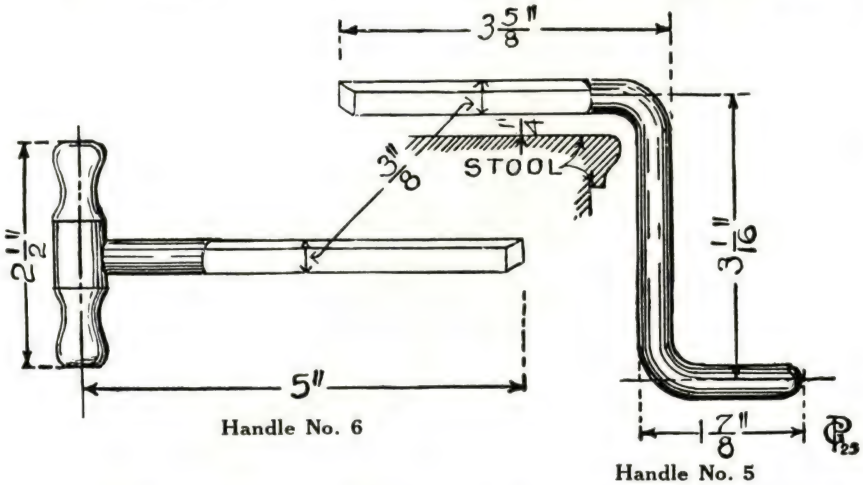




No. 94 Casement Operator Showing Its Adaptability to Very Narrow Stool



Handle No. 7 **Handle No. 8** **Handle No. 9**



Handle No. 6

Handle No. 5

TYPES OF HANDLES

Suitable for Casement Operators Nos. 94 and 95

Handle No. 5—Dull brass plated steel crank handle of dimensions shown is furnished with both No. 94 and No. 95 Casement Operators unless otherwise ordered.

Handle No. 6—This handle is for use where the crank type handle cannot operate conveniently. Made in steel only.

Handle No. 7—Cast brass crank handle for ordinary conditions where a better grade handle is desired.

Handle No. 8—Same as No. 7 but equipped with attaching rose for fastening to apron where fixed handle is desired for operator installed beneath stool.

Handle No. 9—Same as No. 7 but equipped with bracket to support outer end.

Note—In ordering handles always specify width of stool.

RIXSON	**CASEMENT OPERATORS NOS. 94 AND 95** **Miscellaneous Information**	**Plate 22**

ESTABLISHED 1876

BOMMER SPRING HINGE COMPANY

GENERAL OFFICE AND FACTORY
251-271 Classon Avenue
BROOKLYN, N. Y.

WESTERN SALES OFFICE, 180 North Wacker Drive, CHICAGO, ILL.
PACIFIC COAST SALES REPRESENTATIVE: John T. Rowntree, Inc., LOS ANGELES, CALIF.
BOSTON REPRESENTATIVE: Walter H. Cutler, 37 Pearl Street, BOSTON, MASS.

Products

SPRING HINGES and PIVOTS for all kinds of doors, also Strikes, Bolts, Latches and Fittings for lavatory units in office buildings, hospitals, theaters, public buildings, etc.

DOOR CLOSERS and DOOR CHECKS.

Facilities and Service

The BOMMER SPRING HINGE COMPANY was established in 1876 in Brooklyn, N. Y. The plant now consists of 6-story brick buildings, covering almost a square city block, where the largest order can be handled promptly.

When an architect specifies Bommer Products there will be no delay due to lack of manufacturing or shipping facilities nor to intelligent effort to please.

The Purpose of This Catalogue

This catalogue comprises 10 pages and has been arranged to give the architect information on Bommer Products. Illustrations, line drawings, and tables of specific Bommer Products make it possible for the architect to give complete details when making specifications except where special hardware sizes may be required. Template drawings, which are furnished manufacturers of metal doors, are not included herein but may be had gratis on request.

TRADE MARK
BOMMER
Reg. U. S. Pat. Office

The Quality and Prices of Bommer Products

Standard for over 50 years, and kept up-to-date retaining superiority over all others.

Only the best materials obtainable are used in Bommer Products and numerous international awards officially attest that they are the most useful and satisfactory for general use.

Countless fine buildings throughout the world are equipped with Bommer Spring Hinges.

Prices are guaranteed to be no higher than those for goods of corresponding type. Hardware dealers and lock manufacturers can include them in their contracts.

Specifications

Architects, in specifying these products, should use the word "Bommer" and in addition thereto, specify the size and finish required.

BOMMER PRODUCTS

	PAGE
Standard Spring Hinges, Double and Single Action	1 and 2
Ever Ready Spring Hinges, Double and Single Action	1 and 2
Vertical Spring Pivot Hinges	5
Horizontal Spring Pivot Hinges	5
Spring Hinges for Metal Covered Doors:	
Clamp-Flange Spring Hinges	3
Half Surface Spring Hinges	3
Mortise Spring Pivots—Ball Bearing	6
Door Pivots, Ball Bearing, Without Springs	6
Spring Hinges for Office Gates	3
Spring Pivots for Office Gates	3
Clamp-Flange Spring Hinges:	
For Lavatory Doors on Marble or Slate Partitions	4
Pipe-Clamp Spring Hinges	4
Surface Spring Hinges	4
Spring Pivots for Lavatory Doors for Marble, Slate or Wood Partitions	7
Lavatory Door Latches, Bolts and Indicator	7
Strikes and Keepers for Lavatory Doors	8
Accessories for Lavatories: Hat and Coat Hooks, Buffer and Plunger, Door Pull	8
Door Closers and Door Checks	9 and 10

BOMMER SPRING BUTT HINGES



Double Action Type No. 29



Single Action Type No. 0

Standard Spring Butt Hinges



Double Action Type No. 3029



Single Action Type No. 3000

Ever Ready Spring Butt Hinges

BOMMER SPRING BUTT HINGES (Continued)

Standard Spring Butt Hinges

Double and Single Action—Hanging Strip Required

Bommer Standard spring butt hinges require a hanging strip for fastening them to the door casing. One flange is mortised into the hanging strip and the other into the door, which gives a uniform appearance and secure fastening.

They are made of wrought steel, bronze and brass, in all finishes. The bearing surfaces are of different hardness in order to reduce friction. The spring barrels and their connecting plate are integral and exceptionally strong and of uniform thickness. The springs are of large diameter and unusual length, made of the best oil tempered steel wire, have great resilience and power and never go lame. The pintle and flange are interlocked, preventing the ball tips from working loose.

Note: Any special finish to match other hardware can be furnished promptly.

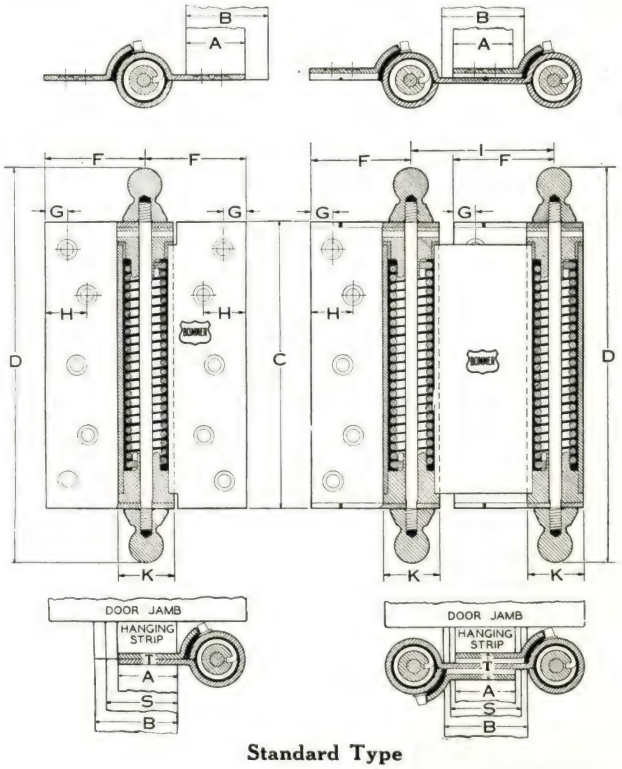
Ever Ready Spring Butt Hinges

Double and Single Action—No Hanging Strip Required

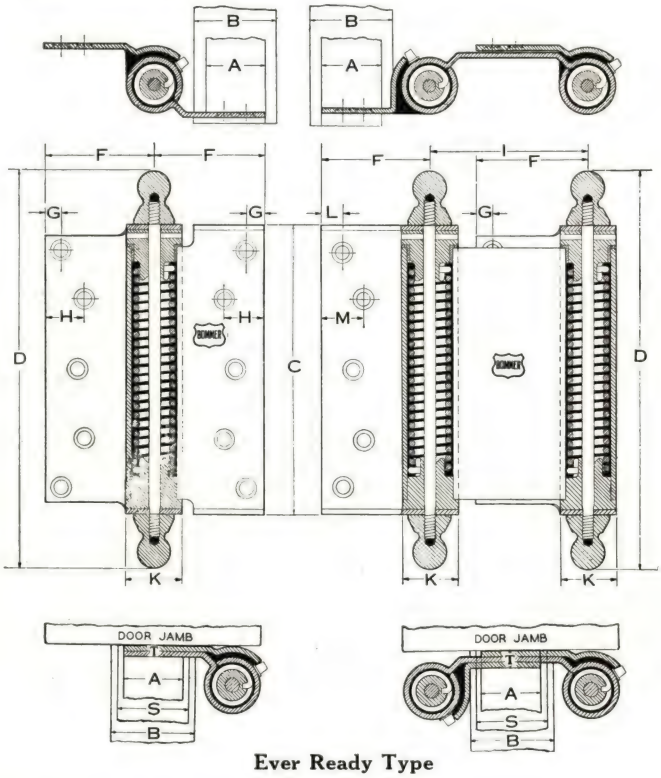
Bommer Ever Ready spring hinges do not require a hanging strip. They are fastened to the surface of the door casing, the entire thickness of hinge being mortised into the door.

They are made of wrought steel, bronze and brass, in all finishes. The bearing surfaces are of different hardness in order to reduce friction. The spring barrels and their connecting plate are integral and exceptionally strong and of uniform thickness. The springs are of large diameter and unusual length, made of the best oil tempered steel wire, have great resilience and power and never go lame. The pintle and flange are interlocked, which prevents the ball tips from working loose.

Note: Any special finish to match other hardware can be furnished promptly.



Standard Type



Ever Ready Type

DIMENSIONS OF STANDARD SPRING BUTT HINGES

Single Action												Double Action											
Size of hinge, C	Width of door	Weight of door	A	B	D	F	G	H	K	S	T	Size of hinge, C	Width of door	Weight of door	A	B	D	F	G	H	I	K	S	T
3″	2′-2″	30 lbs.	¾″	1″	4⅜″	1⅜″	5/16″	17/32″	29/32″	7/8″	11/64″	3″	2′-2″	30 lbs.	¾″	1″	4⅜″	1⅜″	5/16″	½″	2″	29/32″	7/8″	7/16″
4″	2′-4″	42 lbs.	7/8″	1¼″	5½″	1½″	5/16″	21/32″	15/16″	1⅛″	11/64″	4″	2′-4″	42 lbs.	7/8″	1¼″	5½″	1⅝″	5/16″	5/8″	2⅜″	15/16″	1⅛″	7/16″
5″	2′-6″	56 lbs.	1⅛″	1½″	6 1/16″	1⅞″	5/16″	13/16″	1 1/16″	1⅜″	3/16″	5″	2′-6″	56 lbs.	1⅛″	1½″	6 1/16″	1 29/32″	11/32″	13/16″	2 23/32″	1 1/16″	1⅜″	7/16″
6″	2′-8″	72 lbs.	1¼″	1¾″	8″	2 1/16″	3/8″	15/16″	1⅛″	1½″	7/32″	6″	2′-8″	72 lbs.	1¼″	1¾″	8″	2 3/32″	3/8″	15/16″	3″	1⅛″	1½″	9/16″
7″	2′-9″	90 lbs.	1⅜″	2″	9 5/16″	2¼″	3/8″	1 1/32″	1⅛″	1¾″	15/64″	7″	2′-9″	90 lbs.	1⅜″	2″	9 5/16″	2⅜″	3/8″	1 1/32″	3 3/8″	1⅛″	1¾″	9/16″
8″	2′-10″	110 lbs.	1½″	2¼″	10⅝″	2½″	3/8″	1⅛″	1 7/16″	2″	17/64″	8″	2′-10″	110 lbs.	1½″	2¼″	10⅝″	2 11/16″	3/8″	1⅜″	3 13/16″	1 7/16″	2″	¾″
10″	3′-0″	150 lbs.	1¾″	2½″	12 13/16″	2 25/32″	½″	1¼″	1½″	2⅛″	½″	10″	3′-0″	150 lbs.	1¾″	2½″	12 13/16″	2 25/32″	½″	1¼″	4″	1½″	2⅛″	¾″
12″	3′-2″	190 lbs.	2¼″	3″	15″	3 13/32″	½″	1 11/16″	1¾″	2⅝″	17/32″	12″	3′-2″	190 lbs.	2¼″	3″	15″	3 13/32″	½″	1 23/32″	4 11/16″	1¾″	2⅝″	¾″

DIMENSIONS OF EVER READY SPRING BUTT HINGES

Single Action												Double Action													
Size of hinge, C	Width of door	Weight of door	A	B	D	F	G	H	K	S	T	Size of hinge, C	Width of door	Weight of door	A	B	D	F	G	H	I	K	L	M	S	T
3″	2′-2″	30 lbs.	¾″	1″	4⅜″	1½″	9/32″	15/32″	29/32″	7/8″	11/64″	3″	2′-2″	30 lbs.	¾″	1″	4⅜″	1½″	9/32″	15/32″	27/32″	29/32″	9/32″	15/32″	7/8″	15/16″
4″	2′-4″	42 lbs.	7/8″	1¼″	5½″	1 11/16″	11/32″	5/8″	1 1/16″	1⅛″	11/64″	4″	2′-4″	42 lbs.	7/8″	1¼″	5½″	1 11/16″	11/32″	5/8″	2 9/16″	1 1/16″	11/32″	5/8″	1⅛″	1¼″
5″	2′-6″	56 lbs.	1⅛″	1½″	6 1/16″	2 1/16″	5/16″	¾″	1 1/16″	1⅜″	3/16″	5″	2′-6″	56 lbs.	1⅛″	1½″	6 1/16″	2 1/16″	5/16″	¾″	2 7/8″	1 1/16″	5/16″	¾″	1⅜″	9/32″
6″	2′-8″	72 lbs.	1¼″	1¾″	8″	2¼″	3/8″	15/16″	1 3/16″	1½″	7/32″	6″	2′-8″	72 lbs.	1¼″	1¾″	8″	2¼″	3/8″	15/16″	3 5/16″	1 3/16″	3/8″	15/16″	1½″	5/16″
7″	2′-9″	90 lbs.	1⅜″	2″	9 15/16″	2 5/16″	7/16″	15/16″	1 3/16″	1¾″	15/64″	7″	2′-9″	90 lbs.	1⅜″	2″	9 15/16″	2 5/16″	7/16″	15/16″	3 11/16″	1 5/16″	7/16″	15/16″	1¾″	3/8″
8″	2′-10″	110 lbs.	1½″	2¼″	10⅝″	2¾″	7/16″	1 3/32″	1 7/16″	2″	17/64″	8″	2′-10″	110 lbs.	1½″	2¼″	10⅝″	2¾″	7/16″	1 3/32″	4 1/8″	1 7/16″	7/16″	1 3/32″	2″	13/32″

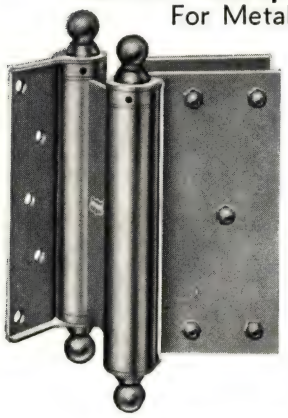
Directions for Selecting Proper Size Hinge

The recommendations given in the table under the details apply to doors made of white pine or other soft wood. For hardwood doors, plate glass doors, metal-covered doors, doors having hardware or heavy kick-plates or doors exposed to strong draughts, always use the largest size hinge which the thickness of the door will permit; also take note that wide doors always require larger size hinges than narrow doors.

BOMMER SPRING HINGES FOR METAL COVERED DOORS

Bommer Clamp-Flange Spring Hinges

For Metal Covered Doors



Type 10042

Double Action

Hinges with one clamp-flange are regularly furnished with bolts, to clamp to the door and flathead machine screws for the jamb flange, but if so specified, will be furnished with wood screws for the jamb flange.

Hinges with two clamp-flanges can be furnished when specified with bolts to clamp flanges to the door and also to the hanging-strip on the door jamb.

Note: Hinges are made of steel, brass or bronze in all standard finishes. Any special finish to match other hardware can be furnished promptly.

Length of flange and clamp, in.	Thickness of door, in.	Width of door, ft.—in.	Weight of door, lbs.	Depth of clamp, in.	Quantity and size of bolts
8	1½ to 1¾	2—10	110	3	4–¼ in.
10	1¾ to 2	3— 0	150	3½	5–$\frac{5}{16}$ in.
12	2 to 2½	3— 2	190	4	5–⅜ in.

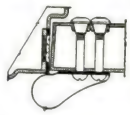
Always use the largest size hinge the thickness of door will permit.

Bommer Half-Surface Spring Hinges

For Metal Covered Doors with Pressed Steel Jambs, Stairways, Fire Exit and Corridor Doors



Type 10009



Single Action

These half-surface spring hinges are made to standard and close to commercial limits required by metal door and trim manufacturers.

Furnished with ½x12-24 F. H. screws for jamb leaf and ⅝x2¼ R. H. with grommet nuts for the door leaf. In bolting the surface leaf to the door the grommet nut draws the metal tight over the wood core preventing buckling of the metal.

Note: Hinges are made of steel, brass, or bronze in all standard finishes. Any special finish to match other hardware can be furnished promptly.

Length of flange, in.	Thickness of door, in.	Width of door, ft.—in.	Weight of door, lbs.	Quantity of screws	Quantity of bolts
6	1¾	2 — 8	75	5	4
7	1¾	3 — 0	110	5	4

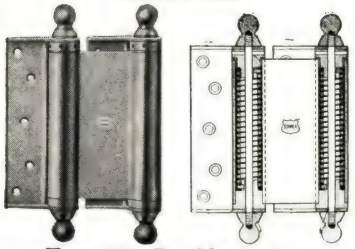
For doors wider or heavier than above use three hinges.

BOMMER SPRING HINGES FOR OFFICE GATES

Wide Leaf Type—Designed for 1¼ to 2½-in Thick Gates Having Wide Handrails

(For Standard Type Hinges, see Pages 1 and 2)

Double Action

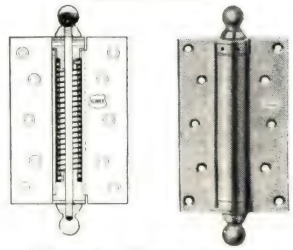


Type 38, Double Action

Note: Hinges are made of steel, brass, or bronze in all standard finishes. Any special finish to match other hardware can be furnished promptly.

No.	Length of flanges in.	Maximum thickness of gate, in.	Minimum thickness of gate, in.	Width of hand rail, in.	Distance between centres of barrels, in.	Distance centre of barrel to edge of flange, in.	Approx. weight of gate, lbs.
38	6	2½	1¼	3¼	3½	.....	60
7	5	2½	1¼	4	.....	2¾	60

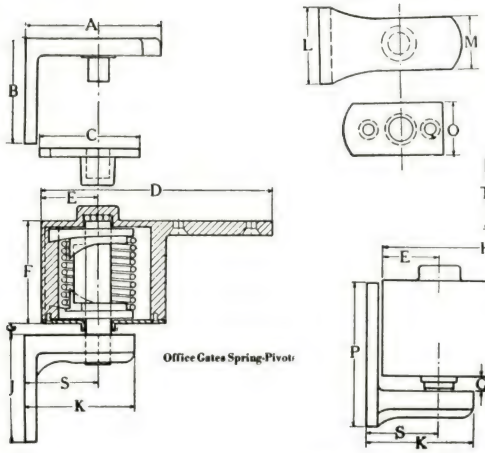
Single Action



Type 7, Single Action

BOMMER SPRING PIVOTS FOR OFFICE GATES

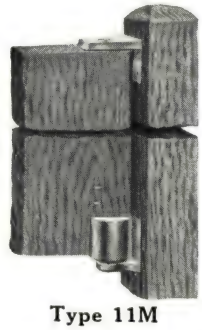
Types 11 and 11M—For 1⅛ to 2½-in. Thick Wood or Metal Gates and Railings



Office Gates Spring-Pivot

Suitable for either double acting or single acting gates, no need for cutting out or mortising gate or doorpost, although they can be mortised if so preferred. They are suitable for either wood or metal gates and railings and can be adapted to many other uses; easy to apply, save labor, and allow close fitting; back edge of gate is slightly rounded, using center of pivot as radius. Workmanship and finish unsurpassed.

Note: Hinges are made of steel, brass or bronze in all standard finishes. Any special finish to match other hardware can be furnished promptly.



Type 11M

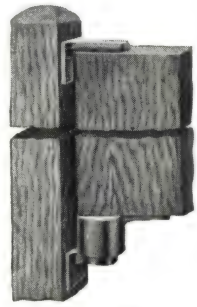
Top-pivot



Top-pivot-socket



Sectional View



Type 11

DIMENSIONS OF NO. 11 AND 11M

A	B	C	D	E	F	G	H	J	K	L	M	O	P	R	S	T
1⅝	2 5/16	2 3/32	5 3/16	1¼	2⅛	5/16	5 3/32	2 5/16	2 5/16	1⅝	1 3/16	1 3/32	3 1/16	⅞	1 9/16	1⅝

BOMMER CLAMP FLANGE SPRING HINGES

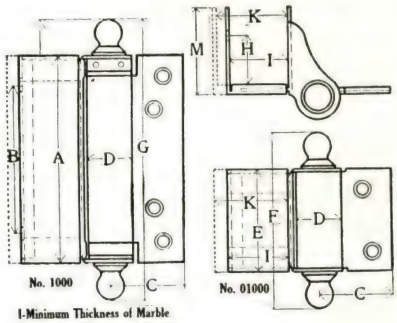
For Lavatory Doors on Marble or Slate Partitions Having Hanging Stiles



No. 1000



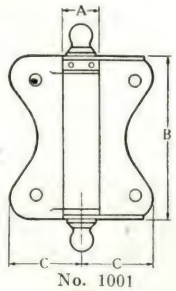
No. 01000



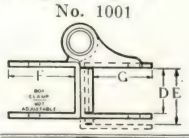
I-Minimum Thickness of Marble
K-Maximum Thickness of Marble

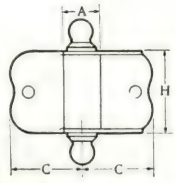
Details Single Action Spring Hinge No. 1000 and Blank No. 01000

A	B	C	D	E	F	G	H	I	K	M
4	2⅞	1½	⅞	2	3½	5½	1	1⅛	1⅜	1¾



No. 1001





No. 01001

Details Double Clamp Hinge No. 1001 and Blank No. 01001

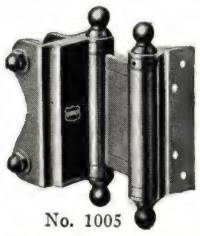


No. 1001



No. 01001

A	B	C	D	E	F	G	H
⅞	4	1⅞	1⅛	1⅜	1⅝	1½	2



No. 1005



No. 01021

Bommer Lavatory Spring Hinges

For either right or left-hand doors opening in or out.

These hinges are suitable for marble or slate partitions of the following thicknesses: 1, 1¼, 1½, 1¾, and 2 in.

The clamp-flange for the marble is adjustable ⅛ in. over and under sizes given to allow for variations in thickness. The single action are made to close the door but if so specified the springs can be made reverse action, to hold the door open.

The clamp-flange of the double action is not adjustable.

The adjustable clamp-hinges are furnished with bolts having one open nut, but can be supplied with all closed nuts when so specified. *The exact thickness of both the marble and the door must be stated.*



No. 01012



No. 1012

For light and narrow lavatory doors, combination of blank and single action lavatory spring hinge can be used. Single acting hinges are made to close the door, but if so specified, they can be furnished to hold door open.

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

1000 Length of flanges, 4 in. Single action, has one clamp-flange
1001 Length of flanges, 4 in. Single action, has two clamp-flanges
1005 Length of flanges, 4 in. Double action, has one clamp-flange, not adjustable
1006 Length of flanges, 4 in. Double action same as No. 1005, but has two clamp-flanges
1012 Length of flanges, 4 in. Single action, has angle-flange instead of clamp-flange
1013 Length of flanges, 3 in. Single action, constructed same as No. 1000. For extra light and narrow doors

For Lavatory Doors on Marble or Slate Partitions Without Hanging Stiles



No. 1002



No. X1002

1015 and 1016 are for hanging two single-acting doors right and left to the same partition on one clamp-flange.

1002 and 1015 are for doors opening in and can be made to hold the doors open or closed as may be specified.

1016 and 1003 are for doors opening out; made only to hold the doors closed.

Flanges of the spring hinges are 4 inches in length; of the blank hinges without springs are 2 inches in length.

The clamp-flange for the marble is not adjustable; the exact thickness of marble and door must be stated when ordering.



No. O1002



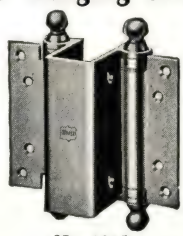
No. OX1002

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

1015 Single action, for two doors, opening in
1016 Single action, for two doors, opening out
1002 Single action, for one door, opening in
1003 Single action, for one door, opening out
X1002 Single action, opening in or out, for end stalls to fasten to the wall



No. 1003



No. 1015



No. 1016



No. 01003



No. 01015



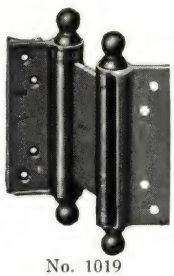
No. 01016

Bommer Pipe-Clamp Spring Hinges

Double and Single Action for Lavatory Doors No. 1004 and No. 1019



No. 1004



No. 1019

For pipe 1⅞, 2, 2⅜ and 2½ in. outside diameter, are fastened to the pipe with machine screws.

Single action as regularly made close the door, but if specifically so specified they can be made with reverse spring to hold door open, without extra charge.

Bommer Surface Spring Hinges

1011 as regularly made close the door, but if specifically so specified, they can be made with reverse springs to hold it open without extra charge.

For very light and narrow lavatory doors only, a hinge 1011 at the top of the door, 01011 at the bottom, may be used. The checking blank 1020 may be used at the bottom of the door with surface hinge 1011 at the top. It will hold door partly open while the closet is unoccupied, dispensing with the use of an indicator.

These hinges are regularly furnished with bolts for one leaf and wood screws for the other unless otherwise specified.



1011



1020



01011

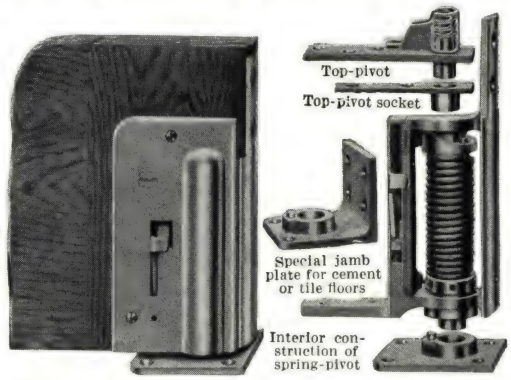
BOMMER VERTICAL SPRING PIVOT HINGES

Double Action—Release and Non-release Types

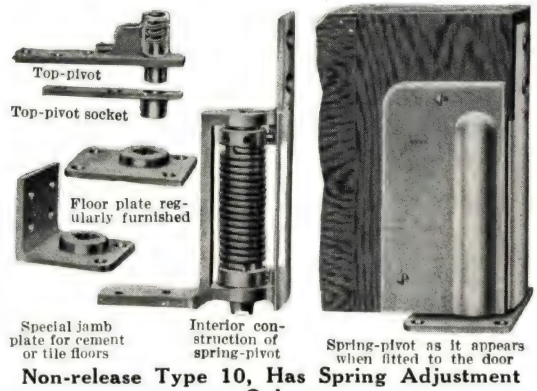
Release Type No. 20—The spring-action may be temporarily released on either side of door by pressing down side-pedal with foot before opening door, and is automatically re-engaged when door is closed. By using a stop on door-casing it works equally well single action. No weakening of door, only a small section of wood need be cut lengthwise with grain. Saves labor and permits close fitting; back edge of door is slightly rounded. Hardened tool-steel ball-bearings are located in upper part of pivot-frame away from water, dust and dirt.

Springs are made of the best oil-tempered steel wire, have great resilience and power and never go lame. Spring power can be adjusted to suit after pivot is fixed to door. Top-pivot has a spring-actuated plunger which permits door to be taken down without unscrewing. Workmanship, finish and elegance of appearance are unrivalled.

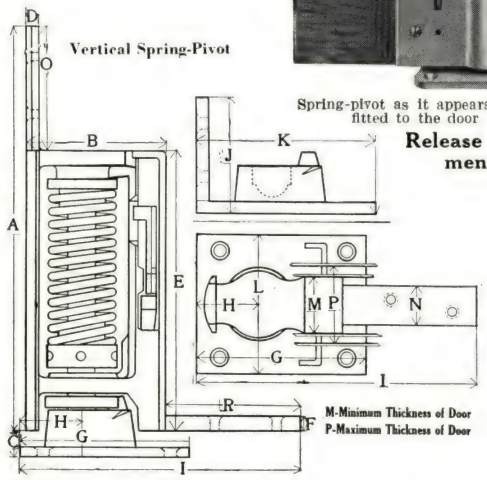
Non-release Type No. 10—Has same general design and construction without spring-action release feature.

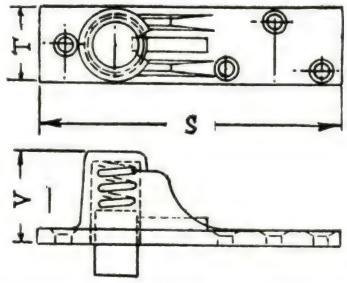


Release Type 20, Has Spring Adjustment and Alignment Device

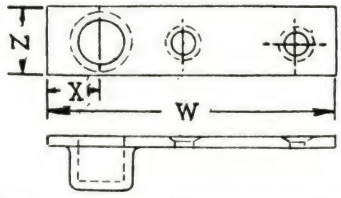


Non-release Type 10, Has Spring Adjustment Only





Note: Hinges are made of Steel, Brass or Bronze in all Standard finishes. Any special finish to match other Hardware, can be furnished promptly.

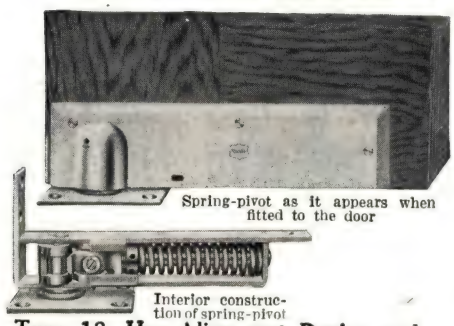


Type	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R	S	T	V	W	X	Z
20, 22, 24 Release	7⅞″ / 8″ / 10⅛″	2¾″ / 3″ / 4⅛″	½″ / ½″ / ½″	5/16″ / 7/16″ / ⅜″	5½″ / 5½″ / 7⅛″	5/16″ / ⅜″ / 7/16″	3¼″ / 3⅝″ / 4⅝″	1¼″ / 1½″ / 2 3/16″	5 3/16″ / 6¼″ / 7⅞″	2¼″ / 2½″ / 3″	3½″ / 4″ / 4¾″	2 11/16″ / 3 1/16″ / 3¾″	1⅛″ / 1½″ / 1¾″	¾″ / 1″ / 1⅜″	2½″ / 2 9/16″ / 3″	1½″ / 2″ / 2¾″	2⅝″ / 3⅛″ / 3¾″	4 7/16″ / 4 15/16″ / 6 27/32″	1″ / 1¼″ / 1½″	1 5/16″ / 1 17/32″ / 2 1/16″	4 15/64″ / 4 45/64″ / 5 5/16″	¾″ / 1″ / 1⅛″	1 3/32″ / 1 3/32″ / 1 5/16″
10, 12, 14 Non-release	7⅞″ / 8″ / 10⅛″	2 5/16″ / 2 15/16″ / 3¼″	½″ / ½″ / ½″	5/16″ / 7/16″ / ⅜″	5⅞″ / 5½″ / 7⅛″	5/16″ / 5/16″ / ⅜″	3¼″ / 3⅝″ / 4⅝″	1¼″ / 1½″ / 2″	5 3/16″ / 6¼″ / 7⅞″	2¼″ / 2½″ / 3″	3½″ / 4″ / 4¾″	2 11/16″ / 3 1/16″ / 3¾″	1⅛″ / 1½″ / 1¾″	¾″ / 1 1/16″ / 1⅜″	2½″ / 2 9/16″ / 3 1/16″	1½″ / 2″ / 2¾″	2¾″ / 3¼″ / 4⅛″	4 7/16″ / 4 15/16″ / 6 27/32″	1″ / 1¼″ / 1½″	1 5/16″ / 1 17/32″ / 2 1/16″	4 15/64″ / 4 45/64″ / 5 5/16″	¾″ / 1″ / 1⅛″	1 3/32″ / 1 3/32″ / 1 5/16″

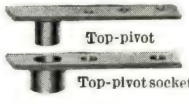
BOMMER HORIZONTAL SPRING PIVOT HINGES

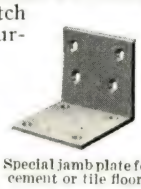
Will hold the door open when swung back beyond 90°. Type No. 18 has an efficient alignment feature. The spring tension is adjustable on both types. The floor plate is screwed to the floor surface, obviating the need of cutting holes in the floor. The weight of the door is carried on ball bearings. All moving parts can be lubricated through a hole in the side plate.

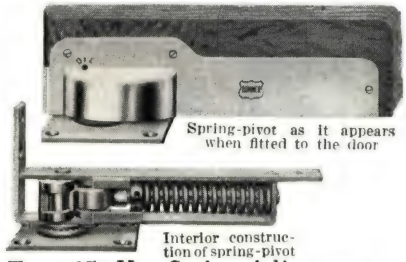
Note: Hinges are made of Steel, Brass or Bronze in all Standard finishes. Any special finish to match other Hardware, can be furnished promptly.



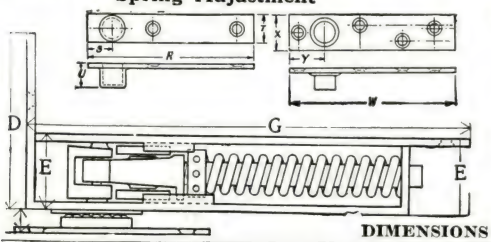
Type 18, Has Alignment Device and Spring Adjustment

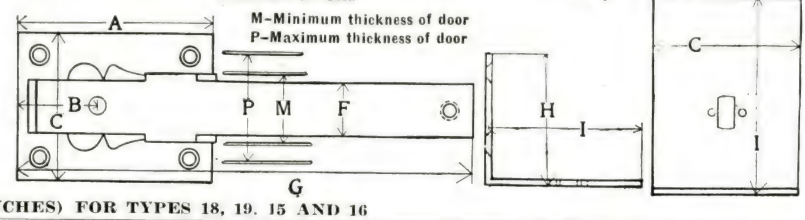






Type 15, Has Spring Adjustment Only





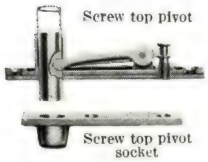
DIMENSIONS (INCHES) FOR TYPES 18, 19, 15 AND 16

Series No.	For doors	A	B	C	D	E	F	G	H	I	M	P	R	S	T	U	W	X	Y
15, 18	1⅛ to 1¾	3½	1½	2¾	3¾	1 7/16	1	8¾	2⅛	3 5/16	1⅛	1¾	3 15/16	25/32	13/16	25/32	3 15/16	13/16	25/32
16, 19	2 to 2½	5 1/16	2¼	4	4 7/8	2 9/16	1¼	12	2 9/16	5⅛	2	2½	5½	1 1/16	1 5/16	1 1/16	6⅛	1¾	2

BOMMER MORTISE SPRING PIVOTS—BALL BEARING

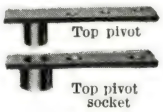
Support weight of door on tool-steel ball bearings set upon a raised center post. Bearings are protected from water and dirt. Best oil tempered springs are used. Pivots are furnished either with adjustable socket bar with screw top pivot, or side plates. Tension of spring is adjustable. Pivots are double acting, but by using stop bead will work single acting.

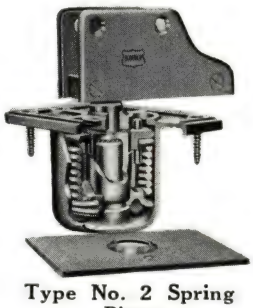
No. 2 for 7/8 to 1½-in. doors; No. 4 for 1⅜ to 2-in. doors; No. 6 for 2 to 2½-in. doors; No. 8 for 2½ to 3½-in. doors.



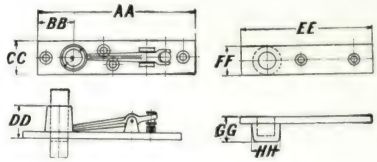
Screw Top Pivot with Sockets

Permits the door to be taken down quickly without removing the screws. Can be used with floor pivots Nos. 2, 4, 6, 8, 27 or 28





Type No. 2 Spring Pivot



SCREW TOP PIVOT AND TOP SOCKET

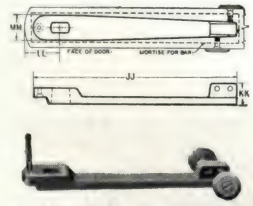
Type Nos.	2	4	6	8	27	28
AA	4	5 11/16	6 9/16	8	5 11/16	8
BB	1/2	1 5/16	1 5/8	2	1 5/16	2
CC	3/4	1 5/16	1 3/4	2 1/2	1 5/16	2 1/2
DD	3/4	1 5/16	1 13/16	2 11/32	1 5/16	2 11/32
EE	4	4 11/16	5 3/16	6 5/16	4 11/16	6 5/16
FF	3/4	1	1 1/4	2	1	2
GG	11/16	13/16	1	1 1/4	13/16	1 1/4
HH	3/4	1	1 1/4	1 7/8	1	1 7/8

Cast Iron Box

Suitable for setting spring pivots and pivots without springs into tile or cement floors

CAST IRON FLOOR BOXES

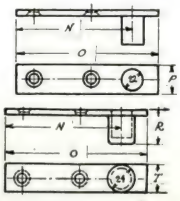
No.	Length, in.	Width, in.	Height, in.
C- 2	4	5 7/16	3 1/16
C- 4	4 5/16	6	3 9/16
C- 6	4 3/8	6 7/8	3 15/16
C- 8	4 7/8	6 7/8	3 15/16
C-27	4 1/8	3 1/2	1 7/8
C-28	5 3/4	6	3 5/16



Adjustable Socket Bar

ADJUSTABLE SOCKET BAR

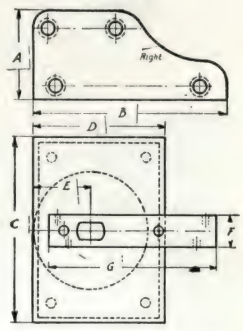
Type Nos.	2	4	6	8
JJ	5 1/2	9 1/2	9 3/4	9 3/4
KK	15/16	15/16	15/16	15/16
LL	1 3/8	1 3/4	2	2
MM	7/8	1 1/8	1 1/8	1 1/8

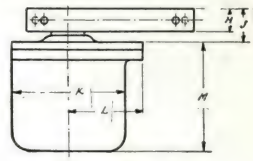


Type No. 2

MORTISE SPRING PIVOT HINGE

No.	2	4	6	8
A	2 1/2	2 13/16	3 1/4	3 7/16
B	5 1/32	5 21/32	6 3/16	6 1/2
C	5 1/8	5 5/8	6 1/2	6 1/2
D	3 3/4	3 15/16	4 1/2	4 1/2
E	1 5/8	1 25/32	2 1/32	2 1/32
F	13/16	1 9/32	1 25/32	2 9/32
G	4 3/4	4 15/16	5 5/16	5 13/16
H	5/8	5/8	3/4	22/32
J	21/32	1	1 1/16	1 1/32
K	3 3/8	3 1/2	4	4
L	2 1/8	2 5/32	2 15/32	2 15/32
M	3	3 9/16	3 7/8	3 7/8
N	3 5/32	3 3/4	4 7/32	5 7/8
O	3 15/16	4 11/16	6 7/32	7 1/16
P	13/16	1 1/4	1 3/4	1 3/4
R	23/32	15/16	7/8	7/8
T	13/16	1 1/16	1 3/8	1 5/16





Type No. 2

Note: Made of steel, brass or bronze in all standard finishes. Any special finish to match other hardware can be furnished promptly.

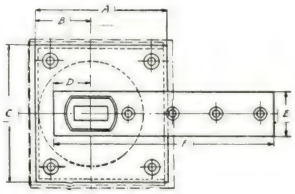
BOMMER DOOR PIVOTS—BALL BEARING, WITHOUT SPRINGS

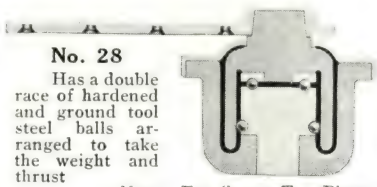
Used to hang doors on banks, churches, assembly halls, etc. Durable, noiseless, and do not permit door to sag.

Weight of door is supported on tool-steel ball bearings set upon a raised center post. Bearings are protected from water and dirt.

No. 27 size for doors 1¼ to 2¼ in. thick, weighing up to 500 lbs.

No. 28 size for doors 2 to 4 in. thick, weighing up to 2000 lbs.





No. 28

Has a double race of hardened and ground tool steel balls arranged to take the weight and thrust

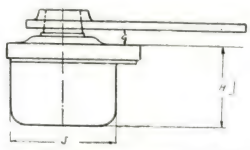
No.	A. in.	B. in.	C. in.	D, in.	E, in
27	3 31/32	1 1/2	3 5/32	1 5/32	1 1/8
28	5 3/8	2 1/4	5 5/8	1 1/2	1 3/4

No.	F, in.	G, in.	H, in.	J, in.
27	6 21/32	15/32	1 1/2	2 3/32
28	8 5/8	1/2	3 1/4	4 7/16



No. 27

Note: For Screw Top Pivots, Top Sockets and Cast Iron Floor Boxes, see tables above



For top pivots see details above

Note: Made of steel, brass or bronze in all standard finishes. Any special finish to match other hardware can be furnished promptly.

BOMMER SPRING PIVOTS FOR LAVATORY DOORS

For Marble, Slate or Wood Partitions or for Pipe Standards

For double or single action doors, right or left hand, opening in or out or for regular action to close the door or reverse action to hold door open.

Thickness of marble must be stated. If wanted for pipe-standards, outside diameter of pipe must be stated.

Type 1030 for doors ⅞ to 1½ in. thick. Will hold door open or closed at any point selected. To align the door or obtain regular or reverse action, slightly unscrew nut at bottom of hinge and move door to the point desired, then tighten the nut and lock-washer firmly.

Type 1025 for doors 1⅛ to 1½ in. thick. The pintle has a square shank fitting into the square hole of the bottom bracket so the pivot may be set in either position to close the door or hold it open. The spring tension is adjustable.

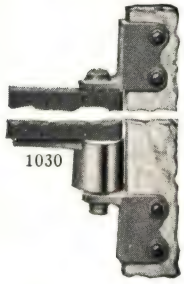
The clamp-flanges are adjustable from ⅞ to 1⅜ in., and from 1⅜ to 1¾ in.

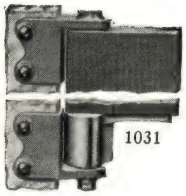
When specifying state if to be used double or single action, so proper tension will be applied to the spring.

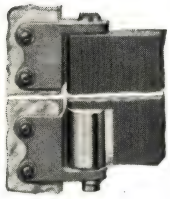
BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

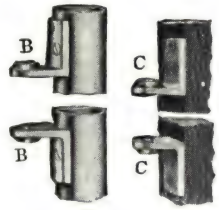
No.	
1030, 1031, 1032.	For marble, with clamp-brackets
1036	For pipe-standards, with concave-bracket Type B
1037	For wood, with flat-brackets Type C
1038	For wood, with flat-brackets Type C for door to swing in concave recess in jamb

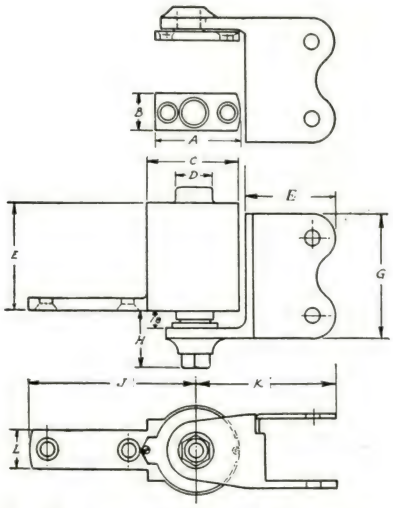
No.	
1025	For marble, with clamp-brackets
1026	For pipe-standards, with concave-bracket Type B
1027	For wood, with flat-bracket Type C
1028	For wood, with flat-bracket Type C for doors to swing in concave recess in jamb


1030


1031

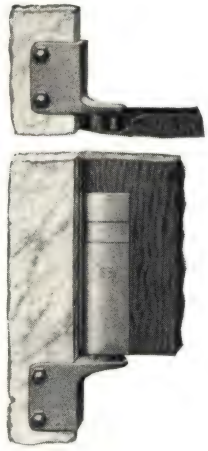

1032



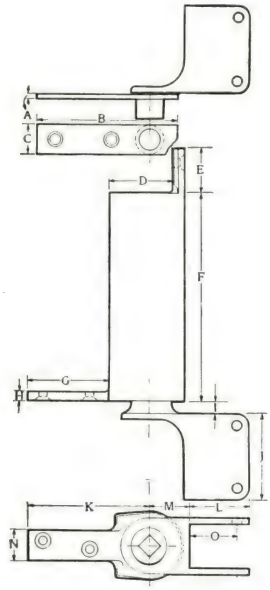


Details Lavatory Door Spring Pivot, Type No. 1030*
Dimensions in inches

A	B	C	D	E	F	G	H	J	K	L
1¾	¾	1 27/32	11/16	1 7/32	1 27/32	2½	1⅜	3 7/16	2 7/8	1 3/32


1025

Details of Lavatory Door Spring Pivot, Type No. 1025
Dimensions in inches



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
⅛	3 15/16	13/16	9/16	1¼	5 13/16	2⅜	¼	⅜	2¾	3⅜	1⅝	1⅛	13/16	1⅛

***We also make a gravity hinge, Type No. 1330, in the same size as detail No. 1030.**

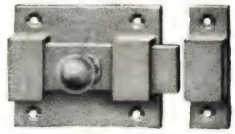
LAVATORY DOOR LATCHES, BOLTS AND INDICATOR

Used in Connection with Strikes and Keepers on Following Page

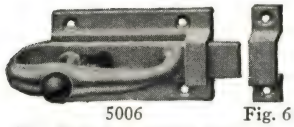
Brass, Nickel or Chromium Plated or Bronze Highly Polished

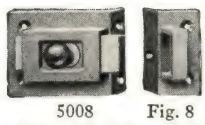

5000 Fig. 0
Plate 1½x2—Bar 3¼x⅞x3/16 in.

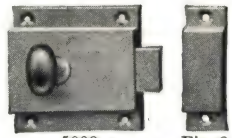

5001 Fig. 1
Plate 2x2—Bar 5x1¼x¼ in.

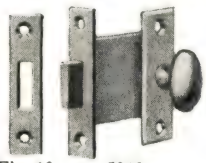

5003 Fig. 3
3x2½—Bolt 3½x⅞x¼ in.


5002
"Government" Type
Has rubber bumper on Knob.
Disc 2" dia. Bar 3 13/16x1 1/16x3/16 in.


5006 Fig. 6
Rim Bolt has rubber bumper on handle
Plate 2⅞x1¾—Bolt 4x⅝x¼ in.


5008 Fig. 8
Plate 2⅜x1¾—Bolt ¾x¼ in.


5009 Fig. 9
Size of case 2½x2⅝—Bolt ⅞x¼ in.
Face to center of handle 1⅝ in.


Fig. 10 5010
Size of case 1⅝x2⅝—Bolt ⅞x¼ in.
Face to center of handle 1⅝ in.



5015
For doors 1 to 2 in. thick
Used with bolts Nos. 5009 or 5010

BOMMER STRIKES AND KEEPERS FOR LAVATORY DOORS

On Marble or Slate Partitions

The strikes have rubber bumpers. The box to clamp to the marble of Nos. 1050 to 1057 is adjustable. Suitable for marble, glass or slate partitions of the following thicknesses:
1 inch 1¼ inches 1½ inches 1¾ inches 2 inches

Nos. 1050 to 1057 are adjustable ⅛ inch over and under above sizes, to allow for variations from size in the thickness of the marble

Thickness of marble and door and finish desired must always be specified when ordering



1050
Without bolt hole reversible for right or left hand door opening in or out



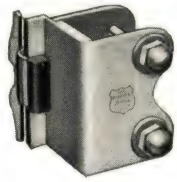
1051
For mortise bolt reversible for right or left hand door opening in or out



1052
For throw latch reversible for right or left hand door opening in



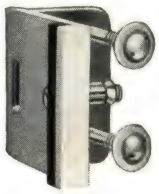
1055
For rim bolt reversible for right or left hand door opening in



1056
For throw latch reversible for right or left hand door opening out



1057
For rim bolt reversible for right or left hand door opening out



1062
For rim bolt reversible for right or left hand door opening in



1063
"Government" Type
Not adjustable for throw latch, reversible for right or left hand door opening in



1065
Not adjustable
For partition without hanging stile, door opening in



1066
Not adjustable
For partition without hanging stile, doors opening in



1068
Not adjustable
For partition without hanging stile, doors opening out



1067
Not adjustable
For partition without hanging stile, door opening out

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

No.	
1050	Without bolt hole
1051	With keeper for No. 5007 or 5010 bolt
1052	With keeper for Nos. 5000, 5001 or 5002 throw latch
1055	With keeper for Nos. 5003, 5006, 5008 or 5009 bolt
1056	With keeper for Nos. 5000, 5001 or 5002 throw latch
1057	With keeper for Nos. 5003, 5006, 5008 or 5009 bolt
1062	With keeper for Nos. 5003, 5008 or 5009 bolt
1063	With keeper for No. 5002 throw latch, according to government specification
1065	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt
1066	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt
1067	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt
1068	Cut for Nos. 5003, 5006, 5008, 5009 or 5010 bolt

Applied Flush with Surface



No. 1070



No. 1072



No. 1073

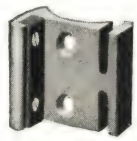


No. 1074

For Pipe Standards



No. 1083



No. 1084



No. 1085

BRASS NICKEL OR CHROMIUM PLATED OR BRONZE HIGHLY POLISHED

No.	
1070	Applied to face of door flush with partition
1072	Applied on edge of door or partition
1073	With keeper for throw latch. For doors opening in. Always specify thickness of door
1074	With keeper for rim or throw latch. For doors opening in. Always specify thickness of door
1083	Applied to pipe standard with machine screws. Always specify outside diameter of pipe
1084	With keeper for throw latch. For doors opening in. Always specify outside diameter of pipe
1085	With keeper for rim or slide bolt. For doors opening in. Always specify outside diameter of pipe

Always state width and thickness of bolt bar for items with keeper. Special strikes to meet other conditions than above indicated are made to order. To avoid errors specify by number and state which finish is wanted

ACCESSORIES FOR LAVATORIES

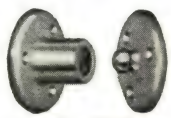


No. 5030



No. 5031

Hat and Coat Hooks
Length 3¾ in. over all—Plate 1⅞ in. diam.
Has rubber bumper



No. 5040
Buffer and Plunger
Length 1¾ in. over all
Plate 2¼ in. diam.
Has rubber cushion



No. 5020
Door Pull
Size 4⅝x1⅛ in.

No.	
5030	Coat hook with rubber bumper
5031	Fastened with one bolt through partition and has a projecting dowel; prevents it from turning
5040	Door buffer has rubber cushion furnished with wood screws
5041	Door buffer, same as No. 5040, furnished with bolts to fasten to marble partition
5040A	Same as 5040, made of iron, nickelplated

BOMMER RELIABLE DOOR CLOSERS AND CHECKS

"Bommer Reliable Door Closers" embody entirely new mechanical ideas. They are simple, have few parts and are practically unbreakable. The powerful compression spring positively closes the door and requires no adjustment. The greater checking area prevents slamming. The speed is controlled by the regulator.

The arm, a steel drop forging, has a hardened steel ball bearing roller traversing the cam. The cam design gives powerful action and controls the door. The construction is mechanically correct. All parts are made of materials best suited for their particular purpose. Accurate workmanship insures proper functioning of all parts.

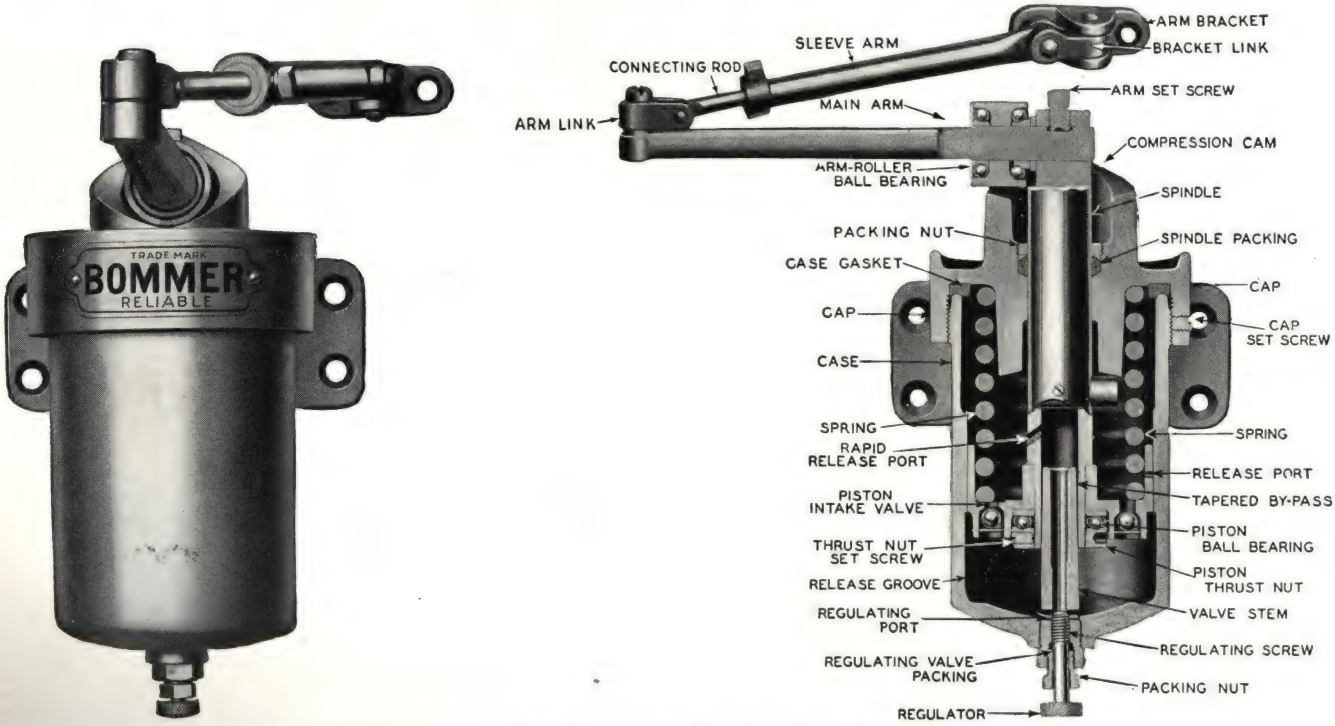
All Bommer Door Closers are reversible and may be used right or left hand without changing any part of the mechanism, and are easily applied by following the templet and simple instructions packed with each door closer and check.

First—they can be adjusted to control the door to a uniform speed from the open position to the jamb, so there is no perceptible noise when the door comes in contact with the jamb.

Second—they can be adjusted to control the door at a uniform speed from the open position to the jamb where the latch comes in contact with the strike. This allows all the spring energy to be exerted in overcoming the latch resistance with the result that the door closes and is not left open at the latch point.

The automatic hold-open feature in the "Bommer Reliable Door Closer" eliminates the use of floor stops, hooks or other devices generally used to hold doors open.

Every closer is tested for mechanical efficiency before leaving the factory and is guaranteed against defects in material or workmanship.



Constructional Features of the Reliable Door Closer

Size and Classification of Door Closers

No. 61—For light doors, screen doors, telephone or coupon booth doors, etc.

No. 62—For pantry or kitchen doors, inside or office doors not over 7x3 ft.

No. 63—For vestibule doors, heavy inside doors, outside doors not over 7x2½ ft.

No. 64—For large interior doors, store doors, outside doors not over 7½x3 ft.

No. 65—For doors not larger than 7½x4 ft.

No. 66—For extra large outside doors (exposed to heavy draft).

These specifications apply to doors under normal conditions. If the door is unusually heavy, or is subject to strong draughts, use one size larger than is specified.

Finishes

Regularly furnished in gold bronze. At the same price (when so ordered) they will be supplied in maroon bronze, symbol MB; silver bronze, symbol XB; or dull black, symbol JD.

Can also be furnished in other finishes and cast bronze at an additional price.

Key Adjustment

The closers and checks illustrated on this and the following page can be furnished with a key adjustment so that only possessors of key may change valve adjustment.

BOMMER RELIABLE DOOR CLOSERS AND CHECKS—(Cont'd)

Method of Attaching Reliable Door Closer and Check

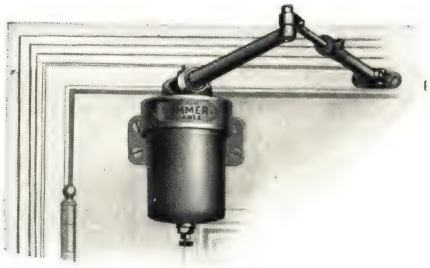


Fig. 1

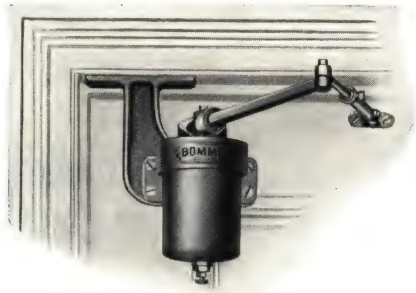


Fig. 2



Soffit Bracket "S"

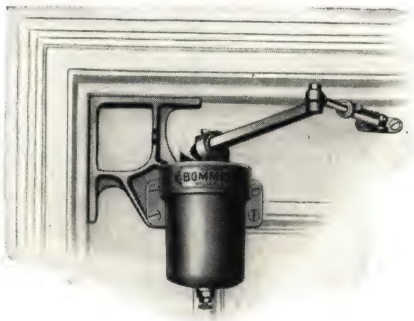


Fig. 3

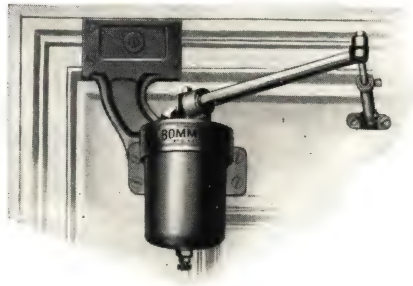
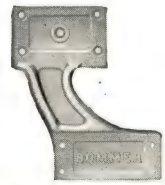


Fig. 4



Corner Bracket "C"



Flush Bracket "F"

Fig. 1—Shows the closer as regularly furnished, applied on the inner or hinge side of door. This method of applying is recommended wherever the condition permits. When applying, the closer may be so placed that the door can be opened to 130° before it will automatically remain open.

Fig. 2—Soffit Bracket "S" should be used where the door opens outward and cannot be applied to the hinge side of door. The soffit bracket and closer may be so placed that the hold-open feature is effective at any determined point between 90° and 165°. The width of the foot or base for attaching to the soffit No. 62 and No. 63 closer is 1¼ in., No. 64 to No. 66 is 1⅝ in.

Fig. 3—Corner Bracket "C" should be used where the door opens outward, and cannot be applied to hinge side of door. The bracket is securely fastened to both the jamb and soffit. When bracket and closer are so applied, the arm may be adjusted so that the hold-open feature is effective at any determined point between 135° and 165°. The width of the corner brackets for all size closers to attach to the soffit is 1½ in.

Fig. 4—Flush Bracket "F" should be used when the soffit is not sufficiently wide to furnish a footing for the soffit or corner bracket. When applying, the closer can be so placed that the door may be opened to 130° before it will automatically remain open.

Hold-open Feature—The Door Closers No. 61 to No. 65, inclusive, have the hold-open feature, but if desired without this feature and if so specified, a stop piece with a setscrew will be furnished that can be fastened to the cam to eliminate the hold-open feature.

The Door Closer No. 66 is furnished regularly without the hold-open feature, but if so specified will be furnished with a special cam that will hold door open.

BOMMER RELIABLE DOUBLE ACTION DOOR CHECK NO. 68

For use on doors hung with double action spring hinges, it permits the door to swing in both directions. No. 68 is a checking device only and has no spring; the necessary power for closing the door is furnished by the spring hinges; the check controls the closing speed and brings the door quietly to rest on the center without any oscillation, thus eliminating noise and greatly reducing draughts.

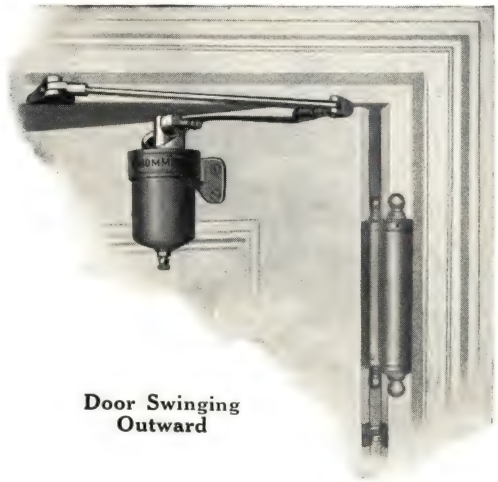
Its construction embodies features identical with those in the "Bommer Reliable Door Closer," except the spring is omitted and the main arm has a knuckle joint.

This permits the door to swing free in both directions; the arm passes over the top of the door when the door is moved in the direction of the check and drops below the soffit of the door frame when the door swings in the direction opposite. A door guide pivot and socket is furnished to keep the door in proper relation with the frame.

This device is most useful for entrance doors to stores and public buildings.



Door Swinging Inward



Door Swinging Outward

ORGANIZED 1871 INCORPORATED 1885

CHICAGO SPRING HINGE COMPANY

Spring Hinges and Pivots

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TELEPHONE, Monroe 6868, 6869

EASTERN OFFICE AND WAREHOUSE
109 Lafayette Street
NEW YORK, N. Y.
TELEPHONE, CAnal 6-2676

TRADE CHICAGO MARK
SPRING HINGES
(Registered U. S. Pat. Office)

Products

Manufacturers of a complete line of SPRING HINGES, including "Chicago" Spring and Springless Butt-hinges; "Triplex" and "Simplex" Spring Butt-hinges; "Relax," "Premier," "Ajax," "Durex" Spring Pivot-hinges; "Triplex" and "Sagless" Lavatory Door Spring Hinges; Lavatory Door Bolts, Latches and Stops; "Triplex" Gate Spring Butt-hinges; "Sagless" Gate Spring Pivot-hinges; "Sanitex" Closet Seat Spring Hinges; "Chicago" Cabinet and Refrigerator Spring Hinges.

Specially Constructed Products

We solicit details of conditions which require special construction of our products.

Specifications

In specifying, designate article by number, size and finish. Hardware dealers have our catalogue, prices and complete data pertaining to the "Chicago" spring hinge products. Hinges are made of steel, brass or bronze metal, in standard sizes and all standard finishes.

Any special finish to match other hardware, can be furnished promptly.

Quality and Prices

The quality has been recognized for many years and the product considered as standard.

Prices are comparative with those for articles of similar type and quality.

"Triplex" Spring Butt-hinges—Double Acting, Type 2001; Single Acting, Type 2002

Hanging strip required.

The Chicago "Triplex" (Three Leaf) spring butt-hinge requires a hanging strip for applying it to door casing. One flange is mortised into the hanging strip and the other into the door, which gives a uniform appearance and secure application.

The body is made from one piece of metal, formed with multiple thickness in the web and there is no joint where the barrel continues as the web. This gives maximum of strength and rigidity and avoids exposing springs to moisture which would cause rust and breakage.

The broad steel bearings, hardened lug bushings and disassemblement features are characteristics of this product. Springs are made of the best tempered steel wire, in ample proportions for the most excessive requirements.

Single acting hinges, when so specified, can be furnished with reverse-action springs to hold door open.

This type of hinge is also made with wide web and flanges, to clear handrail on office gates. (Type G2001 double acting and Type G2002 single acting.)

"Simplex" Spring Butt-hinges—Double Acting, Type 9001; Single Acting, Type 9002

No hanging strip required.

The Chicago "Simplex" (Simple Application) spring butt-hinge is applied to the surface of door casing without a hanging strip, the entire thickness of the hinge being mortised into the door. This method of application is simple and economical. The single acting hinge may be applied with one flange mortised into the casing and the other into the door.

The web between the barrels is straight, which gives strength, balanced strain and uniform appearance.

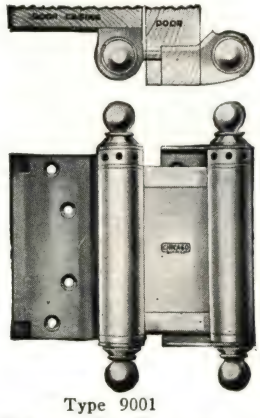
A feature, of great importance, is that all the standards of the "Triplex" spring hinge, which have been recognized for many years, have been maintained in the "Simplex" spring hinge. The body made from one piece of metal formed with multiple thickness in the web and no joint where the barrel continues as the web, distance between the axial centers, location of screw holes, length of mortise cut, size of springs and barrels, straight web, etc., all are identical with the "Triplex," which has been recognized for superior construction and quality by architects, builders and hardware dealers.



Type 2001
"Triplex" Double Acting



Type 2002
"Triplex" Single Acting



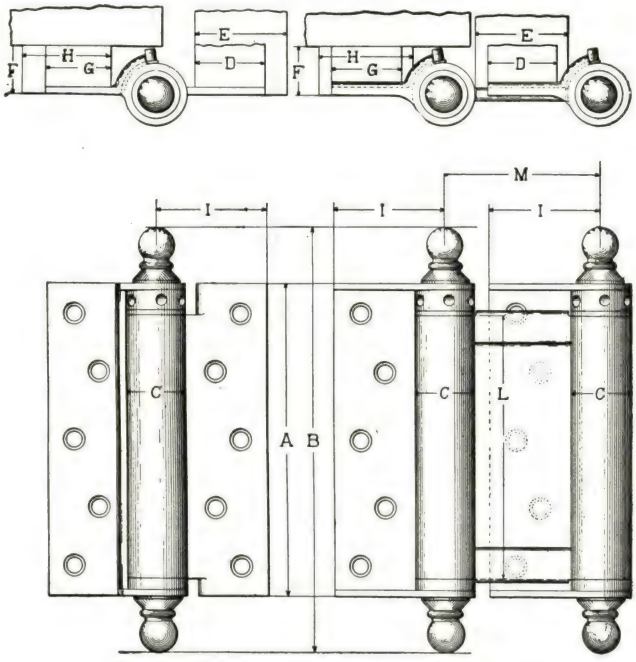
Type 9001
"Simplex" Double Acting



Type 9002
"Simplex" Single Acting

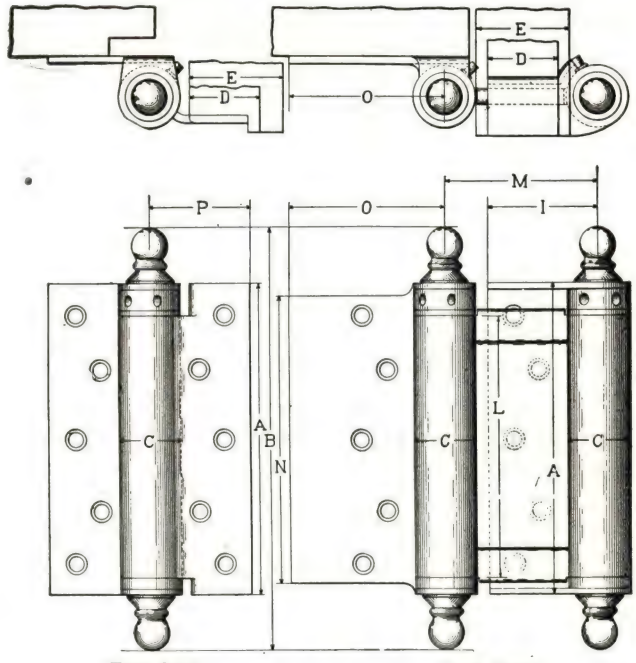
"Triplex" and "Simplex" Double and Single Acting Spring Butt-hinges

Application of proper size of hinge, according to conditions, is an essential to consider in specifying. It is advisable to avoid overloading the hinge by the selection of too small a size, thereby causing the annoyance of doors improperly operating and possible breakages. Details shown on the next page will assist in specifying "Triplex" and "Simplex" hinges. Single acting "Triplex" and "Simplex" hinges, when so specified, can be furnished with reverse-action springs to hold the door open. Supplied in steel, brass or bronze metal in standard finishes or to match other hardware



Type 2002 Type 2001

Detail of "Triplex" Spring Butt-hinge



Type 9002 Type 9001

Detail of "Simplex" Spring Butt-hinge

Dimensions in Inches

Single Acting Type 2002								
A	B	C	D	E	F	G	H	I
3	4 1/2	55/64	3/4	1	5/8	3/4	1	1 9/32
4	5 1/2	57/64	7/8	1 1/4	5/8	7/8	1 1/4	1 3/8
5	6 3/4	63/64	1 1/8	1 1/2	3/4	1 1/8	1 1/2	1 25/32
6	8 1/8	1 3/32	1 1/4	1 3/4	7/8	1 1/4	1 3/4	1 7/8
7	9 1/4	1 7/32	1 3/8	2	1	1 3/8	2	2 5/16
8	10 5/8	1 3/8	1 1/2	2 1/4	1 1/8	1 1/2	2 1/4	2 9/16
10	13 1/8	1 37/64	1 3/4	2 3/4	1 1/4	1 3/4	2 3/4	2 25/32
12	15 1/4	1 3/4	2 1/4	3	1 3/8	2 1/4	3	3 3/8

Double Acting Type 2001										
A	B	C	D	E	F	G	H	I	L	M
3	4 1/2	55/64	3/4	1	5/8	3/4	1	1 9/32	25/16	1 7/8
4	5 1/2	57/64	7/8	1 1/4	5/8	7/8	1 1/4	1 3/8	3 21/64	2 1/8
5	6 3/4	63/64	1 1/8	1 1/2	3/4	1 1/8	1 1/2	1 25/32	4 13/64	2 1/2
6	8 1/8	1 3/32	1 1/4	1 3/4	7/8	1 1/4	1 3/4	1 7/8	5 9/64	2 13/16
7	9 1/4	1 7/32	1 3/8	2	1	1 3/8	2	2 5/16	5 61/64	3
8	10 5/8	1 3/8	1 1/2	2 1/4	1 1/8	1 1/2	2 1/4	2 9/16	6 23/32	3 15/32
10	13 1/8	1 37/64	1 3/4	2 3/4	1 1/4	1 3/4	2 1/2	2 25/32	8 5/8	3 15/16
12	15 1/4	1 3/4	2 1/4	3	1 3/8	2 1/4	3	3 3/8	10 13/16	4 13/16

Dimensions in Inches

*Single Acting Type 9002					
A	B	C	D	E	P
3	4 9/16	55/64	3/4	1	1 13/64
4	5 9/16	57/64	7/8	1 1/4	1 9/32
5	6 3/4	63/64	1 1/8	1 1/2	1 5/8
6	8 3/16	1 3/32	1 1/4	1 3/4	1 23/32
7	9 9/32	1 7/32	1 3/8	1 7/8	2
8	10 11/16	1 3/8	1 1/2	2	2 25/64
10	13 1/8	1 37/64	1 3/4	2 1/4	2 9/16

Double Acting Type 9001									
A	B	C	D	E	I	L	M	N	O
3	4 17/32	55/64	3/4	1	1 9/32	25/16	1 7/8	2 5/8	1 29/32
4	5 1/2	57/64	7/8	1 1/4	1 3/8	3 21/64	2 1/8	3 19/32	2 9/32
5	6 3/4	63/64	1 1/8	1 1/2	1 25/32	4 13/64	2 1/2	4 17/32	2 17/32
6	8 1/8	1 3/32	1 1/4	1 3/4	1 7/8	5 9/64	2 13/16	5 1/2	2 13/16
7	9 1/4	1 7/32	1 3/8	1 7/8	2 5/16	5 61/64	3	6 1/2	3 1/8
8	10 5/8	1 3/8	1 1/2	2	2 9/16	6 23/32	3 15/32	7 5/16	3 5/8
10	13 1/8	1 37/64	1 3/4	2 1/4	2 25/32	8 5/8	3 15/16	9 1/4	4 1/8

*Single acting, Type 9002, may be applied with one flange mortised into casing and the other into the door.

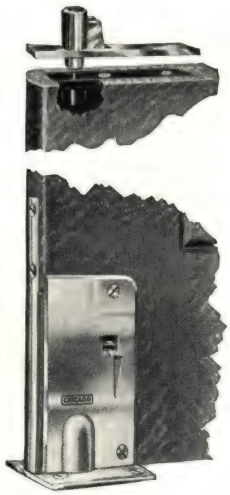
Chicago "Relax" Spring Pivot-hinges—Double Acting, Type 6001

The Chicago "Relax" spring pivot-hinge is suitable for highest class requirements. It is applied to surface of floor, thereby avoiding cutting and possible interference with girders or iron beams. The tension is adjustable. The spring action is readily disengaged by a lever, allowing door to be placed open at any desired position. This is a great convenience, and eliminates the tendency of springs to lose their power as a result of remaining fixed at high tension when doors are held open by door holders. Weight of door is carried on ball bearings located in the top of hinge, thereby protected from dirt and moisture. Plunger top pivot, furnished with this hinge, permits door to be fitted closely to top casing and to be taken down readily without removing any screws. No hanging strip required. Jamb edge of door must be slightly rounded. For tile or concrete floors specify jamb attaching plates.

Furnished in three sizes, for doors 1⅛ to 1½ in., 1½ to 2 in. and 1¾ to 2¾ in.



Jamb Attaching Plate



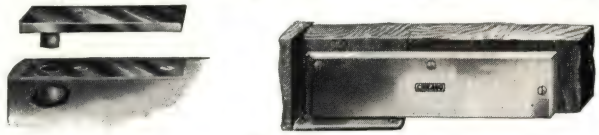
Type 6001

Chicago "Relax" Spring Pivot-hinge

Chicago "Premier" Spring Pivot-hinges—Double Acting, Type 4001

The Chicago "Premier" spring pivot-hinge is applied to surface of floor. Mechanical construction eliminates the tendency of wear in bearings. Action of spring is compression and it is made of best tempered steel flat wire; tension is readily adjusted and a device is provided for aligning door. With this hinge, door will remain open if swung to 90°. No hanging strip is required. Jamb edge of door must be slightly rounded. For tile or concrete floors specify jamb attaching plates.

Furnished in two sizes, for doors 1⅛ to 1¾ in. and 1¾ to 2¾ in.



Type 4001

Chicago "Premier" Spring Pivot-hinge

"Chicago" Spring Butt-hinges—Double Acting, Type 1½

The "Chicago" spring butt-hinge is constructed in a most substantial manner. The spring power, effected by both a torsion and leverage principle, produces a positive action as well as an easy movement of the door.

General construction and mechanical action of this hinge give best results obtainable in operating doors subject to excessive and violent use.

For doors of the following thicknesses:

⅞ to 1 in.	1¾ to 2 in.
1⅛ to 1¼ in.	2¼ to 2½ in.
1⅜ to 1½ in.	2¾ to 3 in.



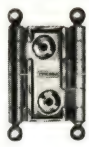
Type 1½

"Chicago" Spring Butt-hinge

"Chicago" Springless Butt-hinges—Double Acting, Type 3½

The "Chicago" springless butt-hinge can be used advantageously in combination with a "Chicago" spring hinge, Type 1½, where doors are light or narrow.

This combination is not advisable on outside doors subject to drafts, where a pair of spring hinges should be used.



Type 3½ "Chicago" Springless Butt-hinge

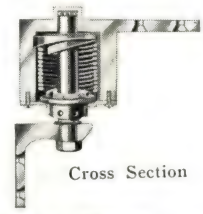
Chicago "Sagless" Gate Spring Pivot-hinges, Type 4007

The Chicago "Sagless" gate spring pivot-hinge is the pivot type, therefore if the gate is wide or heavy, it can not sag. The weight of the gate is carried on ball bearings and is not supported by the spring, therefore a very light tension may be applied. Exterior tension adjustment permits use after hinge is applied. Convex lock washer forms a ball and socket adjustment which automatically aligns hinge pintle.

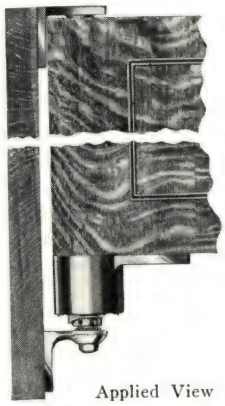
An adjustable pintle, with locking device, permits setting the gate or door to remain at rest in any desired position. The spring is of large dimensions and made of best tempered steel flat wire. A ball bearing top socket is supplied with this hinge. The application is extremely simple and, if desired, all attachments may be applied to the surface of the post and gate without mortising. This is very desirable for metal gates.

These hinges are supplied in iron, brass or bronze metal and are suitable for gates 1⅛ to 2½ in. thick with a hand rail as wide as 2½ in.

The attaching plates of the brackets are 2¼ in. high by 1½ in. wide. Pintle center to surface of post is 1⅝ in.



Cross Section



Applied View

Type 4007, Chicago "Sagless" Gate Spring Pivot-hinge

Chicago "Triplex" Lavatory Door Spring Hinges

The Chicago "Triplex" lavatory door spring hinges, illustrated, are supplied for partition thickness as specified, in brass metal, nickelplated. White bronze (Nickeline metal) and other finishes are made to special order. The spring hinge flanges are 4 in. long.

The 2242, 2244, and 2246 hinges, illustrated below, have adjustable clamp flanges and open head nuts on bolts, permitting adjustment of ⅛ in. under and over the following sizes by which they are specified: 1, 1¼, 1½, 1¾ and 2 in.

The advantage of the adjustment in clamp flange is that it can be properly and securely applied to partitions having slight variations in thickness.

Where doors are very narrow or light weight, a single acting spring hinge may be used in conjunction with a springless hinge. See Types 2244 and 2444 illustrated below. Where doors swing out and occupancy indicator is not desired, a checking springless hinge, Type 2246 or 2446 can be used. This hinge holds door ajar when not bolted shut. Where doors swing in, hinges can be furnished with reverse action springs to hold door open. Lavatory door stops similar to No. 1247F, with keeper for door bolt similar to No. 1244, can be supplied in various types to meet conditions.

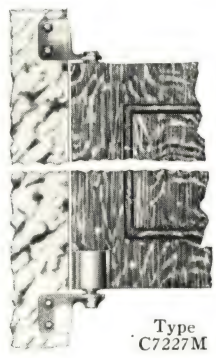
Chicago "Sagless" Lavatory Door Spring Pivot-hinges, Type C7227S and C7227M

The "Sagless" lavatory door spring pivot-hinge is made with attachments for application to marble partitions or pipe standards. The clamp Type "C" attachments are adjustable ⅛ in. under or over the following sizes by which they are specified: 1, 1¼, 1½, 1¾ and 2 in. This hinge can be used either double or single acting. An adjustable pintle with locking device permits setting the door to remain at rest in any desired position.

A larger hinge of similar type, C4227S or C4227M with greater spring power and with exterior tension adjustment can also be furnished. This hinge is particularly adapted to double acting dwarf vestibule doors. See Type 4007 for description of features.

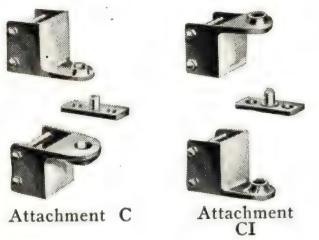


Type C7227S

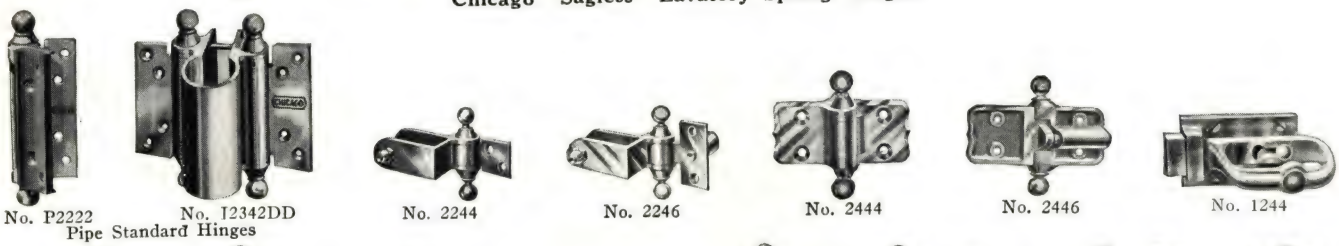


Type C7227M

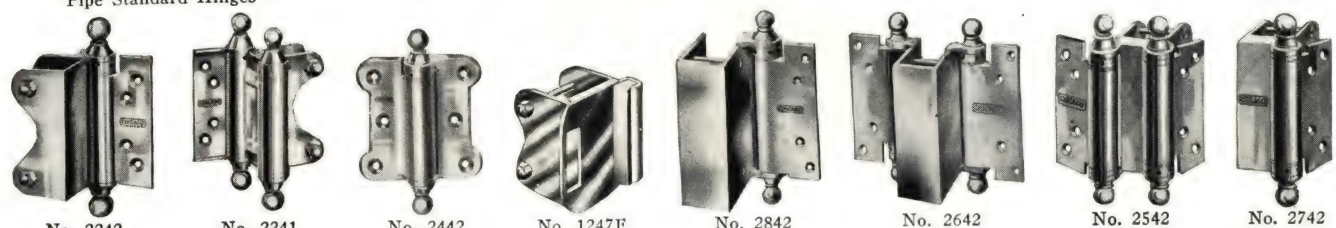
Chicago "Sagless" Lavatory Spring Hinges



Attachment C | Attachment CI | Attachment P | Attachment F



No. P2222 | No. 12342DD Pipe Standard Hinges | No. 2244 | No. 2246 | No. 2444 | No. 2446 | No. 1244



No. 2242 | No. 2241 | No. 2442 | No. 1247F | No. 2842 | No. 2642 | No. 2542 | No. 2742

Chicago "Triplex" Lavatory Spring Hinges, Stops and Bolts

LAWSON-MILWAUKEE HINGES

MANUFACTURED BY

MILWAUKEE STAMPING COMPANY

GENERAL SALES OFFICES AND FACTORY

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Telephone, Randolph 4227-28
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Telephone, CAnal 6-1131
SEATTLE OFFICE AND WAREHOUSE, R. F. Bevers, 521 Thirtieth Avenue, So.
Telephone, Beacon 5187
LOS ANGELES OFFICE AND WAREHOUSE, F. W. Jonas, 320 East Third Street
Telephone, Faber 5519
BOSTON OFFICE AND WAREHOUSE, C. E. Harris Co., 120 Pearl Street
Telephone, Hancock 7966
DENVER OFFICE, Petersen Sales Co., 1921 Blake Street
Telephone, Tabor 1979
ATLANTA OFFICE, Thomas G. Perry, 406 Southeastern Trust Co. Building
Telephone, Main 0716
DALLAS OFFICE, John H. North, 1002 Woodlawn Avenue
Telephone, 6-6398
NEW ORLEANS OFFICE, Fred J. Allen, 1009 Broadway
Telephone, Walnut 3659
MONTREAL, QUE., C. J. Walker, Ltd., 507 Coristine Bldg.
Telephone, Marquette 1501
TORONTO, ONT., T. Mortimer & Co., 64 Wellington Street, W.
Telephone, Elgin 2789

Products

DOUBLE ACTING and SINGLE ACTING JAMB SPRING HINGES, SPRING and GRAVITY PIVOT HINGES, STRIKES, BOLTS, LATCHES and HINGES for toilet stall doors; special HOSPITAL LOUVRE HINGES; SCREEN DOOR HINGES; DOUBLE ACTING FLOOR HINGES; DOOR GUARDS; VENTILATING WINDOW LOCKS.

For Rite-Way Garment Fixtures, Toilet Partitions, Showers and Doors, see Manufacturers' Index.

Quality and Price

Lawson hinges are of the highest quality obtainable. Prices are competitive with other standard makes.

Lawson "Universal" Pivot Spring Hinge

Can be set to hold a door open at any position desired. The pivot bearings prevent sagging of the door.

The hinge support and pivot support can be used either right or left hand, opening in or out by using the pivot support as a hinge support or vice versa.

The pintle is tapered at the bottom and fits into a tapered socket. When the nut is tightened, the pintle is drawn down into the socket, and this taper fit holds the pintle firmly in place.

The hinge is double acting but can be used single acting by the application of a door stop or strike. Best results are obtained by using double acting hinges as this eliminates the pounding of the door against the strike, which causes loosening of the joints or breaking of the marble.

Because of its simplicity, strength, adaptability to any construction and reversible feature, architects and contractors specify Lawson's "Universal" pivot spring hinge.

Lawson Gravity Pivot Hinge

Resembles Lawson "Universal" pivot spring hinge in size, shape and attachments. For use on double acting doors, but can be used on single acting by the application of a door stop or strike.

This hinge has a ball bearing roller which guarantees smooth action. All working parts are completely inclosed in the hinge housing. Furnished with brackets for attaching to marble, slate or metal partitions.

Typical Users

Types of Buildings with Lawson "Universal" Pivot Hinges—

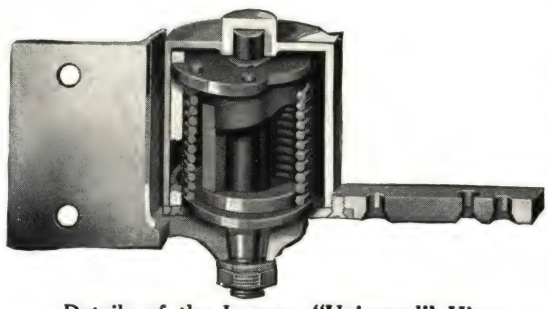
St. Paul Union Depot, St. Paul, Minn.
Loew's Theaters
Los Angeles Public Schools
New York City Schools
Furniture Mart, Chicago, Ill.
Minnesota State Buildings
Bankers Building, Chicago, Ill.
Madison Square Garden, New York, N. Y.
Edgewater Beach Hotel, Unit No. 2, Chicago, Ill.
Western Electric Co., Chicago, Ill.
New Palmer House, Chicago, Ill.
Masonic Temple, Detroit, Mich.
Chicago Stadium, Chicago, Ill.
Empire State Building, New York, N. Y.
New York State Office Building, Albany, N. Y.

Some of the Partition Manufacturers Who Have Adopted Lawson "Universal" Pivot Hinges as Standard Equipment—

The Vitrolite Company
New York Machinery Company
Atlanta Sheet Metal Works
Fiat Metal Manufacturing Company
Albatross Steel Equipment Company
Andres Stone and Marble Company
Structural Slate Company
McClymont Marble Company



No. 2234 Spring Hinge



Details of the Lawson "Universal" Hinge



No. 2834 Spring Hinge

Hardware Specifications for Toilet Stalls

Marble, Slate or Glass—All hinges for toilet stall doors shall be of the pivot type, similar to Lawson's No. 2234 or 2834, made by MILWAUKEE STAMPING COMPANY, and so arranged that they may be set to hold the door open at any desired position, either in or out, as the owner may elect, after the hinges are applied. They shall be of solid brass, nickel plated.

All keepers for these doors shall be of the double acting type, similar to Lawson's No. 1850, 1852 or 1854. (See bottom of following page.)

Metal Partitions—All doors shall be equipped with pivot hinges similar to Lawson's "Universal" hinge or Lawson's Gravity hinge for metal doors, made by MILWAUKEE STAMPING COMPANY, and so arranged that they may be set to hold the door open in or out at any desired position, as the owner may elect, after the hinges are applied.

Where Coin Locks Are to Be Used—(Add the following to above specifications.) All doors shall be set, before the strike is attached, to hold the door open at any desired position. Open door out and attach strike, thus giving the spring additional power necessary to insure locking of the door, no matter how gently the door is closed.

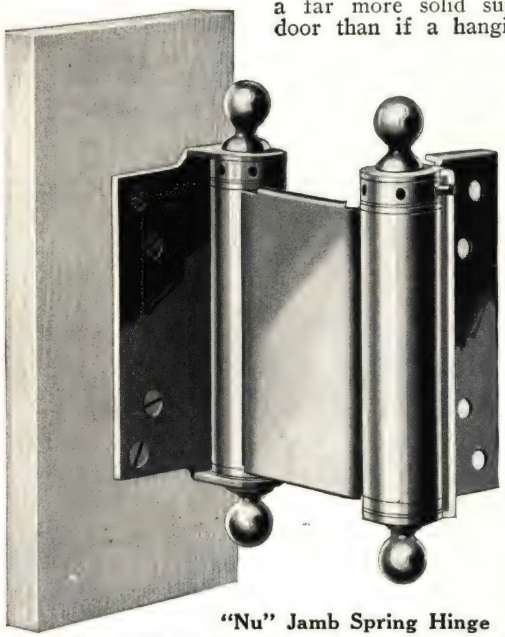
Lawson "Nu" Jamb Spring Hinge

The Lawson "Nu" Jamb spring hinge *does not* require the use of a hanging strip. It fastens directly to the jamb and thus gives a far more solid support for the door than if a hanging strip were used.

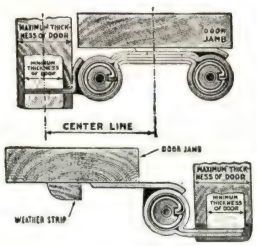
Where a hanging strip is already installed, this hinge can also be used. Only one mortise to make, therefore more easily and quickly applied.

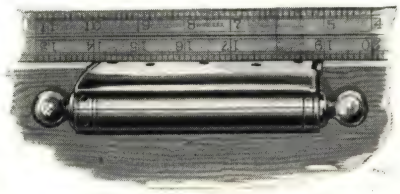
Made of the best materials obtainable, this hinge is exceptionally strong and durable.

It is fully guaranteed as to workmanship and material.



"Nu" Jamb Spring Hinge
Notice that the hinge fastens directly to the door jamb





The Only Mortise to Make to Attach "Nu" Jamb Spring Hinge

LAWSON "NU" JAMB SPRING HINGES

Size of hinge	For doors
3″	¾″ thick x 2′ 3″ wide or 1″ thick x 2′ 0″ wide
4″	1″ thick x 2′ 6″ wide or 1¼″ thick x 2′ 0″ wide
5″	1⅛″ thick x 2′ 6″ wide or 1½″ thick x 2′ 3″ wide
6″	1¼″ thick x 2′ 9″ wide or 1¾″ thick x 2′ 3″ wide
7″	1⅜″ thick x 2′ 9″ wide or 2″ thick x 2′ 6″ wide
8″	1½″ thick x 3′ 0″ wide or 2¼″ thick x 2′ 6″ wide
10″	1¾″ thick x 3′ 0″ wide or 2½″ thick x 2′ 9″ wide

For outside doors subject to draft, wide or heavy doors of hardwood, metal covered doors, or doors weighted with heavy plate glass or hardware, use the largest size hinge the thickness of the door will permit.
Wide doors require larger size hinges than narrow doors.

Milwaukee Jamb Spring Hinges

To be applied to a hanging strip.

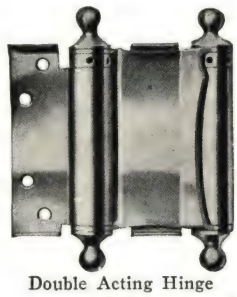
Material—Best grade of cold drawn steel, bronze or brass and spring steel of finest oiltempered quality.

Construction—Springs are large diameter, unusual in length and retain their great resiliency and power indefinitely. Hinges are designed so as to protect the spring from moisture and grit.

Bearings are entirely enclosed in the barrel and are formed by the spring bottom and the tension adjustment working on the ball tips. This results in a large bearing surface. Outside surface is plain and smooth and can be easily kept clean. Brass and bronze hinges are equipped with steel bearings. This makes them equally as strong and durable as steel hinges.

Finish—Great care is exercised to maintain a high standard in the finish. Each and every part is given an extra heavy coat of plating.

Finished in planished steel, solid brass or bronze.



Double Acting Hinge



Single Acting Hinge

Milwaukee Jamb Spring Hinges

SIZES FOR SINGLE OR DOUBLE ACTING BUTTS

Length of flange	3″	4″	5″	6″	7″	8″
Thickness of door	¾″ to 1″	⅞″ to 1¼″	1″ to 1½″	1⅛″ to 1¾″	1¼″ to 2″	1½″ to 2¼″

Always select the largest hinge which the thickness of the door permits.



Gate Hinge

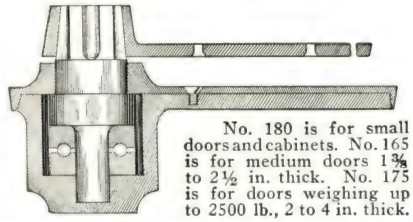
"Universal" Pivot Gate Hinges

Lawson "Universal" pivot gate hinge is sagless and requires no hanging strip. It is the only gate hinge with a positive alignment feature.

Maximum width at hand rail, 2 in. Thickness of gate, 1 to 2 in. Diameter of cup, 2 in. Brackets, 2x1⅛ in. wide.

Matchless Pivot Hinges Without Springs

The ball bearings distribute the weight and provide easy and noiseless action. For double and single acting doors.



No. 180 is for small doors and cabinets. No. 165 is for medium doors 1⅜ to 2½ in. thick. No. 175 is for doors weighing up to 2500 lb., 2 to 4 in. thick.

MATCHLESS PIVOT HINGE WITHOUT SPRING

Dimensions	No. 165	No. 175	No. 180
Top plate	2 1/16″ x 4½″	4¾″ x 5¼″	1″ x 4″
Depth of cup	1¾″	3⅛″	1⅛″
Center of pintle to jamb	1″	1⅞″	11/16″
Bottom socket to floor	⅜″	⅝″	⅜″
Top pivot face plate	1⅜″ x 5⅞″	2″ x 8″	1″ x 4¼″
Invisible socket	1 3/16″ x 7⅞″	2″ x 9¾″	⅝″ x 3¾″

Floor Hinges

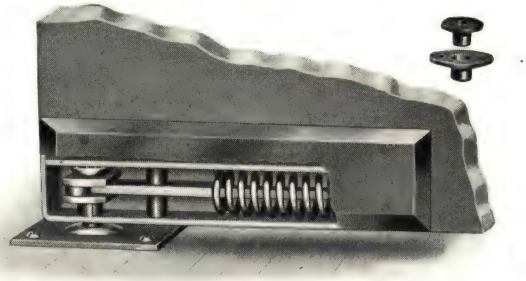
Series No. 800—This surface floor hinge is made for doors from 1⅛ to 1¾ in. thick and of standard size, weighing under 55 lb.

Furnished with square beveled edge side plates which are reversible.

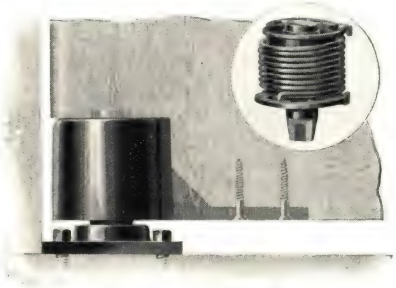
The ball bearing is at the top of the hinge where it should be to carry the weight. This arrangement also keeps it up out of the dirt. The hinge has a smooth, snappy action at all times. Wear is reduced to a minimum by having all moving parts hardened by a special process. Easily and quickly applied.

Series No. 600—This surface floor hinge is of heavier construction and has the working parts enclosed in a grease chamber which keeps out the dirt and prevents wear. For 1⅛ to 1¾-in. doors.

Series No. 900—This surface floor hinge is for heavier doors from 1¾ to 2½ in. thick.

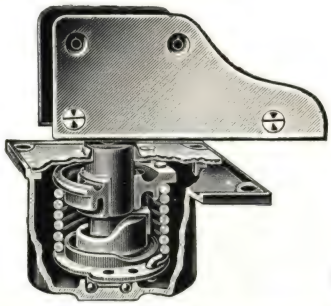


No. 800 Surface Floor Spring Hinge



Matchless Mortise Floor Hinge, Series 1700

Series No. 1700—For doors 2¼ in. thick and over, weighing approximately 500 lb. Especially adapted for factories. Has surface floor plate.



Details of Matchless Mortise Floor Hinge, Series 1200 to 1600, Inclusive

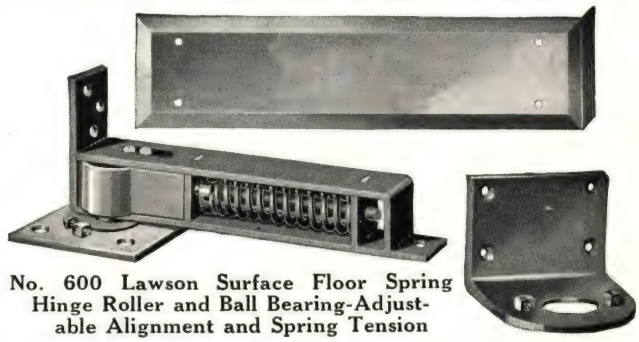
Do not use stronger than No. 1300 for residences. Width of door is the main point to consider

MATCHLESS MORTISE FLOOR HINGE

Series No.	1200	1300	1400	1500	1600
Thickness of doors	1⅛" to 1½"	1½" to 2"	2" to 2½"	2½" to 3¼"	3" to 4"
Size of cover	4¼"x4¼"	4¾"x4¾"	5"x5"	5½"x5½"	6⅛"x6⅛"
Center of pintle to door casing	1⅞"	2 1/16"	2⅜"	2½"	2 11/16"
Depth of hinge	3⅛"	3¼"	3½"	4"	4"

No. 600 Lawson Surface Floor Spring Hinge

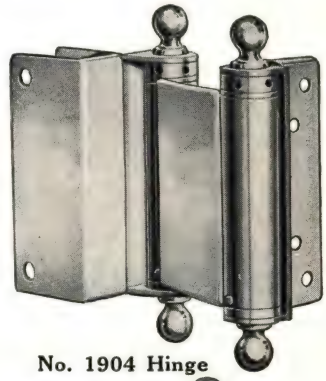
For doors from 1⅛ to 1¾ in. thick and of standard size. This type of hinge embodies all patented features, and, in addition, a grease chamber which encloses and lubricates the working parts, preventing the collection of dust and dirt. Can be used to advantage in a great many places where a checking floor hinge would ordinarily be used.



No. 600 Lawson Surface Floor Spring Hinge Roller and Ball Bearing-Adjustable Alignment and Spring Tension

Lavatory Hardware

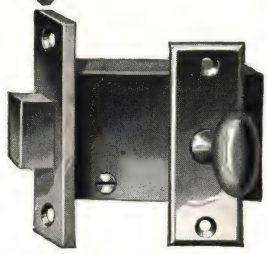
Besides the "Universal" pivot spring hinges illustrated on previous page, we also make a complete line of all types of lavatory hinges, strikes, bolts, bumpers, etc., and can furnish anything desired.



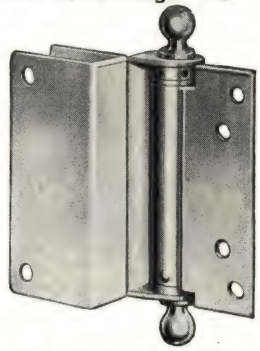
No. 1904 Hinge



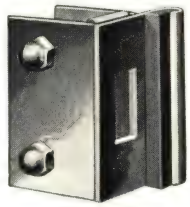
No. 1983 Hook and Bumper



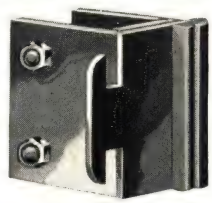
No. 1988 Mortise Bolt



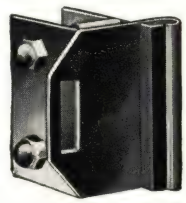
No. 1900 Lavatory Hinge



No. 1842
For Mortise Bolt for Doors Opening in or Out

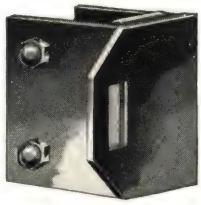


No. 1844
For Throw Latch for Doors Opening in

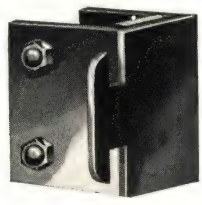


No. 1848
For Rim Bolt for Doors Opening in

Lavatory Door Strikes and Keepers



1852
For Rim Bolt



1854
For Throw Latch



1850
For Mortise Bolt

Double Acting Keepers

THE SHELBY SPRING HINGE COMPANY

Double and Single Acting Checking Floor Hinges

SHELBY, OHIO

NEW YORK REPRESENTATIVE—Harvey Bronner, 90 West Broadway, Room 51

PACIFIC COAST REPRESENTATIVE—Pond Specialty Hardware Co., 2115 Arapahoe Street, LOS ANGELES, CAL.

SHELBY HINGES

Construction

The working parts of all Shelby Hinges are built of substantially proportioned parts of wrought iron or steel, accurately machined.

The spindles of all, except the smallest hinges, are mounted in ball bearings of suitable size.

Springs are manufactured from the most suitable steel obtainable and are carefully heat treated and tempered.

Checking liquid is non-freezing and meets the requirements of the U. S. Government specification.

Finish

Floor plates, pivots, and the other exposed parts can be furnished in wrought and cast brass finished in any of the standard hardware finishes.

Templates

Blue print templates of any of our hinges will be furnished on request.

Catalogue

A complete fifty-page catalogue will be mailed on request.

Hand of Doors

To determine the hand of single acting checking hinges: stand on the outside of entrance doors, on the corridor side of room doors, on the room side of closet doors.

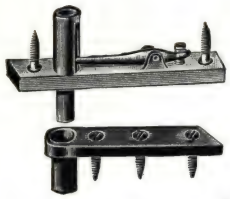
A door hinged on the right-hand side and opening from you as you enter requires a *right-hand hinge.*

A door hinged on the left-hand side and opening toward you as you enter requires a *right-hand hinge* but a left-hand reverse bevel lock.

SHELBY DOUBLE ACTING FLOOR HINGES NOS. 10 AND 11

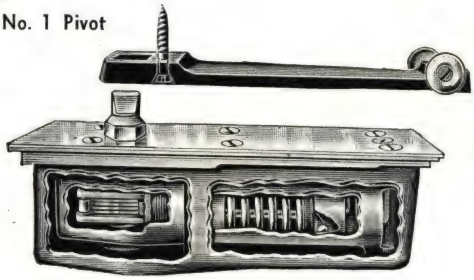
For Light Interior Doors

Federal Specification: Type No. 2350, Sizes II and III



Also made for office and partition gates. Nos. G10 and G11

No. 1 Pivot



These hinges have cam action with cam of laminated and hardened steel. Compression spring, liquid checking, needle valve speed control, adjustable alignment. Cement case is provided with a cork gasket to prevent scrub water getting into the case. Holdopen unless non-holdopen is specified. Prices do not include cement case, which can be furnished at additional cost.

MAXIMUM DOOR SIZES, WOOD AND KALAMEIN DOORS

Hinge No.	Width	Height	Thickness
10	2 ft. 8 in.	7 ft. 0 in.	1¾ in.
11	3 ft. 0 in.	7 ft. 6 in.	1¾ in.

HINGE DIMENSIONS

Part	Length	Width	Depth
Floor plate.....	9⅜ in.	5 in.	
Iron Hinge Case.....	8⅝ in.	4 $\frac{5}{16}$ in.	2 $\frac{11}{16}$ in.
Cast Iron Cement Case	9 $\frac{5}{16}$ in.	4⅝ in.	3 in.

SHELBY DOUBLE ACTING CHECKING FLOOR HINGES NOS. 22 AND 23

For Exterior and Heavy or Wide Interior Doors

Federal Specification: Type 2350A

These hinges have two torsion springs and two checking chambers. Each side of the hinge operates independently from the same spindle or post.

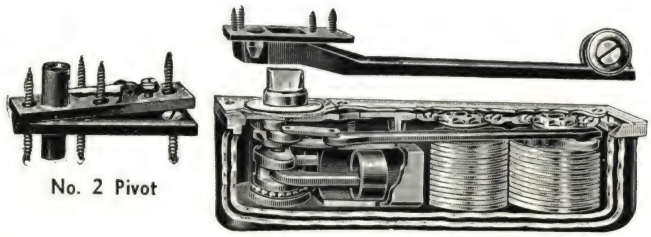
The weight of the door is supported on a forged steel spindle which is seated on ball bearings with special hardened steel ball race.

A new ball bearing device with hardened steel ball race at the top of the spindle takes care of the thrust of the springs. Special bronze bushing and packing about the spindle insures long service and freedom from leakage.

Adjustable spring tension. Closing speed controlled by two needle valves. Top pivot and hinge arm concealed in the edge of the door.

HINGE DIMENSIONS

Hinge No.	Part	Length in.	Width in.	Depth in.
22	Floor plate	14¾	5½	
	Cast iron cement case	14 $\frac{9}{16}$	5⅜	3¾
23	Floor plate	17⅛	6⅛	
	Cast iron cement case	17	6 $\frac{1}{16}$	4⅛



No. 2 Pivot

MAXIMUM DOOR SIZES

Hinge No.	Width	Height	Thickness
Interior Doors			
22	For Heavy or Wide Doors		
Exterior and Vestibule Wood and Metal Covered Doors			
22	2 ft. 10 in.	7 ft. 6 in.	2 in.
23	3 ft. 6 in.	7 ft. 6 in.	2½ in.

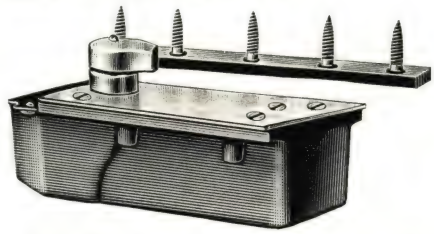
SHELBY SINGLE ACTING CHECKING FLOOR HINGES NOS. 12 AND 13

With Offset Arm—For Light Interior Doors

Federal Specification: Type 2352 No. 13: Size No. 1

This hinge has compression spring with crank action. Spindle is seated in a ball bearing. Arm supporting the door is forged steel. Hinge will be open to 180° and will hold door open at 90°. Can be furnished to hold open at 115° if desired.

Price includes cement case but allowance will be made if furnished without. Hand of door must be stated.





No. 7 Side Pivot for Segment Head Doors

HINGE DIMENSIONS

Hinge No.	Part	Length in.	Width in.	Length in.
12 and 13	Floor plate	8 7/16	5	
	Hinge case	9 1/8	4 5/8	3 1/16
	Cast iron cement case	9 1/16	5	3 1/4

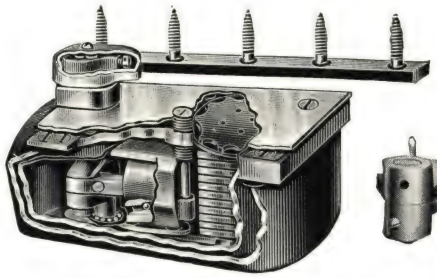
MAXIMUM DOOR SIZES, WOOD OR KALAMEIN INTERIOR DOORS

Hinge No.	Width	Height	Thickness
12	2 ft. 8 in.	7 ft. 0 in.	1 3/4 in.
13	3 ft. 0 in.	7 ft. 6 in.	1 3/4 in.

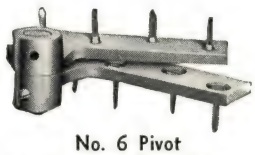
SHELBY SINGLE ACTING CHECKING FLOOR HINGES NOS. 18 AND 19

Offset Arm—Torsion Spring Type—For Entrance Vestibule and Heavy Interior Doors

Federal Specification: Type No. 2352: Sizes II and III



Specify Hand of Door



No. 6 Pivot
For Segment Head Doors Use No. 7

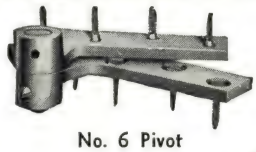
These hinges have crank action. Spindle and hinge arm are steel forgings. The weight of the door is carried on a ball bearing with hardened steel balls and raceways. Will allow door to open to 180° and is self-closing. Holdopen can be furnished if specified. Spring tension and speed of closing is adjustable. Top pivot is a bronze casting with hardened steel pin and has a special bronze self-lubricating bushing. For dimensions see table under Nos. 118 and 119.

MAXIMUM DOOR SIZES

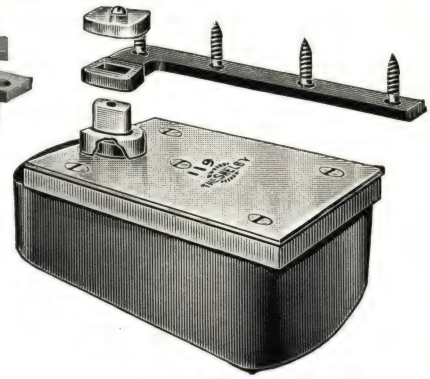
Hinge No.	Width
Interior Doors	
18	3 ft. 6 in.
Exterior and Vestibule Doors	
18	2 ft. 10 in.
19	over 2 ft. 6 in.

SHELBY SINGLE ACTING CHECKING FLOOR HINGES NOS. 118 AND 119

With Offset Arm and Tapered Spindle for Heavy Doors Where Vertical Adjustment Provided on Nos. 18 and 19 Is Unsatisfactory



No. 6 Pivot



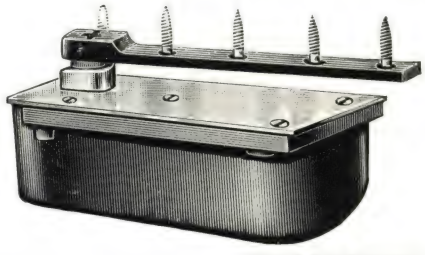
The spindle is squared and tapered and the hinge arm has a rectangular hole which fits snugly over the spindle and prevents any possibility of the door slipping down on the spindle and dragging on the threshold.

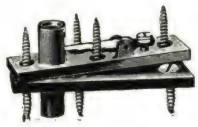
HINGE DIMENSIONS, HINGES NOS. 18, 19, 118 AND 119

Hinge No.	Part	Length, in.	Width, in.	Depth, in.
18 and 118	Floor plate	8 13/16	5 1/16	
	Cast iron cement case	10 1/16	5	3 5/8
19 and 119	Floor plate	9 7/8	6 1/8	
	Cast iron cement case	11 1/8	5 7/8	4 1/16

SHELBY CENTER HUNG SINGLE ACTING CHECKING FLOOR HINGES NOS. C18 AND C19

Torsion Spring Type for Entrance and Vestibule Doors Hung Without Mullions





Federal Specification: Type No. 2350B: Sizes II and III

These hinges are non-holdopen unless holdopen is specified. No hardware shows on the face of the door, and the floor plate centers under the door. Prices include cement cases. In ordering be sure to specify the hand of the door.

HINGE DIMENSIONS

Hinge No.	Part	Length, in.	Width, in.	Depth, in.
C18	Floor plate	10 1/4	5 1/16	
	Cast iron cement case	10 1/16	5	3 5/8
C19	Floor plate	11 1/4	6 1/8	
	Cast iron cement case	11 1/8	5 7/8	4 1/16

MAXIMUM DOOR SIZES

Hinge No.	Width
Interior Doors	
C18	3 ft. 6 in.
Exterior and Vestibule Doors	
C18	2 ft. 10 in.
C19	over 2 ft. 10 in.

LAWRENCE BROTHERS

Manufacturers of Better Ball Bearing Butt Hinges

STERLING, ILL.

Lawrence Products and Service

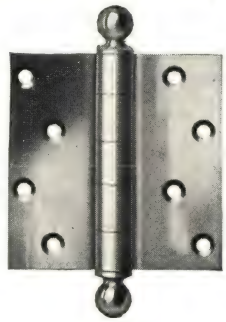
LAWRENCE BROTHERS have manufactured builders' hardware at Sterling, Illinois, since 1875. They offer a complete line of Butt Hinges, Strap and T Hinges, Garage and Barn Hardware, Latches, Screen Hardware, Parlor Door Hangers, Bolts, Wire Goods, Friction Butts, Casement and Cupboard Hardware, Shelf Brackets, Lawrence Quick-rising Door for garages and many other items.

This more than half-century of designing and manufacturing experience has resulted in important improvements in many of these products, notably the special type ball bearing butt hinge described below.

Complete information regarding any item of builders' hardware will be promptly sent to those interested and full co-operation will be given in any problem presented.

THE "ARCHITECTS' SPECIAL" TYPE BALL BEARING BUTT HINGE

The "Architects' Special" type of ball bearing butt hinge has been developed with the special object of meeting the most exacting needs of the Architect. This new and improved product provides the architect with a hinge that will harmonize with period work while at the same time accomplishing the practical utilitarian results derived from the use of ball bearing butts. Their many superior features are clearly brought out in the detailed description given below.

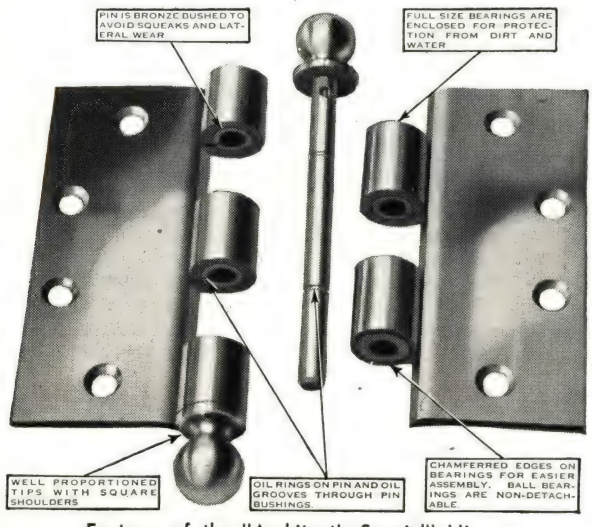


Improved Appearance

There is no bulging mechanism on the barrel to spoil the perfect symmetrical appearance of the hinge. The increased knuckle size provides a fineness of alignment heretofore unattainable and produces a substantial, massive appearance exactly in keeping with the finest work. These improvements have been especially appreciated by architects working on public buildings who have needed a hinge that will carry out the impression of beauty, security and durability that they have drawn into their other architectural details.

Increased Durability

A glance at the larger bearing areas and full size bearings of this butt confirms the impression first made by the larger knuckles. Balls are of tool steel and raceways are case hardened. Adequate provision is made for lateral wear—the heavy pin is bushed throughout its length with heavy bronze bushings. Unlike the older types of ball bearing butts, the bearings of this butt can be easily oiled at any time since they are open to the pin and are provided with oil grooves throughout their length. Thus a drop of oil on the pin will always find its way to the bearings.



Features of the "Architect's Special" Hinge

Quiet Operation

The bronze bushing feature of this new butt provides another important advantage —that of quiet operation throughout its life. The steel pin working against the lubricated bronze bushing *assures* the elimination of squeak and the greater part of the wear encountered in hinges having steel pins working in steel knuckles.

Easier to Keep Clean

The bulging bearings of non-flush types were always dust catchers and attempts to oil them made them worse in this respect. In the case of many bronze butts, the polish used in cleaning them caught in the cracks of the bearing housing. This new butt presents a smooth surface free from dust catching planes and easily wiped off or polished.

Ease of Assembly

The edges of the ball raceways are chamfered so that the butt always slides together smoothly and easily when the door is hung. This feature permits working to closer limits on the knuckles and improves the appearance of the butt. All bearings are permanently locked in place so that they cannot be lost when the butt is taken apart.

Sizes and Finishes

The "Architects' Special" type hinge is made in 4x4, 4½x4½, 5x5 and 6x6-in. sizes and in all finishes.

No.	Description
	Plated and Polished Steel
BB-5000	Regular punching ball tips
BB-5001	Template punching ball tips
BB-5100	Regular punching button tips
BB-5101	Template punching button tips
BB-5050	Extra heavy regular punching ball tips
BB-5051	Extra heavy template punching ball tips
BB-5150	Extra heavy regular punching button tips
BB-5151	Extra heavy template punching button tips
	Plated and Polished Bronze Metal
BB-5000-A	Regular punch ball tips
BB-5001-A	Template ball tips
BB-5050-A	Extra heavy regular ball tips
BB-5051-A	Extra heavy template ball tips

SOSS MANUFACTURING COMPANY, INC.

Manufacturers of Invisible Hinges

ROSELLE, N. J.

DETROIT OFFICE, 1051 Book Building, Washington Boulevard

REPRESENTATIVES

BOSTON, MASS., C. E. Harris Co., 120 Pearl Street
CHICAGO, ILL., John C. Bold & Co., 228 No. LaSalle Street
CLEVELAND, OHIO, The Gesing Bros. Co., 1037 Terminal Tower
LOS ANGELES, CAL., W. H. Steele, 302 E. 4th Street
MINNEAPOLIS, MINN., W. J. Hill, 945 Andrus Building
PHILADELPHIA, PA., R. C. Kratz, 311 Perry Building
PORTLAND, ORE., Geo. E. Tupper, East 325 10th Street, No.
SAN FRANCISCO, CALIF., Ben. R. Blackburn Co., 163 Second Street

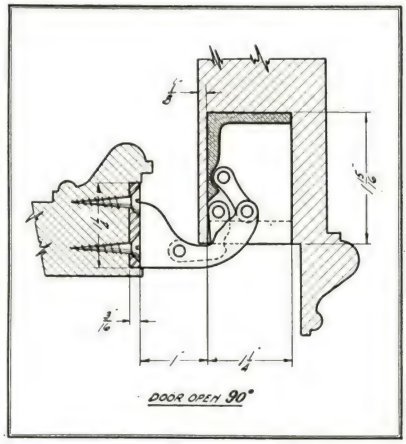
Soss Invisible Hinges

Soss invisible hinges are specially desirable for finer work, for secret panels, in fact, wherever the obtrusiveness of an ordinary visible butt is objectionable. They are mortised into the door and jamb and when the door is closed, are entirely invisible, giving *beauty without interruption.* With Soss invisible hinges, no metal projects at either side of the door, and there is no wide crack when the door is open, for these hinges fit into a mortise. Soss invisible hinges also offer a safety feature of unusual value—when the door is closed, there is no way of reaching the hinges. As an added advantage, Soss invisible hinges require no extra effort or labor to apply—they are mortised into the same part of the door and jamb as the ordinary butt.

To all these features of Soss invisible hinges is added extraordinary strength and carrying power, due to short leverage and sturdy construction.

SOSS

TRADE-MARK



No. 117 Soss Hinge Installed

Showing clearance when door is fully opened. Used on house doors and secret panels with projecting moulding

Years of use have proved that doors hung with Soss hinges will not sag, nor will hinges wear down under heavy loads.

A templet, the use of which insures an accurate mortise, is furnished with each pair of hinges.

Types—Soss Invisible Hinges are supplied in three types, irrespective of plating finish, as follows:

Rufkast: our standard hinge with smooth surfaces, but not ground or polished.

Blunt: on our blunt hinges, the hinge plates are ground and polished.

Polished: on the polished type, not only plates but links or connecting members of hinge are ground and highly polished, producing a product of superior finish.

Standard finish for all of the above types of hinges is dull brass, but we can supply them in any special finish desired at an additional charge. Prices for special finishes on application.

Specified Everywhere in the Best Work

Soss invisible hinges are extensively used in the finest residences, office and public buildings, hotels, store fixtures, cabinet work and furniture. They have been adopted by many of the foremost architects and furniture manufacturers in the country.

Catalogue

Latest illustrated catalogue will be sent on request.

SOSS INVISIBLE HINGES FOR FURNITURE AND LIGHT CABINET WORK

Hinge No.	Thickness of wood, minimum, in.
99	9/16
100	9/16
101	9/16
102	9/16
103	11/16
110	5/8
115	11/16
300	9/16
302	11/16
302-A	11/16
303	11/16
306	9/16

SOSS INVISIBLE HINGES FOR METAL CABINETS AND MEDICINE CLOSETS

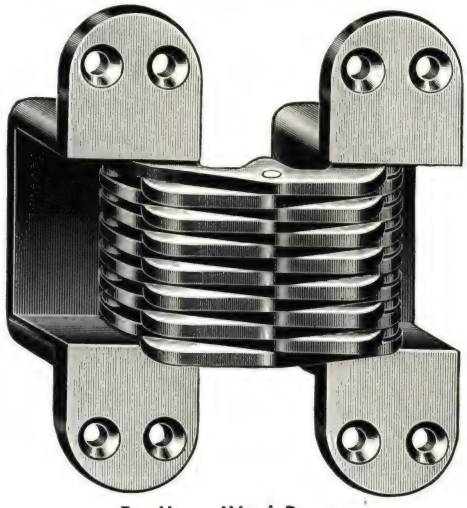
Hinge No.	Thickness of metal, in.
105	1/16
114	1/16
314	1/16



No. 116 (One-half size)

For Standard House Doors

Normal clearance; roller bearings

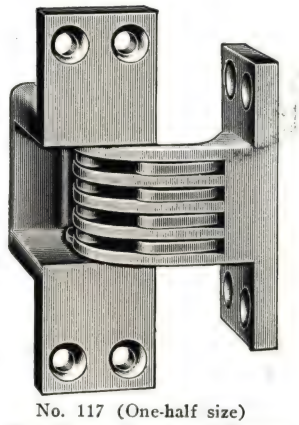


For Heavy Wood Doors

Wide clearance for projecting trim

SOSS INVISIBLE HINGES FOR LARGER DOORS

Hinge No.	Thickness of wood, in.		For doors	
	Minimum	Maximum	Ft. wide	Up to ft. high
104	3/4	7/8	2	5
108	7/8	1 1/8	2	5
112	1 1/8	1 1/4	2	6
115	1 3/8	1 5/8	2 1/2	6
121	1 1/8	...	2	6
117	1 1/2	...	2 1/2	6
118	1 1/2	1 5/8	2 1/2	6
118-A	1 1/2	1 5/8	2 1/2	6
120-R	1 3/4	2 1/2	3	7
120-J	1 1/2		Metal and fireproof doors	



No. 117 (One-half size)

For House Doors and Secret Panels with Projecting Mouldings

THE STANLEY WORKS

Member of the Producers' Council

Manufacturers of Builders' Hardware

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For "Roll-Up" Garage Doors, Electric Door Operators, Sash Pulleys and Wardrobe Hardware, see Manufacturers' Index

Stanley Hardware For Schools and Office Buildings

STANLEY S.W.

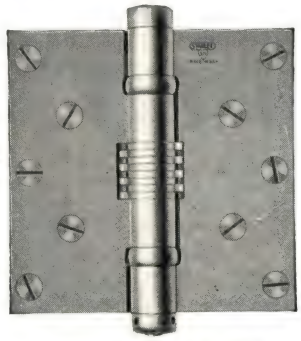
Stanley Hardware For Hospitals



BB181—Bronze
BB250—Steel



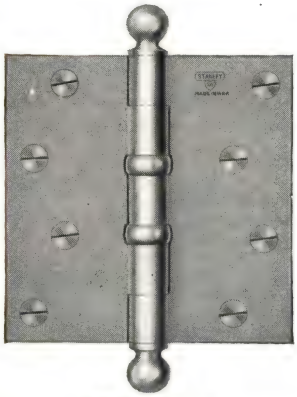
BB102—Bronze
BB162—Steel



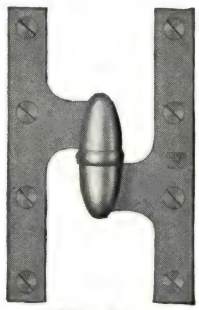
BB253—Steel (Friction)



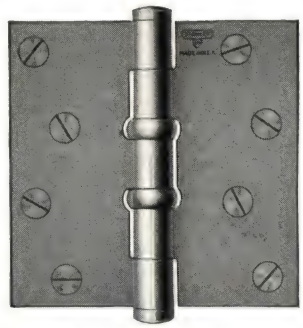
BB97—Bronze
BB137—Steel



BB180—Bronze
BB239—Steel



BB100—Bronze
BB201—Steel



BB180 FBT—Bronze
BB239 FBT—Steel



BB183—Bronze
BB237—Steel



457—Bronze
456—Steel



459—Bronze



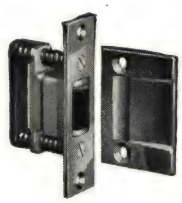
7025—Steel



453—Bronze



454—Bronze



53—Bronze



52



52½—Bronze Plate

VONNEGUT HARDWARE CO.

Von Duprin Self-releasing Fire Exit Devices

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PORTO RICO: Dario Nuin, Mayaquez
CHILE: Morris Rosen, P. O. Box 3327, Santiago

Approvals

United States Government, War Department (Specification "C"), Municipal Department, Treasury Department; Australian Government; New York Board of Fire Underwriters; New York Bureau of Buildings (Borough of the Bronx); National Board of Fire Underwriters (SA163-File 100E24, Chicago, Ill.-A.B.K.F.&S. Standard accident) (R592, 218116-3Pt. Device, Chicago, Ill., Type Q) (Guide 120-1D16-7-File R2179-B.C.D.E. Locations. Types B.F.K.&S. Standard fire and accident); Board of Standards of the Fire Department, New York, N. Y.

Von Duprin Devices Are Manufactured Under:

United States Patents		Canadian Patents
1025102	1245617	273358
1026888	1508668	Copyright 85021
1069075	1564884	Other Patents Pending
1126560	1564183	
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		27354 France
		245825 Germany
		51188 Argentine
		6940 Brazil

WHEN YOU BUY THE GENUINE NEW SERIES TYPE "B" VON DUPRIN, THIS IS WHAT YOU GET

Von Duprin

TRADE-MARK
(Registered U. S. Pat. Off., No. 85021)

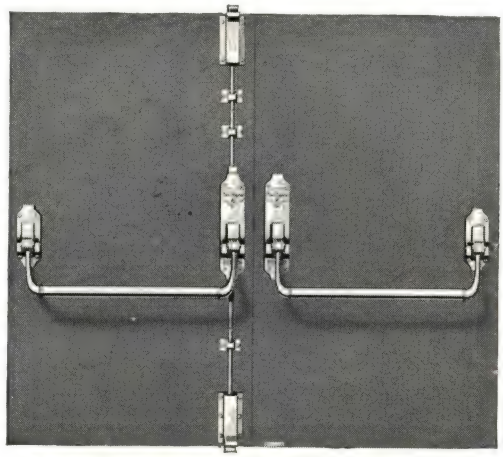
A highest grade, most reliable, strong, extra heavy mortise lock type panic device, a device embodying every refinement known in panic device construction — a device listed as standard by the Underwriters' Laboratories, Inc.

All interior parts are made of special hard bronze; bars and exterior members are made of brass or bronze only.

The cross bar is double acting, to or from the door, and is made of one-inch, 16-gauge seamless brass or bronze tube.

The ball compensating vertical rod construction permits rods to compensate with the winding or warping of doors and positively prevents the binding of the rods.

The cross bar is dogged down with a direct drive into the lever arms at both ends of the cross bar, insuring absolute rigidity. The dogging action is controlled by a key.



A Typical Type "B" Von Duprin Combination

Cross bar axles are so constructed that they can not drop out or be easily removed.

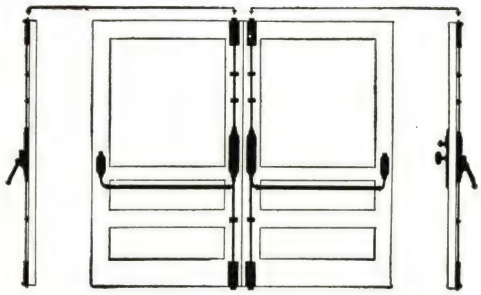
The vertical latches are of the easy spring Pullman type, with a long swing, and operate entirely independent of each other.

All springs are of the compression type and are made, to our own specifications, of phosphorus bronze.

All stumps receiving unusual shock are made of hardened steel. Heavy wearing parts are covered with case hardened steel sleeves, reducing friction to a minimum. The cylinder locks are made specially for panic bolt service and have remarkably long life.

NEW SERIES GENUINE TYPE "B" VON DUPRIN DEVICES

Vertical Rod Combinations for Double Entrance Doors Opening Outward

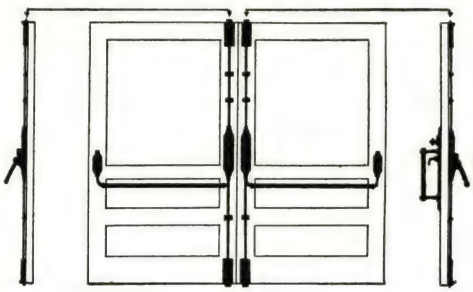


Combination No. 11B for Main Entrance Doors, Where Threshold Is Used

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. 1123B, Type "B" Von Duprin.

Combination No. LR11B, Where Threshold Is Not Used

Inactive door equipped with No. 1137B, Type "B" Von Duprin. Active door equipped with No. 1133B, Type "B" Von Duprin.

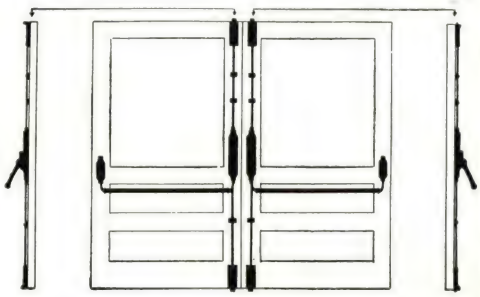


Combination No. 011B Ittner for Main Entrance Doors, Where Threshold Is Used

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. 1123Bx 2660 Ittner Type "B."

Combination No. LR011B, Where Threshold Is Not Used

Inactive door equipped with No. 1137B, Type "B" Von Duprin. Active door equipped with No. 1133Bx 2660 Ittner Type "B."



Combination No. 15B for Double Exit Doors, Where Threshold Is Used

Both doors equipped with No. 1127B, Type "B" Von Duprin.

Combination No. LR15B, Where Threshold Is Not Used

Both doors equipped with No. 1137B, Type "B" Von Duprin.



Inactive 1127B | Active 1123B | 1123Bx2660 Ittner | 1124B Single 1724B Double | NL1124B Single NL1724B Double

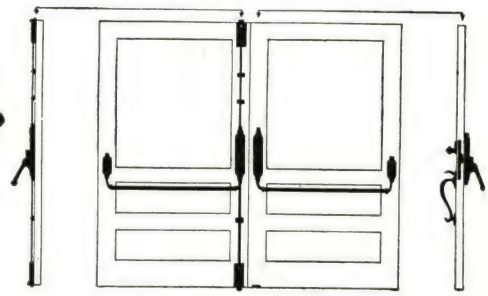


1122B Single 1722B Double | NL1141B Single NL1741B Double | K1126B Single K1726B Double



1130B Single 1730B Double | 1129½B Single | 1129B Single

Useful Combinations for Double Main Entrance Doors Where Threshold Is Used

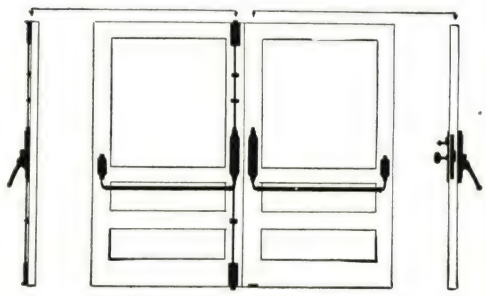


Combination No. 12B

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. 1724B, Type "B" Von Duprin.

Combination No. 13B

Inactive door equipped with No. 1127B, Type "B" Von Duprin. Active door equipped with No. NL1724B, Type "B" Von Duprin (grip and cylinder, no thumb piece, on outside of door).



Combination No. 14B

Inactive door equipped with No. 1127B, Type "B" Von Durpin. Active door equipped with No. 1722B, Type "B" Von Duprin.

Von Duprin Thresholds with Strikes and Buffers Cast Integral

By specifying Von Duprin thresholds with buffers and strikes and cast integral, you automatically eliminate practically all chance of an unsatisfactory installation and consequent condemnation of the panic bolts.

These thresholds are made of solid bronze or brass to your order, are shipped with the devices so that they may be installed at the same time, and are ready for installation with screw holes drilled and two-inch No. 14 brass screws and expansions included.

These thresholds cost very little, if any, more than the ordinary brass or bronze threshold and do very much to assure a highly satisfactory installation.

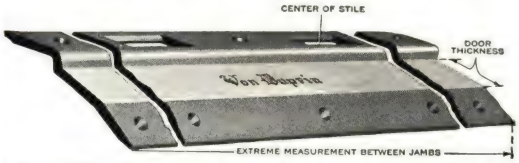


Fig. 2394—Threshold Wind Break and Water Shed

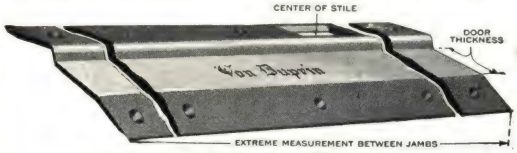


Fig. 2392—Wind Break and Water Shed

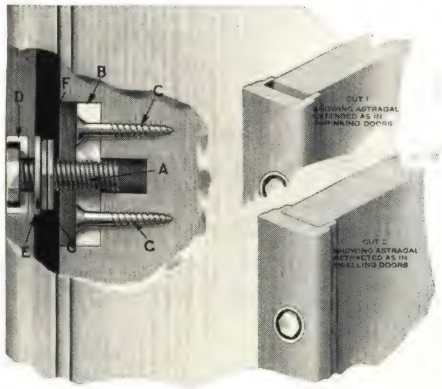
Rabbeted three-way thresholds $\frac{3}{8}$ in. high, $\frac{3}{16}$-in. thick top, 4½ in. for 1¾-in. door, 5 in. for 2¼-in. door



Section Through Threshold Showing Latch in Position

For thresholds No. 2392, 2393 and 2394

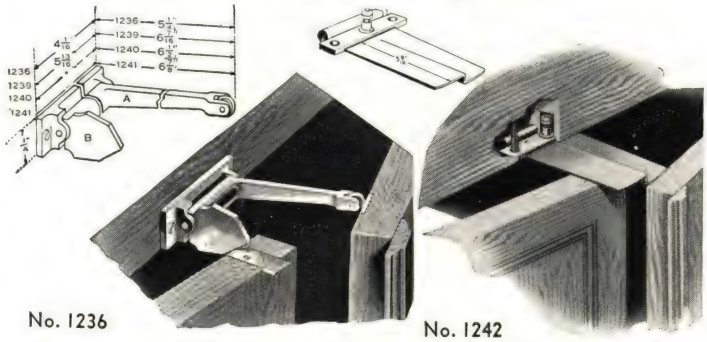
Von Duprin Astragal Compensator



Pairs of doors designed to operate independently must, of course, be made flat faced. When these doors shrink, wide openings appear, allowing air to enter and sometimes permitting picking of the lock.

The new Von Duprin Compensating Astragal Fixture No. 1246 completely overcomes this objection by making possible the easy, quick adjustment of the gap. When the doors shrink—or swell—the gap is adjusted in a few seconds, using a special wrench. This work is usually done by the custodian, skilled labor is not required. Write for complete details.

Von Duprin Co-ordinating Devices



No. 1236 No. 1242

These devices automatically control the closing of independent doors with overlapping astragals, as well as rabbeted face doors. By the simple means of holding the active door until the inactive door has closed, they frustrate any attempt to close the active door first.

Both types of devices are made in cast brass or cast bronze only. The No. 1242 type will be found more satisfactory where some adjustment may be necessary at the time of installation, since it is a simple matter to shorten the arm of this type by cutting with a hack saw.

Von Duprin Type "A" Devices

These devices are designed for single entrance doors and for double entrance doors with mullion. For doors opening outward only.

They are specially made for high-class shop and school entrance doors and are built to stand up under hard service. The Type "A" device has a heavy rim cylinder lock, the latch bolt is of the heavy, hinged, car door type, very easy in operation and proof against binding. Cross bars can be dogged at both ends by special key dogging device.

Double Cylinder Type

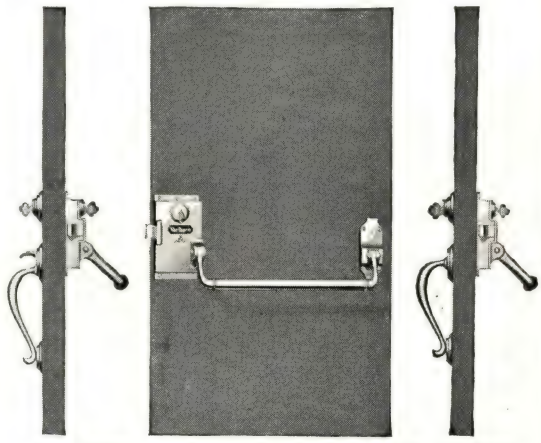
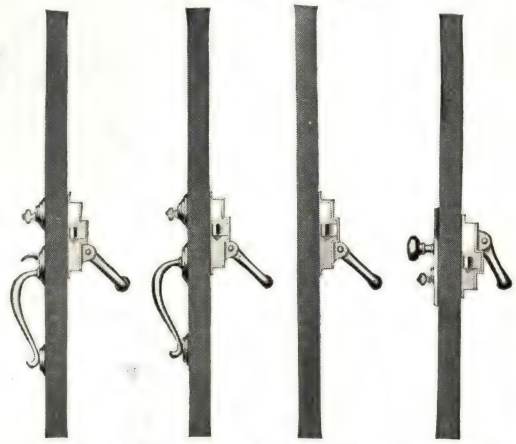


Fig. 1025A Inside Elevation Not reversible Fig. NL1025A Night Latch Action

No. 1025A "Bulldog"—May be locked by turning key in inside cylinder, barring admittance except by key, but permitting the door to be opened from the inside by a touch on the cross bar. Outside cylinder has night latch movement. When locked on the inside and entered by unlocking from the outside, it remains locked until key is turned in inside cylinder. Furnished with grip and thumbpiece.

No. NL1025 "Bulldog"—Has night latch action only. Furnished with grip but without thumbpiece.

Single Cylinder Type



No. 1026A No. NL1026A Night Latch Action No. 1028A No. 1225A

No. 1026A "Bulldog"—The outside cylinder deadlocks the thumb latch. Exit is normal from inside by a push on the cross bar. Furnished with grip and thumbpiece on the outside of the door.

No. NL1026A "Bulldog" — Same as 1026A, omitting thumbpiece—night latch action only.

No. 1028A "Bulldog"—For exit only. No outside unlatching feature.

No. 1225A "Bulldog"—Latch operated from outside in same manner as any ordinary lock and latch device. Featured to unlatch bolt from inside by touch against bar, even though deadlocked from outside.

No. NL1225A "Bulldog"—Same as No. 1225A, omitting knob and escutcheon, and has night latch action only.

No outside hardware except cylinder.

MONARCH MANUFACTURING CO.

Fire Exit Devices and Builders' Hardware

2511-2525 Hart Avenue
DETROIT, MICH.

EASTERN REPRESENTATIVE, George Pariot, 101 Park Avenue, New York, N. Y.

Products

MONARCH PANIC EXIT DEVICES.
MONARCH DOOR BUMPERS and HOLDERS.

For Monarch Friction Sash Centers, see Manufacturers' Index.

MONARCH FIRE EXIT DEVICES

Set 1001 x 1001K—For pairs of doors where a threshold is used—1001 on the inactive door; 1001K on the active door. On single doors when used for exit only, use 1001 or 1002 bolts. No hardware on the outside.

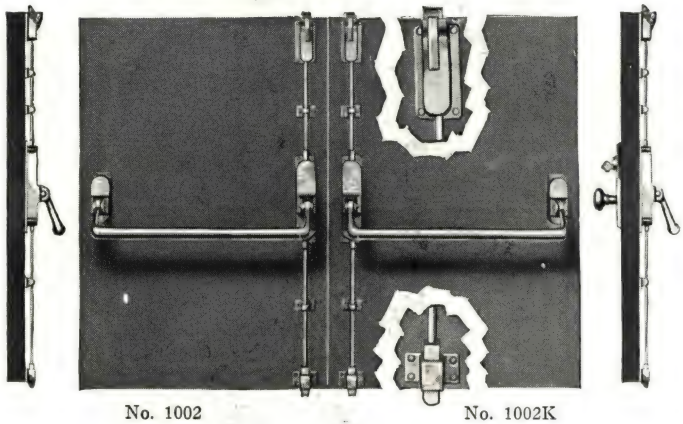
Set 1002 x 1002K—For pairs of doors where no threshold is used.

Note the automatic deadlocking on the top latch of the 1002 type. When the door opens, the latches remain retracted. When the door closes, the top strike releases the latches into the strikes.

Use 1002 on the inactive door; 1002K on the active door.



No. 1001 No. 1001K



No. 1002 No. 1002K

Deadlocking Feature—All of our exit devices have deadlocking feature at each end and can be locked down solid with a key and used as a push bar only when desired. The crossbars are made of solid brass or bronze tubing 1 in. in diameter. The vertical rods are ⅜-in. solid brass or bronze rod. All fittings are made of the same material. All springs are coil type and made of the best grade oil tempered steel spring wire.

Finish—Our stock finish is polished brass or bronze. Any other finish can be furnished when called for.

No. 2 and No. 4 have spring hinged latch both ends. Nos. 2, 3 and 4 have regular panic bolt center boxes with strong springs to snap the handles back to a closed position when used. No. 2 has same automatic retracting feature as shown on panic bolt No. 1002K. For use on door where no threshold is used.



No. 2 No. 3 No. 4. No. 9

⅜-in. solid round rod used on Nos. 2, 3 and 4. ⅝-in. solid half round rod used on No. 9.

All four devices are built extra strong to stand hard usage. Intended for exit doors only with no hardware on outside.

All are made in cast brass or bronze only, and in any finish called for.

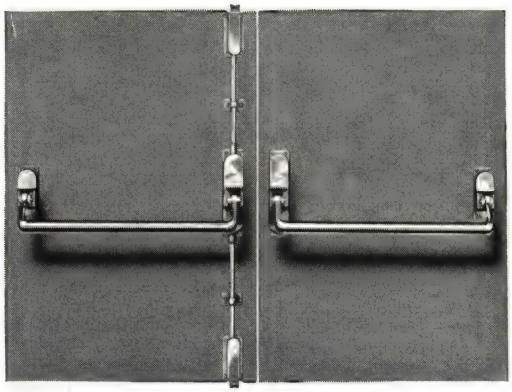


No. 1000 Type Set Inside View, Single Entrance



1000P 1000T 1000K 1000B 1000L 1000R 1000N

Monarch Panic Exit Devices



No. 1001x1000 Type on Double Entrance Doors, Inside View

Description of Monarch Panic Exit Devices

No. 1000P. Has a cylinder lock. A sectional pull outside. No thumb piece.

No. 1000T. Has a cylinder lock. A sectional pull outside with a thumb piece.

No. 1000K. Has a cylinder lock with a knob outside.

No. 1000B. Has a cylinder lock with no hardware outside, only the cylinder.

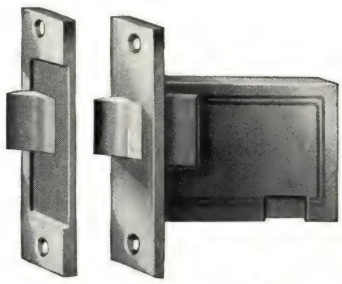
No. 1000L. Has a mortise latch with knob on outside, with plain face and strike.

No. 1000R. Has a mortise latch with no hardware on outside. Has protected face and strike.

No. 1000N. Has a mortise latch with no hardware on outside. Has plain face and strike.

Cylinder Panic Lock

Our cylinder panic lock is operated on inside by pressure on the bar. A concealed stop, operated by a quarter turn of the key, sets the outside thumb piece so that the door cannot be opened from that side, except by a key. An auxiliary latch bolt deadlocks the main latch bolt so as to prevent its being forced back when the door is closed. Both auxiliary and main latch can be retracted by the key-action.



No. 38R No. 38

No. 38R—Protected Face and Strike
No. 38 —Plain Face and Strike

Monarch Door Stops and Holders

Furnished regularly with lag screws as shown. Machine bolts furnished when requested ½x3-in. expansion shields always included. Bolt heads covered with cast bronze caps.

No. 296. Rubber 2½x4x3 in. high.

No. 297. Rubber 2½x3 in. high.

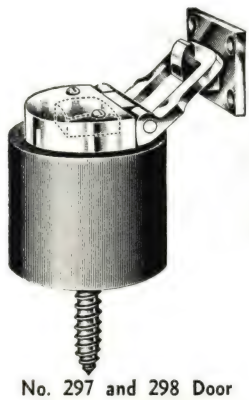
No. 298. Rubber 2½x3 in., used for bumper only. No cap or holder on top.



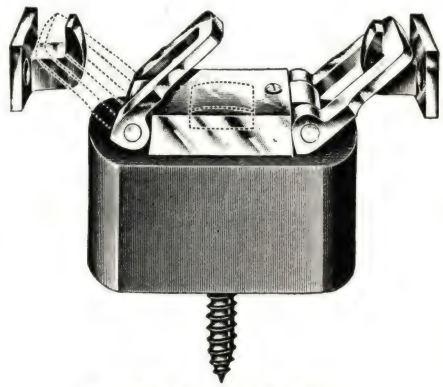
No. 37 Latch Plate

To operate above latches. Size of plate 1x5¾ in.

The push handle is operated by a concealed spring, taking all pressure off the latch



No. 297 and 298 Door Bumper and Holder

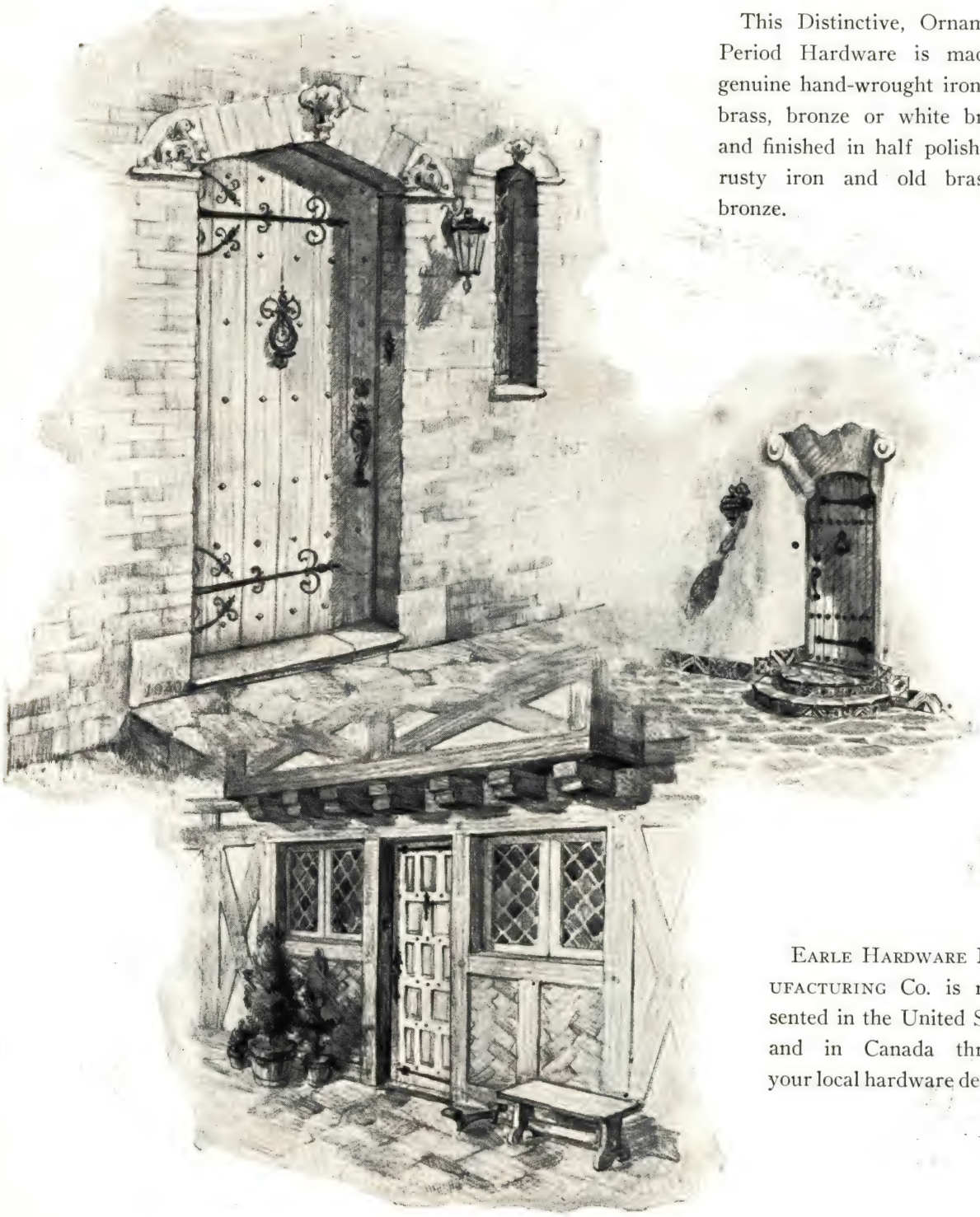


No. 296 Bumper and Holder

EARLE HARDWARE MANUFACTURING CO.

Distinctive Ornamental Period Hardware

READING, PA.



This Distinctive, Ornamental Period Hardware is made in genuine hand-wrought iron, cast brass, bronze or white bronze, and finished in half polished or rusty iron and old brass or bronze.

EARLE HARDWARE MANUFACTURING CO. is represented in the United States and in Canada through your local hardware dealers.

EARLE COLONIAL, ENGLISH AND SPANISH DESIGNS

Guaranteed for Authenticity and Utility

REPRESENTATIVE HARDWARE ITEMS

The complete line of locks and builders hardware shown in our general catalogue can be obtained in all principal cities.

764 Knob, rose & key plate

Colonial 1134 lock 792 knob

718 Knob, rose & key plate

1172 SPANISH Cremorne Bolt

1176 Cremorne Bolt

Gothic 927 lock 949 knob

803 L Hinge

392 Shutter Holder

Combining our distinctive line of cylinder, bit key locks, latches and builders hardware with designs of any period, enables us to schedule a complete set of plans for the home, office, apartment or any other type of building, most reasonably.

Our research department of twenty five years experience guarantees you absolute authenticity in period designing.

731 Knob, rose & key plate

1171 ENGLISH Cremorne Bolt

Equals one inch.

9050 Cylinder F. D. Lock

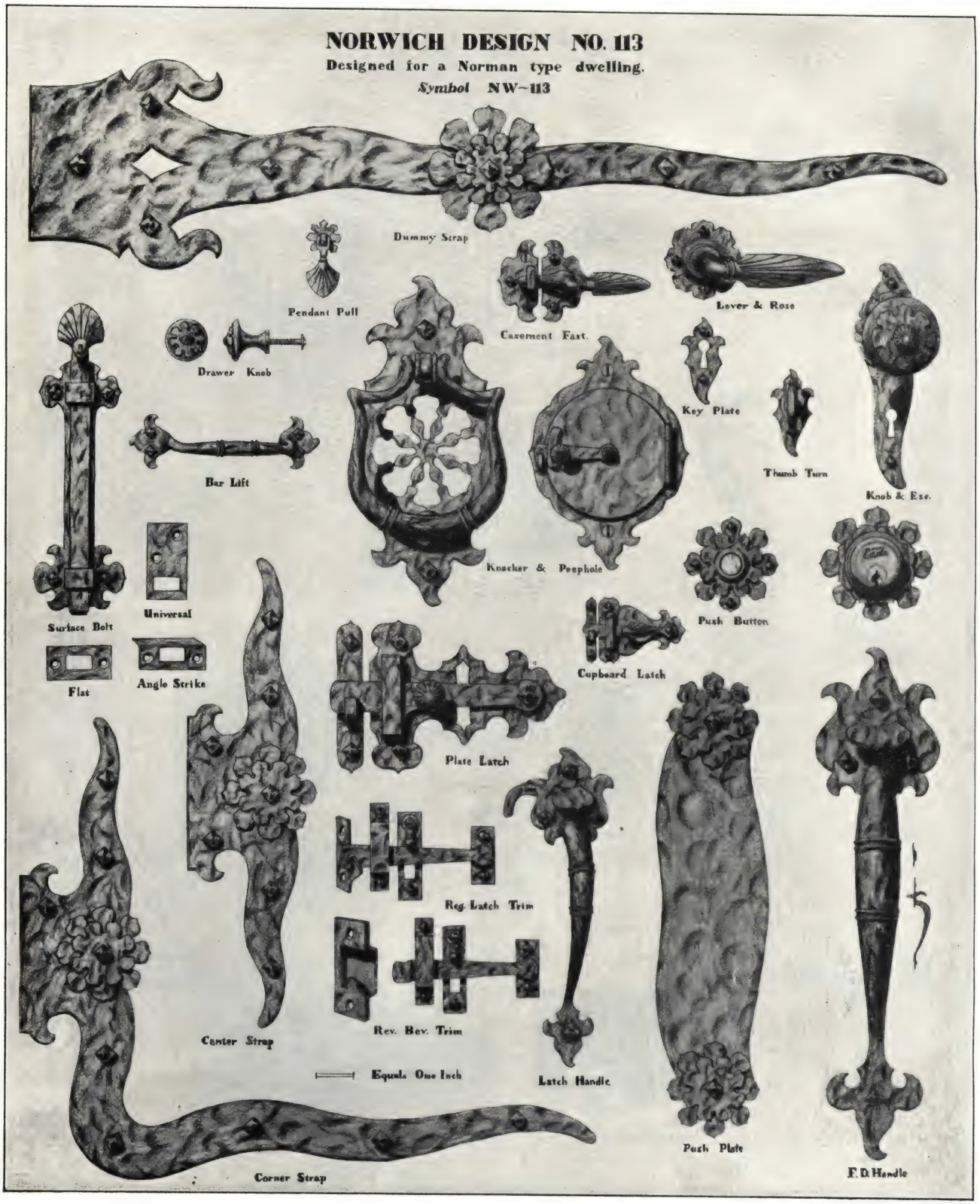
1170 COLONIAL Cremorne Bolt

Colonial 965 lock 960 ring

Colonial 938 lock 83 knob

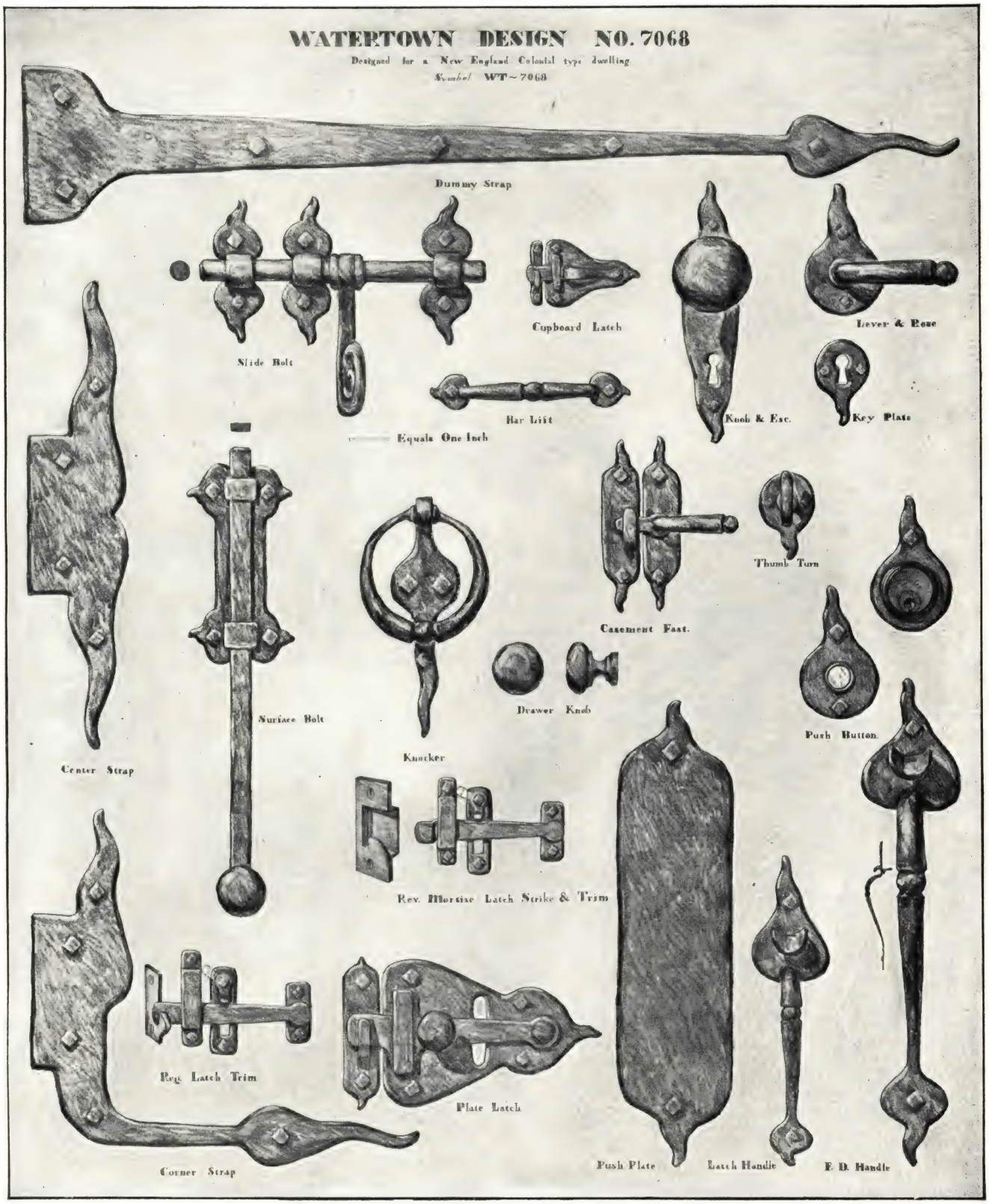
EARLE DISTINCTIVE DESIGNS FOR NORMAN TYPE DWELLINGS

Faithfully Executed to True Norman Style and Splendidly Wrought Throughout



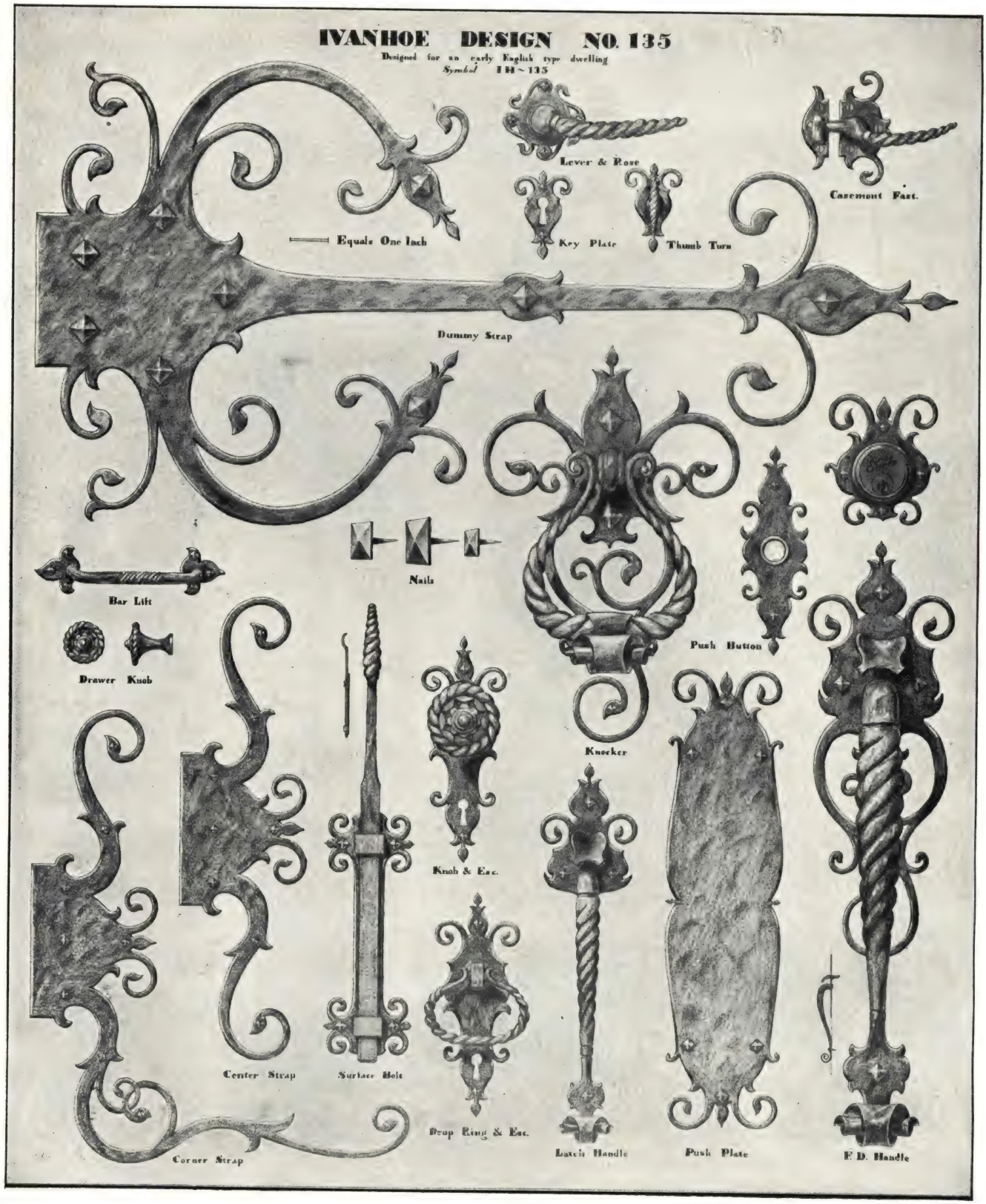
EARLE HARDWARE FOR NEW ENGLAND COLONIAL TYPE DWELLINGS

Expressing the Sturdy Simplicity of Early American Craftsmanship



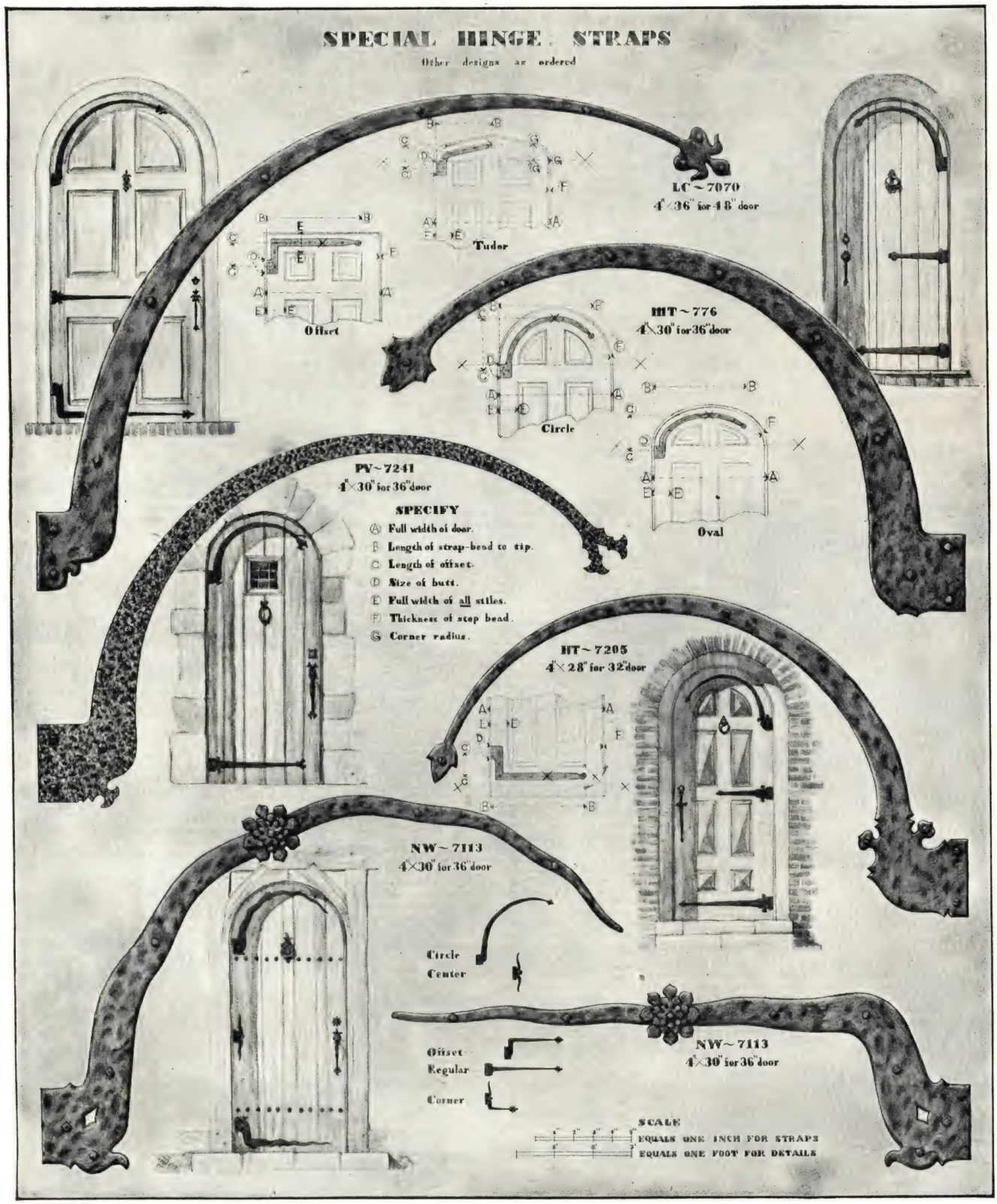
EARLE HARDWARE FOR EARLY ENGLISH TYPE DWELLINGS

Authentic, Artistic and Typically Hand Wrought



EARLE HINGE STRAPS OF UNUSUAL CHARACTER

In addition to standard designs illustrated, we will execute straps to your design, or design special straps for your requirements



THE W. IRVING FORGE, INC.

Hand Forged Wrought Iron Hardware

TELEPHONE
CAledonia 5-2485, 2940

326-328 East 38th Street
NEW YORK, N. Y.

Products

COLONIAL, ENGLISH, SPANISH and ITALIAN HARDWARE of HAND FORGED WROUGHT IRON, BRASS and MONEL METAL; DOOR and SHUTTER HARDWARE, reproduced from authentic hand forged specimens in the W. Irving Collection.

Also manufacturers of Lighting Fixtures, Fireplace Fittings, etc.

Description

Two things must be present in a true piece of hand forged wrought iron hardware; design and craftsmanship. Only when wrought iron designs are faithfully reproduced by the same methods the smiths of olden time used in creating them, can the product be honestly called *hand forged wrought iron hardware.* When the design is copied the result is merely imitative and not real.

Door Hardware

Knobs, lever handles, pull handles, etc., are also reproduced in a combination of brass and iron or all brass.

Finishes

Dead black, half polish iron, antique and polished brass.

Preserving the True Hand Forged Character

Here at THE W. IRVING FORGE, INC., something is done which we do not believe is being done elsewhere today. Hand forged wrought iron hardware is made just as it was made a century and a half ago by unhurried smiths in the Irving way, and the result justifies all the extra trouble it may take.

The holly leaf trade-mark is the pledge of the painstaking execution—"free from the hallmark of rolling mill."

Service

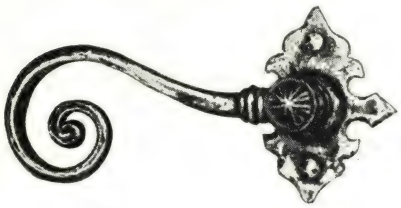
We can develop any ideas submitted by architects, decorators or builders. We also work from architects' drawings and specifications.

Catalogue

Our New Catalogue No. 12 showing our complete line will be sent on request.



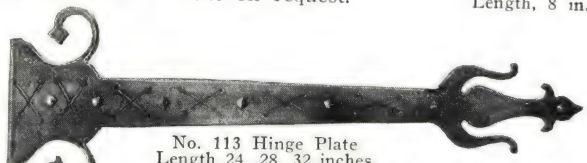
No. 408A
Shutter Hold Back
Length, 8 in.



No. 317 Lever Handle
Length 4½ in.



No. 613
Door Knocker
Length, 6½ in.



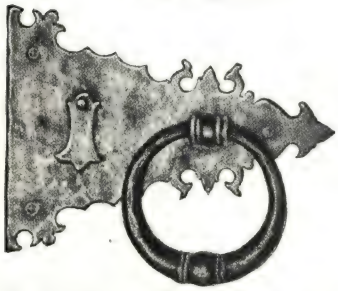
No. 113 Hinge Plate
Length 24, 28, 32 inches



No. 250K
Escutcheon
with No. 680 Knob



No. 110 Hinge Plate
Length 24, 28, 32 inches



No. 29 Escutcheon Plate and No. 706 Drop Ring
Sizes 9x7 in. and 4½ in. diam., respectively



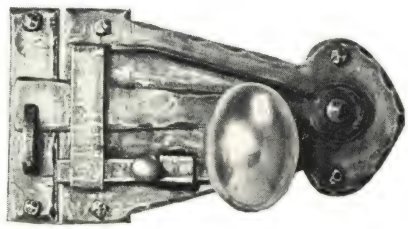
No. 229
Top and Bottom Bolts
Lengths 12, 18, 24 in.



No. 73 Hinge Plates
Standard lengths 21, 24, 28 and 32 in.
Other sizes to order



No. 508C Hand Forged Wrought Iron Rim Box and No. 707 Ring Handle

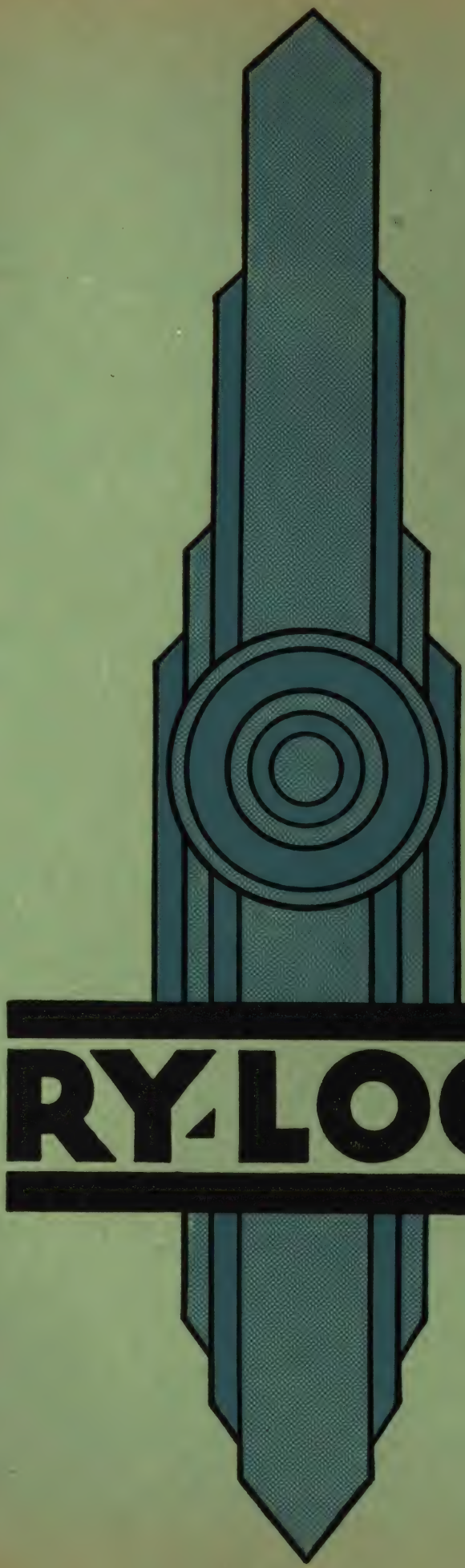


No. 500 Surface Lock



No. 186 Thumb Latch Handle
Length 10½ in.

A Few Hand Forged Wrought Iron Hardware Designs



RY-LOCK

IMPROVED UNIT TYPE DOOR LOCKS

RY-LOCK COMPANY LTD.

SAN LEANDRO CALIF.

RY-LOCK COMPANY LTD

SAN LEANDRO • CALIFORNIA

Manufacturers of

RY-LOCK IMPROVED UNIT TYPE DOOR LOCKS

Ry-lock is the result of persistent effort to produce a unit type door lock satisfying the modern demand for efficiency, dependability and beauty. A perusal of the following pages will make clear the large variety of types and finishes in which Ry-lock products are made and which provide a wide range of architectural treatment in homes, apartment houses, hotels, offices, factories, libraries, public buildings, clubs, schools, hospitals, etc. Our Engineering Department is always glad to cooperate with the architectural profession on any question pertaining to the specifying of door hardware where Ry-lock products may be advantageously used.

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SOLD THROUGH HARDWARE DEALERS

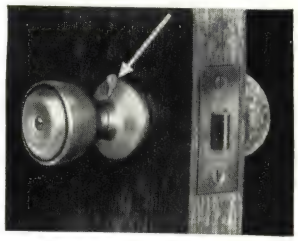
For local Dealers' telephone number, consult local telephone directory, under the heading of "RY-LOCK COMPANY, LTD.", or wire or write us direct for name and address of nearest distributor.

FEATURES OF RY-LOCK DESIGN

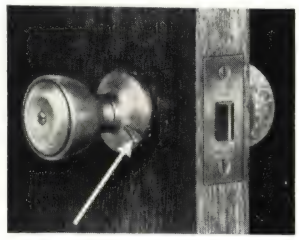
Description

RY-LOCK is a unit type door lock carefully and accurately made and possessed of a number of exclusive mechanical features fully protected by copyright and patents.

The lock mechanism is made of solid brass and cold rolled steel processed by the Udylite method, which assures long wear and resistance to all climatic conditions.



Locked



Unlocked





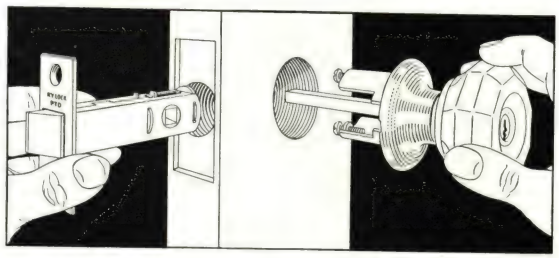
Reinforced Locking Mechanism

The double compression spring latch, reversible for right or left hand doors, and the simple assemblies prevent confusion and facilitate installation.

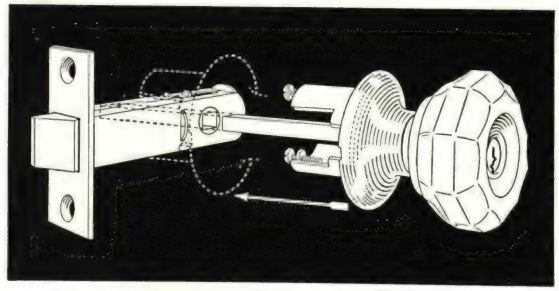
The five-pin tumbler cylinder in the RY-LOCK key sets, combined with the optional dead latching features, provides full protection against intrusion.

Styles and Finishes

The Architect has a wide variety of styles and finishes from which to choose, when specifying RY-LOCK sets, as will be seen by consulting the tables on Page 9 of this catalogue. Metal, glass and catalin knobs, in the mode, add to the attractiveness of fine interiors.



Quick and Simple Installation
(Installed in 10 minutes)



Rigid Assembly

Guarantee

RY-LOCKS are fully guaranteed against defects in material and workmanship.



No. 91 Hotel Lock—
View from Inside

HOTEL AND INTER-COMMUNICATING LOCK SETS

The guest, by turning inside thumb piece, prevents intrusion by master or grandmaster keys, entrance being possible only by emergency key. Locking out feature accomplished with same emergency key. Outside knob always locked; inside knob made rigid by turning thumb piece. Installed simply by boring three holes. Furnished with three keys.



No. 91 Hotel Lock—
View from Outside

No. 91

For corridor entrances in hotels, apartments, and places of similar locking requirements. Adaptable to any door 1⅜ to 2½ ins. thick. Specify door thickness. Latch reversible for right or left hand doors. Backset 2½ ins. Five-pin tumbler cylinder in knob and wafer auxiliary emergency cylinder below. Master and grandmaster keying. Protected strike furnished, when specified. For escutcheons adaptable to this set, see Page 7. For finishes, see Page 9. For other than standard latch, see Page 5. Weight, with metal knobs, 1 lb. 8 oz.

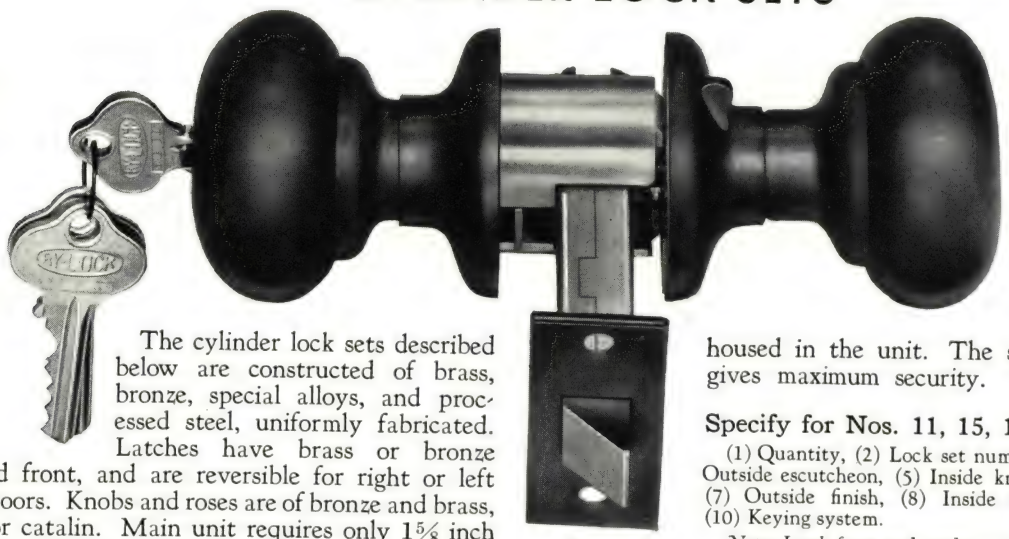
No. 93

For interior doors, where intercommunication is desired. Same construction as No. 91, except the knobs, which are made free or rigid at will by operation of thumb piece on one side and wafer cylinder on opposite side. Adaptable to any door 1⅜ to 2½ ins. thick. Specify door thickness. Latch reversible for right or left hand doors. Backset 2½ ins. Wafer cylinder below knob. Keying alike or in series of 260 changes. Protected strike furnished, when specified. For escutcheons adaptable to this set, see Page 7. For finishes, see Page 9. For other than standard latch, see Page 5. Weight, with metal knobs, 1 lb. 8 oz.

Specify for Nos. 91 and 93

(1) Quantity, (2) Lockset number, (3) Latch, (4) Outside knob, (5) Outside escutcheon, (6) Inside knob, (7) Inside escutcheon, (8) Outside finish, (9) Inside finish, (10) Door thickness, (11) Keying system.

CYLINDER LOCK SETS



No. 15

The cylinder lock sets described below are constructed of brass, bronze, special alloys, and processed steel, uniformly fabricated. Latches have brass or bronze beveled front, and are reversible for right or left hand doors. Knobs and roses are of bronze and brass, glass or catalin. Main unit requires only 1⅝ inch hole. Latch unit requires only 1 to 1⅛ in. holes.

Locking operation is simple and positive. The pin tumbler types described below are characterized by five-pin tumbler brass cylinder in the knob with practically unlimited changes, which controls the locking mechanism housed in the unit. The six-point locking plate gives maximum security. Three keys with set.

Specify for Nos. 11, 15, 15D, 15F, 35 and 30.

(1) Quantity, (2) Lock set number, (3) Outside knob, (4) Outside escutcheon, (5) Inside knob, (6) Inside escutcheon, (7) Outside finish, (8) Inside finish, (9) Door thickness, (10) Keying system.

Note: Latch front and strike are finished like inside trim, unless otherwise specified.

PIN TUMBLER TYPES

Outside Knob Metal or Catalin

No. 11

For hotel guest room and service closet doors. Outside knob always locked, unlocked by key: inside knob always free. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors, with long machine screws for 1¾ in. doors. Specify door thickness. Packed regularly with standard latch. Backset 2½ ins. Five-pin tumbler cylinder. Master and grandmaster keying. Protected strike furnished, when specified. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 12¾ oz.

No. 15D

Cylinder lock with standard dead latch for exterior corridor or other doors where maximum safety is required. Outside knob locked and unlocked from inside by turning thumb piece; unlocked from outside by key: inside knob always free. Adaptable to any door 1⅜ to 1¾ ins. thick. Regularly packed for 1⅜ in. doors, with long machine screws for 1¾ in. doors. Specify door thickness. Reversible beveled front standard dead latch backset 2½ ins. Five-pin tumbler cylinder. Master and grandmaster keying. Protected strike furnished, when specified. Escutcheons, Page 7. Finishes, Page 9. Weight, with metal knobs, 1 lb. 14¾ oz.

No. 15

For external, corridor or other doors, where locking is optional. Outside knob locked and unlocked from inside by turning thumb piece; unlocked from outside by key: inside knob always free. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors, with long machine screws for 1¾ in. doors. Specify door thickness. Regularly packed with standard latch. Backset 2½ ins. Protected strike furnished, when specified. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Weight, with metal knobs, 1 lb. 14¾ oz.

No. 15F

Cylinder lock with heavy dead latch for exterior, corridor or other doors where maximum safety is required. Outside knob locked and unlocked from inside by turning thumb piece; unlocked from outside by key: inside knob always free. Adaptable to any door 1¾ to 2½ ins. thick. Regularly packed for 1¾ in. doors. Specify door thickness. Reversible beveled front heavy dead latch. Backset 2½ ins. Five-pin tumbler cylinder. Master and grandmaster keying. Protected strike furnished, when specified. Escutcheons, Page 7. Finishes, Page 9. Knobs, Page 6. Weight, with metal knobs, 1 lb. 14¾ oz.

WAFER TUMBLER TYPES

No. 35

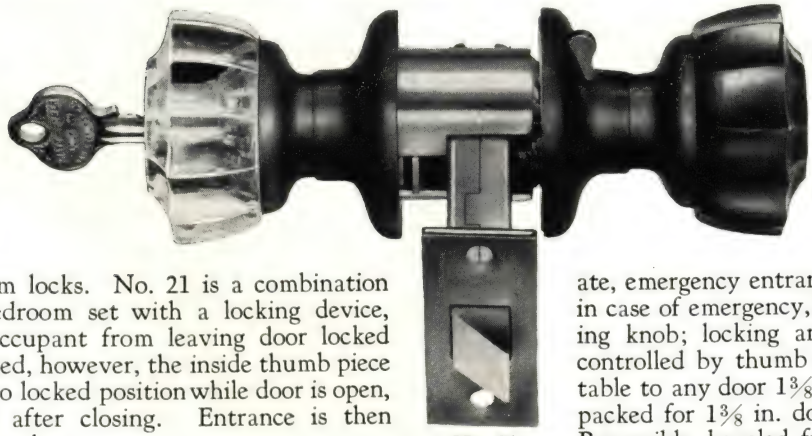
For corridor or other doors where wafer tumbler security is desired. Outside knob metal or catalin. Outside knob locked and unlocked from inside by turning thumb piece; unlocked from outside by key: inside knob always free. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. door. Specify door thickness. Regularly packed with standard latch. Backset 2½ ins. Wafer tumbler cylinder. Master keying up to 260 changes. Keying in series or alike. Two keys with each set. Protected strike, when specified. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 9½ oz.

No. 30

Wafer key set for interior doors where key set is desired. Outside knob metal, glass or catalin. Unlocked from outside by key: outside and inside knobs locked and unlocked by turning thumb piece on inside rose. Adaptable to any door 1⅜ to 2½ ins. thick. Specify door thickness. Regularly packed with standard latch. Backset 2½ ins. Wafer cylinder keying alike or in series to 260. One key furnished with each set. Escutcheons, Page 7. Finishes, Page 9, Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 9½ oz.

EMERGENCY LOCK SETS

Button and Key Types



No. 21

The emergency sets described below comply with all regulations relating to bathroom locks. No. 21 is a combination bathroom and bedroom set with a locking device, which prevents occupant from leaving door locked upon exit. If desired, however, the inside thumb piece may be turned into locked position while door is open, remaining locked after closing. Entrance is then gained by front door key.

No. 21 Emergency Key Set

For bedroom, bathroom or other doors. Unlocked from outside, in case of emergency, by Ry-Lock front door key; locking and unlocking of both knobs controlled by thumb piece. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 9½ oz.

No. 20 Emergency Button Set

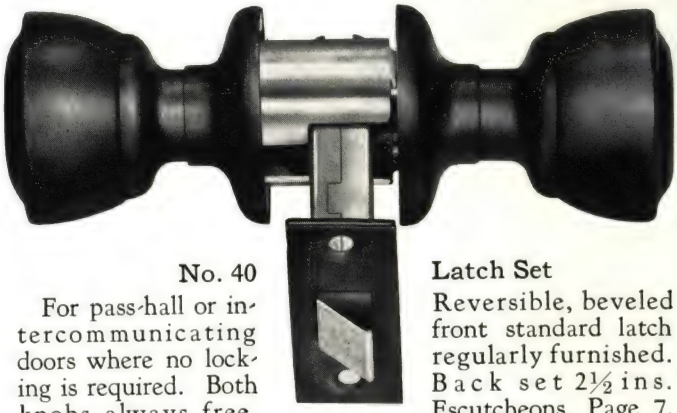
For bathroom or other doors requiring immediate, emergency entrance. Unlocked from outside, in case of emergency, by pressing button and turning knob; locking and unlocking of both knobs controlled by thumb piece on inside rose. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 9½ oz.

Specify for Nos. 20 and 21.

(1) Quantity, (2) Lockset number, (3) Outside knob, (4) Outside escutcheon, (5) Inside knob, (6) Inside escutcheon, (7) Outside finish, (8) Inside finish, (9) Color of glass or catalin knobs, (10) Door thickness.

Note: Latch plate and strike finished like inside trim, unless otherwise specified.

LATCH AND CLOSET SETS



No. 40 Latch Set

For pass-hall or intercommunicating doors where no locking is required. Both knobs always free. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5, Knobs, Page 6. Weight, with metal knobs, 1 lb. 7¾ oz.

Specify—

(1) Quantity, (2) Lock set number, (3) Outside knob, (4) Outside escutcheon, (5) Inside knob, (6) Inside escutcheon, (7) Outside finish, (8) Inside finish, (9) Color of glass or catalin knobs, (10) Door thickness.

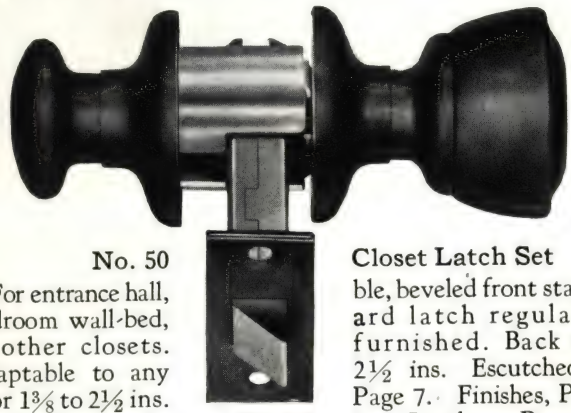
Note: Latch plate and strike are finished like inside trim, unless otherwise specified.

No. 55 Door Pull

For wall-bed, etc., where knob only is required. Finishes, Page 9. Knobs, Page 6.

Specify—

Knob desired. Example—No. 55 G2.



No. 50 Closet Latch Set

For entrance hall, bedroom wall-bed, or other closets. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb, 6½ oz.

No. 51 Closet Wafer Key Set

For closets, wardrobes, etc. Outside knob metal or glass. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ in. Wafer cylinder. Keying alike or in series to 260. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight with metal knobs, 1 lb. 9 oz.

Specify for Nos. 50 and 51

(1) Quantity, (2) Lock set number, (3) Outside knob, (4) Outside escutcheon, (5) Inside knob, (6) Inside escutcheon, (7) Outside finish, (8) Inside finish, (9) Color of glass or catalin knobs, (10) Door thickness, (11) Keying system.

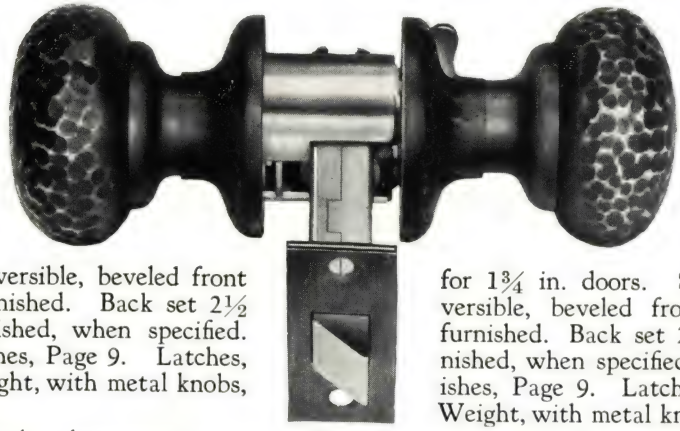
Note: Latch plate, strike and inside trim are finished like outside trim

LATCH LOCK AND FIRE ESCAPE SET

No. 60

Latch lock set for doors leading to porches, balconies or patios. Locking and unlocking of both knobs controlled by thumb piece. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Protected strike furnished, when specified. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 8½ oz.

Note: Should be used with dead latch on doors opening out.



No. 60

No. 61

Fire escape set for fire escape doors. Outside knob always locked, no key. Inside knob always free. Adaptable to any door 1⅜ to 2½ ins. thick. Regularly packed for 1⅜ in. doors, with long machine screws for 1¾ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Protected strike furnished, when specified. Escutcheons, Page 7. Finishes, Page 9. Latches, Page 5. Knobs, Page 6. Weight, with metal knobs, 1 lb. 8½ oz.

Note: Should be used with dead latch on doors opening out.

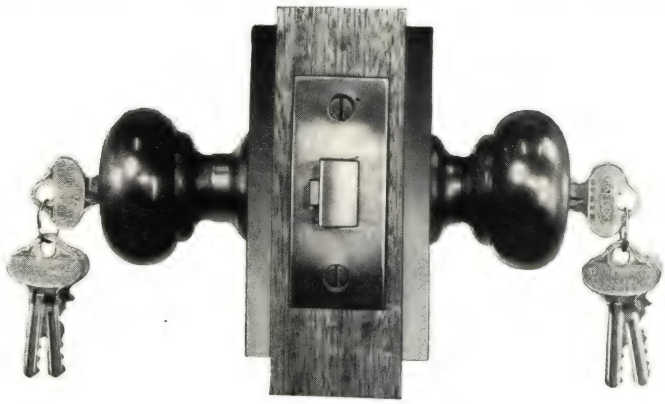
Specify for Nos. 60 and 61

(1) Quantity, (2) Lock set number, (3) Latch, (4) Outside knob, (5) Outside escutcheon, (6) Inside knob, (7) Inside escutcheon, (8) Outside finish, (9) Inside finish, (10) Color of glass or catalin knobs, (11) Door thickness.

SPECIAL LOCK FOR INSTITUTIONS

No. 1515

For doors where it is desirable to keep both knobs always locked. Unlocked only by key from either side. Adaptable to any door 1⅜ to 2½ in. thick. Regularly packed for 1⅜ in. doors, with long machine screws for 1¾ in. doors. Specify door thickness. Reversible, beveled front standard latch regularly furnished. Back set 2½ ins. Two five-pin tumbler brass cylinders. Master and grandmaster keying. Finishes, Page 9. Latches, Page 5. Knobs, Page 6.



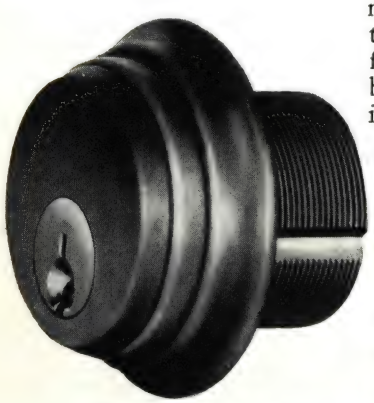
Note: Heavy bronze plates with simple design are regularly furnished. Special plates will be furnished on lots of 100 or more.

Specify for No. 1515—(1) Quantity, (2) Lock set number, (3) Latch, (4) Outside knob, (5) Inside knob, (6) Outside finish, (7) Inside finish, (8) Door thickness, (9) Keying system.

CYLINDER, NIGHT LATCH AND SLIDING DOOR LOCK

MORTISE CYLINDER

To fit all makes of locks. Specify make. Standard diameter and thread. Can be furnished keyed alike, keyed in series and master-keyed. Five-pin tumber mechanism. Three Ry-Lock keys furnished. Key changes practically unlimited. Standard finish dull brass. Can also be furnished in other finishes. Length, 1 to 1¾ ins.



Mortise Cylinder

RIM NIGHT LATCH

This is a high quality, five-pin tumbler rim night latch for doors 1⅜ to 2½ ins., with backset of 2⅜ ins. Keyed alike and master-keyed to Ry-Lock system. Operated from outside by key; from inside by knob. Bolt may be held back by stop. Finish, black japaned, relieved. Weight, 2 lbs.

SLIDING DOOR LOCK

Five-pin tumbler cylinder. Keyed alike and master-keyed to Ry-Lock system.



Rim Night Latch

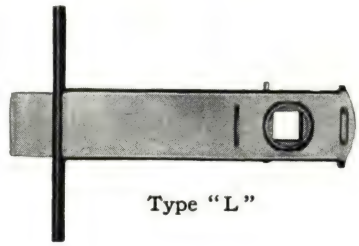
IMPORTANT: SPECIFY DOOR THICKNESS AND KEYING ARRANGEMENT.

LATCHES

All latches are reversible, for right or left hand doors. They can be used on any Ry-Lock set. Construction is of brass and cold rolled steel, processed according to the Udylite method. Solid brass bolt. Beveled brass or bronze front. Brass or bronze strike.

Specify

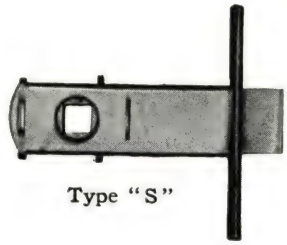
When it is desirable to use any Ry-latch except the "L", Standard, specify Lock set Number, then latch symbol. Example: Lock set No. 60-F, is a porch set with heavy dead latch.



Type "L"

Type "L"—Standard Latch

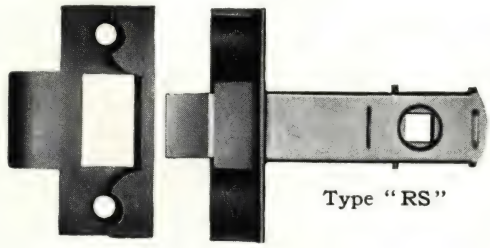
Plain latch bolt with easy spring. Furnished regularly with any Ry-Lock set. Reversible for right or left hand doors. Back set 2½ ins. Overall dimension, $3^{9}/_{32}$ ins. Door thickness, 1⅜ to 1¾ ins.



Type "S"

Type "S"—Short Latch

For French doors, or other doors with narrow stile. Furnished with any Ry-Lock set, when specified. Reversible for right or left hand doors. Back set 1¾ ins. Overall dimension, 2½ ins. Door thickness, 1⅜ to 1¾ ins.



Type "RS"

Type "RS"—Rabbetted Latch, ½ in. Rabbet

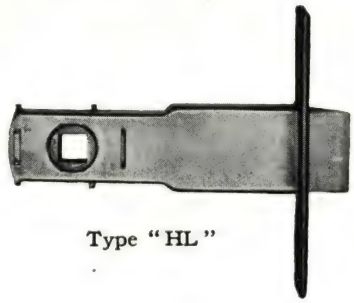
For narrow stile rabbetted doors. Furnished at extra cost with any Ry-Lock set, when specified. Reversible for right or left hand doors. Back set 1¾ ins. overall dimension, 2½ ins.

Type "R"—Rabbetted Latch

Same as "RS" with 2¼ in. back set.

Type "R3"—Rabbetted Latch

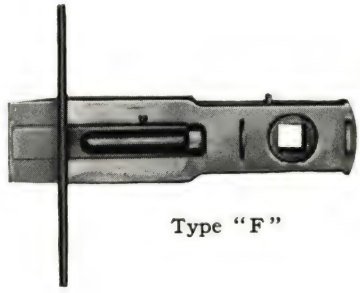
Same as "RS", with 3 in. back set.



Type "HL"

Type "HL"—Heavy Latch

For use where heavy duty, easy spring latch is required. Furnished at extra cost with any Ry-Lock, when specified. Reversible for right or left hand doors. Back set 2½ ins. Overall dimension, $3^{9}/_{32}$ ins. Door thickness, 1¾ to 2½ ins.



Type "F"

Type "F"—Heavy Dead Latch

Latch bolt automatically locks when door is closed. For use on heavy doors, where easy spring is required. Furnished at extra cost with any Ry-Lock set, when specified. Reversible for right or left hand doors. Back set 2½ ins. Overall dimension, $3^{9}/_{32}$ ins. Door thickness, 1¾ to 2½ ins. Bolt width, 1 in.

Type "D"—Standard Dead Latch

Same construction and function as "F" type, but lighter. Furnished at extra cost with any Ry-Lock set, when specified. Reversible for right or left hand doors. Back set 2½ ins. Overall dimension, $3^{9}/_{32}$ ins. Door thickness, 1⅜ to 1¾ ins. Bolt width, ¾ in.

Note: If latches are ordered separately, to be used on standard spindles, please specify.

All doors opening out should have dead latch for security.

KNOBS AND ROSES

METAL KNOBS

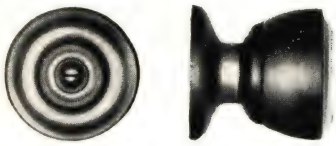
Brass and Bronze



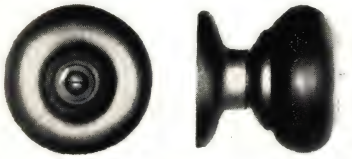
"M" Wrought metal knob, plain. Diameter 2¼ ins. Furnished on both sides all types.



"M2" Wrought metal knob, plain. Diameter 2 ins. Furnished on both sides all types.



"M21" Depressed metal knob. Diameter 2 ins. Furnished on both sides all types.



"M11" Depressed metal knob. Diameter 2¼ ins. Furnished on both sides all types.



"M15" Cast face design — Colonial. Diameter 2¼ ins. Furnished both sides all types.



"M25" Cast face design — Colonial. Diameter 2 ins. Furnished on both sides all types.



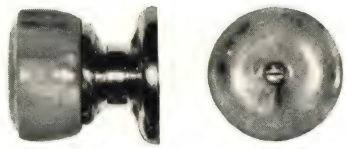
"M26" Cast face design — Spanish. Diameter 2 ins. Specify M16, if desired on 2¼ ins. knob. Furnished on both sides all types.



"HM" Hammered metal knob. Diameter 2¼ ins. Furnished on both sides all types. Note: 2-in. knob cannot be hammered.

UNBREAKABLE CATALIN KNOBS

Furnished on both sides all types



"K" Solid color decorative knob. Diameter 2 ins. Colors, see below. Specify color. Example: K, Onyx.



"K2" Inlaid Catalin knob. Diameter 2 ins. Colors, see below. Any color may be used as base, inlaid with any other color. Specify both colors. Example: K2, Ivory-Green. This will secure an ivory knob with green inlay, the first color mentioned signifying base and second inlay.

Note: Push plates, cupboard knobs, lever handles and bar pulls to match.

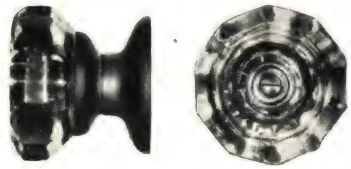
CATALIN COLORS

Catalin knobs are now being supplied in the following colors: Ebony, Ivory, Jade, Ruby, Onyx, Rose, Green, Amber, Lapis Blue, and Orchid.

These knobs have been received favorably by a color loving age. Samples gladly sent on request.

GLASS KNOBS

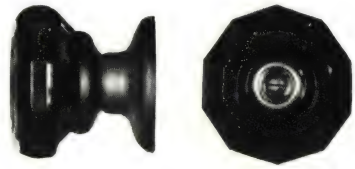
Furnished Inside All Types—Outside All Types Except Cylinder Locks



"G" Octagon Crystal knob. Diameter 2⅜ ins.



"G2" Fluted Crystal knob. Diameter 2⅛ ins.



"CG" Colored Octagon knob. Diameter 2⅜ ins. Colors: Black, Opal, Green, Blue, Amber. Specify Color.



"CG2" Colored Fluted Knob. Diameter 2⅛ ins. Colors: Black, Opal, Green, Rose. Specify Color.

Note: All metal knobs and roses, in all standard finishes.

Specify—(1) Quantity, (2) Lock set number, (3) Outside knob, (4) Outside escutcheon, (5) Inside knob, (6) Inside escutcheon, (7) Outside finish, (8) Inside finish.

ESCUTCHEONS

Brass and Bronze



E 44 (Above)
Cast—Simple Design

Furnished on all Ry-Lock sets, except Nos. 91 and 93. Size 3 x 9 ins. All standard finishes, hammered or smooth. Shipping weight, 11 oz.

E 42 (Right)
Cast—Spanish Design

Furnished on all Ry-Lock sets, except Nos. 91 and 93. Size 3 x 11½ ins. All standard finishes, hammered or smooth. Shipping weight, 13 oz.





E 40 (Below)
Cast—Modern Design

Furnished on locksets Nos. 91 and 93, (see Page 1), and also on all other Ry-Lock sets. Size 2⅛ x 7⅛ ins. All standard finishes, hammered or smooth. Shipping weight, 8 oz.

E 41 (Left)
Cast—Colonial Design

Furnished on locksets Nos. 91 and 93, (see Page 1), and also on all other Ry-Lock sets. Size 3 x 11 ins. All standard finishes, hammered or smooth.



E 43 (Above)
Cast—Spanish Design

Furnished on all Ry-Lock sets, except Nos. 91 and 93. Size 2⅛ x 9 ins. All standard finishes, hammered or smooth. Shipping weight, 8 oz.



E 45 (Above)
Cast—Simple Design

Furnished on all Ry-Lock sets, except Nos. 91 and 93. Size 2 x 5½ ins. All standard finishes, hammered or smooth. Shipping weight, 8 oz.



E 46 (Above)
Cast Design

Furnished on Ry-Lock sets Nos. 91 and 93, also on all other Ry-Lock sets. Size 2½ x 6 ins. All standard finishes, smooth only. Shipping weight, 9 oz.





E 51 (Above)
Wrought Design

Furnished regularly on all Ry-Lock sets, when specified. Size 2⅛ x 5⅜ ins. All standard finishes, smooth only. Shipping weight, 2 oz.



E 50 (Above)
Wrought Design

Furnished regularly on all Ry-Lock sets, when specified. Size 2⅛ x 5⅜ ins. All standard finishes, smooth only. Shipping weight, 2 oz.

Note: Escutcheons that may be used on hotel and intercommunicating locksets Nos. 91 and 93, Page 1, are Nos. E40, E41, E46, E50 and E51.

Specify—

When specifying same escutcheon for both sides of lockset, place escutcheon number before lockset number. Example: Lockset E4691F, MM, 11-11, would be a hotel lock with No. E46 escutcheon on both sides, heavy dead latch, 2¼ ins. metal knobs, in oxidized bronze finish.

When escutcheons of different design are desired on each side, place number of escutcheon after knob symbol. Example: Lockset 91F, ME46-ME40, 11-11.

When escutcheon is desired on one side only, same specification rule is followed. Example: Lockset 15, ME40-M, 11-11.

Important: When ordering escutcheons separately, be sure to specify side of door and lockset number with which it is to be used.

SPECIAL DESIGN ESCUTCHEONS

When it is desired to carry out a particular design for a project requiring 200 or more locksets, we shall be glad to cooperate with the architect, by supplying cast escutcheon plates within the above sizes.

GRIP HANDLES

Cast Bronze and Brass



H41 (Left)

Furnished for Locksets Nos. 11, 15, 15D and 15F, with any metal knob desired. Size 3½ x 17 ins. All standard finishes, hammered only. Shipping weight, 1 lb. 14 oz.



H47 (Right)

Furnished for Locksets Nos. 11, 15, 15D and 15F, with any metal knob desired. Size 3½ x 19½ ins. All standard finishes, hammered only. Shipping weight, 1 lb. 9 oz.



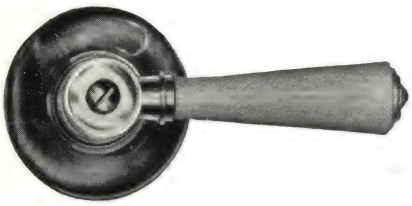
H40 (Right)

Furnished for Locksets Nos. 11, 15, 15D and 15F, with any metal knob desired. Size 2¼ x 13 ins. All standard finishes, smooth only. Shipping weight, 1 lb. 4 oz.

Specify for H41, H47 and H40

(1) Quantity, (2) Lockset number, (3) Outside knob, (4) Grip handle, (5) Inside knob, (6) Inside escutcheon, (7) Outside finish, (8) Inside finish, (9) Door thickness, (10) Keying system.
Example: Lockset 15F, M15, H41-M/ESI, HOI-5

LEVER HANDLES



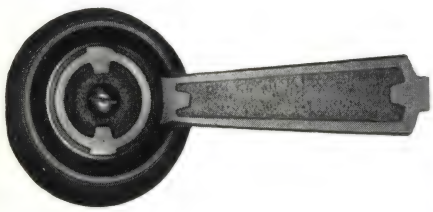
LK Catalin Lever

Furnished on inside of any Ry-Lock set, outside Nos. 40 and 50. Length 3½ ins. Colors: Ebony, Ivory, Jade, Ruby, Amber, Onyx, Rose, Green, Lapis Blue, Orchid. Shipping weight, 5 oz.



L1 Brass and Bronze Lever

Furnished on inside of any Ry-Lock set, outside Nos. 40 and 50. Length 3½ ins. Right or left hand, specify which. All standard finishes. Shipping weight, 6 oz.



L2 Brass and Bronze Lever

Furnished on inside of any Ry-Lock set, outside of Nos. 40, 50, 60, 61, 20 and 21. Length 4½ ins. All standard finishes. Shipping weight, 8 oz.

Specify for LK, L1 and L2

(1) Quantity, (2) Lockset number, (3) Outside lever or knob, (4) Inside lever or knob, (5) Outside finish, (6) Inside finish.

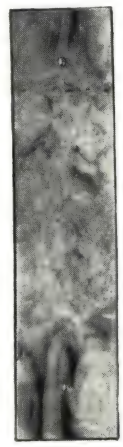
CATALIN TRIM

What Is Catalin?

An unbreakable, synthetic product of lustrous beauty. Its warmth and natural depth of color provide richness of tone. Does not absorb moisture, resists alcohol, oils and all common acids, is entirely odorless, tasteless, has a high dielectric, tensile and compressive strength, holds its shape and color, is non-inflammable and machines like brass. Catalin is especially suited for bathrooms and kitchens, where color is the mode, and, with careful selection, is used with effect throughout the house. The items shown above are obtainable in the following colors: Ebony, Ivory, Jade, Ruby, Amber, Orchid, Onyx, Green, Lapis Blue, and Rose.

Specify—Item and color.

Note: Rose is not a fast color.



Push Plate

Size 3½ x 12 ins. Shipping weight, 8 oz.



Cupboard Knob

Diameter 1¼ ins. Shipping weight, 5 oz.



Bar Pull

Length 4⅛ ins. overall. Shipping weight, 5 oz.

RY-LOCK STANDARD FINISHES

RY-LOCK SYMBOLS	U. S. SYMBOLS	SURFACE	DESCRIPTION
2	U.S. 2	Dull	Cadmium Plated
2P		Buffed	Cadmium Plated
3	U.S. 3	Buffed	Brass
4	U.S. 4	Dull	Brass (Lemon or Old Brass)
4F		Dull	Flemish Brass
5	U.S. 5	Dull	Oxidized Brass
6	U.S. 6	Sanded	Brass Oxidized, Relieved
7	U.S. 7	Sanded	Brass, Raised Ornamentation Polished
8	U.S. 8	Buffed	Antique Copper
9	U.S. 9	Buffed	Natural Bronze
10	U.S. 10	Dull	Natural Bronze
10W	U.S. SPCL	Dull	Natural Bronze Waxed
11	U.S. 11	Dull	Oxidized Bronze
12	U.S. 12	Sanded	Natural Bronze
13	U.S. 13	Sanded	Bronze, Raised Ornamentation Polished
14	U.S. 14	Buffed	Nickel Plated
14B		Polished	Black Nickel
15	U.S. 15	Dull	Nickel Plated
16	U.S. 16	Sanded	Nickel Plated
17	U.S. 17	Sanded	Nickel Plated, Raised Ornamentation Polished
19	U.S. 19	Sanded Dull	Black—Imitation Bower Barff
20	U.S. 20	Dull	Statuary Bronze
21	U.S. 21	Sanded	Statuary Bronze
22	U.S. 22	Sanded	Verde Antique
23	U.S. 23	Dull	Silver Plated
26	U.S. 26	Bright	Chromium Plated
OI		Sanded	Old Iron
RI		Sanded	Rusty Iron
ON		Dull	Nickel Plated, Oxidized, Relieved
AU		Dull	Gold Plated

SAMPLE SPECIFICATIONS

Quantity	Lockset Number	Knobs and Escutcheons	Finish	Door Thickness, in.	Keying and other Special Instructions
24	15	M25E40–M2E40	ON–5	1¾	KD & MKD
24	21	G2E51–CG2E51	19–14	1⅜	Opal
24	40	HM–HM	13–13	1¾	Pro. Strike
24	15	M2E41–G2	6–4	1⅜	KD
1	15F	HMH47–M	OI–OI	2	

Note: Following is a general sequence to follow in specifying any Ry-Lock set: (1) Quantity, (2) Lockset number, (3) Latch, *if other than standard*, (4) Outside knob, (5) Outside escutcheon, *If escutcheon is desired*, (6) Inside knob, (7) Inside escutcheon, *If escutcheon is desired*, (8) Outside finish, (9) Inside finish, (10) Door thickness, (11) Keying system, (12) Special instructions, such as colors of Catalin, of glass knobs, whether protected strikes are desired or not, reverse trim, etc.

INSTALLATION INSTRUCTIONS

Hole for lock unit always 1⅝ inches. Latch hole in door face: Standard, 1 inch, Heavy (HL), 1⅛ inch; Heavy Dead (F), 1⅛ inch; all others, 1 inch. Backset: Standard, 2½ inches; Short (S), 1¾; Rabbetted (RS) from outside, 1¾ inches; all others, 2½ inches.

Installing the lock: mortise for beveled latch face; insert latch; slide main unit into position; install clamping plate with cam OUT; tighten machine screws (not too tight); place rose on spindle; turn from right to left, thumb piece up.

Important: Take screw out of inside of knob, place knob on spindle, push knob into rose *until spring is fully compressed.* Hold in this position while inserting screw.



RY-LOCK COMPANY LTD

SAN LEANDRO • CALIFORNIA

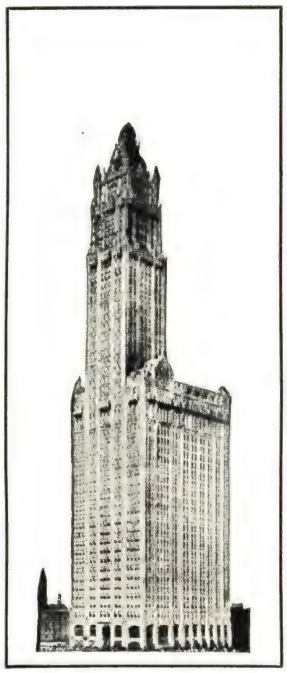
RY-LOCK

IMPROVED UNIT TYPE DOOR LOCKS

THE H. B. IVES COMPANY

Quality Hardware Since 1876

NEW HAVEN, CONN.



Woolworth Building
1913

IVES HARDWARE

THE H. B. IVES COMPANY manufactures a quality line of Window and Door Hardware specialties. These materials are distributed the country over through leading hardware dealers. Besides the hardware listed on this and the following pages, we are prepared to design and manufacture hardware to meet such special conditions as may be required.

Finishes

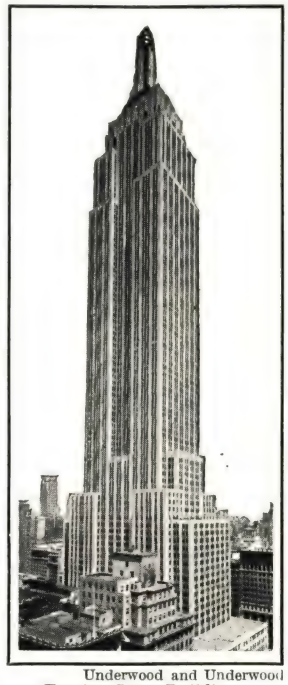
These products are furnished regularly in all of the finishes established as standard by the Bureau of Standards of the U. S. Department of Commerce. Also furnished to match special finishes of other manufacturers when so specified.

Ives Products Insure Satisfaction

The continued use of Ives products in prominent buildings by leading architects is evidence that they insure satisfaction.

Ives Hardware in Outstanding Buildings

Ives hardware was used in the Woolworth Building (55 stories) when erected in 1913. It was also used for the Empire State Building (85 stories) in 1931. It has been used in thousands of other large and small buildings in the interval.



Underwood and Underwood
Empire State Building
1931

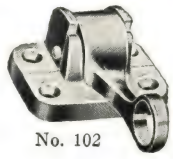
DOUBLE HUNG WINDOW HARDWARE

CRESCENT SASH FASTENERS

Cat. No.	Case, in.	Strike, in.
07	15/16 x 2 5/8	5/8 x 2 5/8
8	1 x 2 3/4	7/8 x 2 3/4
9	1 1/16 x 3	1 x 3
10	1 1/4 x 3 5/16	3/4 x 3 5/16



Nos. 07, 08, 9, 10



No. 102

Sash Fasteners

No. 102 is designed for high sash. Can be fastened or unfastened with a pole hook.

Cat. No.	Case, in.	Strike, in.
102	7/8 x 2 3/4	7/8 x 2 3/4



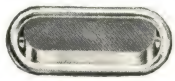
No. 054



No. 22



No. 22B



No. 022

Flush Sash Lifts

Cat. No.	22	22B	022	054
Size, in...	1 5/16 x 3 1/8	1 5/16 x 3	1 1/16 x 2 9/16	1 1/2 x 3 5/8



Nos. 056, 156



No. 14

HOOK SASH LIFTS

Cat. No.	Size, in.
14	7/8 x 1 5/8
15	7/8 x 1 13/16
015	1 x 1 3/4



Nos. 026, 26, 27 and 69

Bar Sash Lifts

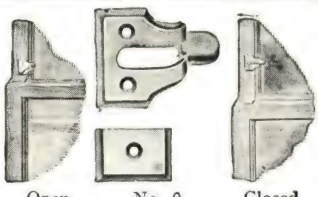
Cat. No.	Size, in.
026	1 1/8 x 4
26	1 1/4 x 4 3/4
27	1 3/4 x 5
69	1 5/8 x 5 1/2
056	1 1/4 x 4 3/4
156	1 x 4



No. 98

Sash Pull Plate

Cat. No. 98
Size 1 1/4 x 2 1/8 in.



Open — No. 0 — Closed
Size 1 9/16 x 1 3/8 in.

Ventilating Locks

A safeguard for ventilating rooms. Permits ventilation with security



S.W. 1 1/4 in. No. 8 F.H. — W. 1 1/4 in. No. 8 R. H.

Stop Bead Screws and Washers



No. 1x8-in. R.H. Screws

Window Stop Adjusters

Heavy bed prevents bending in tightening of screw.



No. 058
2 1/4 x 1 1/8 in.

Sash Pole Hanger



PULL DOWN HOOK

Cat. No.	Length, in.	Diam. hole, in.
17	2 15/16	11/16
17L	3 7/8	7/8
017	4	1

CASEMENT WINDOW HARDWARE

Casement Adjusters



No. 74

Length arm, in. 8 10 12
Sill plate, in. 1½x8¾ 1½x10¾ 1½x12¾



No. 71

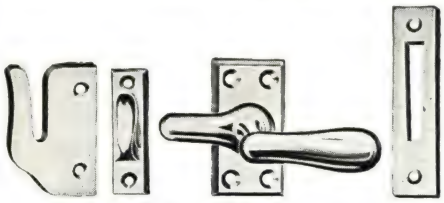
Length, in..... 10 12 15
Diam. rod, in..... ⅜ ⅜ ⅜



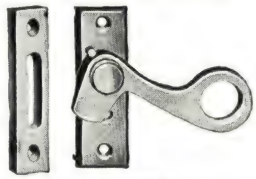
No. 187

Length, 10 in. Diam. tube ½ in.

Casement Fasteners

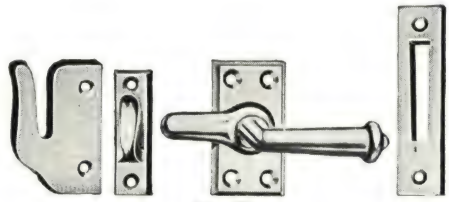


Nos. 66, 066

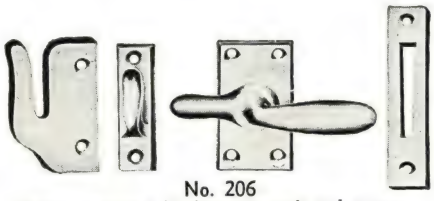


No. 219

Requires only ⅝ in. between sash and screen



No. 67

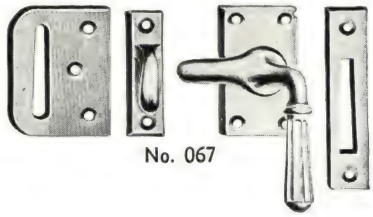


No. 206

Requires only 1 in. between sash and screen



No. 19R



No. 067

CASEMENT FASTENERS

Cat. No.	Base, in.	Projection, in.
19R	2½x ¾	1¼
219	2½x ¾	9/16
66	2 1/16x1 1/16	1⅞
066	1⅝x ⅞	1⅜
206	2 1/16x1 1/16	15/16



No. 218



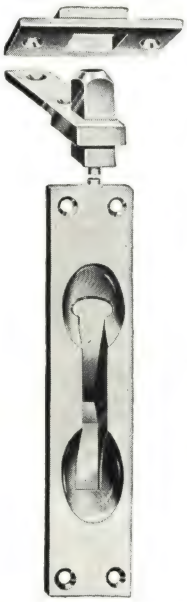
No. 217

CASEMENT FASTENERS

Cat. No.	Base, in.	Projection, in.
67	2 1/16x1 1/16	1⅞
067	2 1/16x1 1/16	1⅞
217	2½x1	1 9/16
218	2½x1	1¾

DOOR HARDWARE

Door Bolts



EXTENSION FLUSH BOLTS

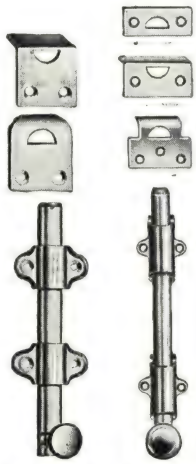
9, 12, 18, 24 or 30-in. length

Cat. No.	Plate, in.	Head, in. sq.	Backset, in.
256	6⅜x ¾	½	11/16
257	6⅜x1¼	½	11/16
258	6¾x1	½	11/16
259	5 x⅝	⅝	7/16

No. 257 can be furnished with reversible ½-in. rabbet or with convex face when so ordered.

SURFACE BOLTS

Cat. No.	053	53	253
Half rd. rod, in.	⅜	½	⅝
Width guides, in.	1 3/16	1 7/16	1 9/16
Regular length, in.	4	6	8
Regular length, in.	6	9	12
Regular length, in.	9	12	18
Regular length, in.	12	18	24
Regular length, in.		24	30



Nos. 053, 53

No. 253

Door Pulls

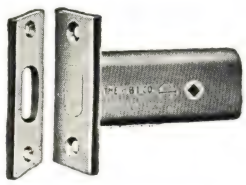


Nos. 077, 78 Nos. 76, L12 Nos. 77, 79

Cat. No.	Length over all, in.	Length c. to c., in.	Projection, in.
L12	7½	6¼	2¼
76	6⅝	5½	1⅞
77	7½	6¼	2¼
78	9⅛	8	2
79	10	7¾	2½
077	6⅝	5½	2

DOOR HARDWARE (Continued)

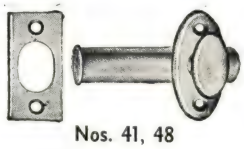
Mortise Bolts





Nos. 051, 51, 49 — Nos. 052, 52, 50

Cat. No.	Front, in.	Japaned case, in.	Bracket, in.	Hub, in.
051	2½x⅝	1¼x1½x2	1¼	3/16
052	2½x⅝	1¼x1½x2	1¼	3/16
49	2½x1 13/16	1¼x1½x3½	2½	3/16
50	2½x1 13/16	1¼x1½x3½	2½	3/16
51	2½x1 13/16	1¼x1½x2⅝	1¾	3/16
52	2½x1 13/16	1¼x1½x2⅝	1¾	3/16



Nos. 41, 48

Cat. No.	Diam., in.	Length, in.	Backset, in.
41	9/16	1½	⅞
48	9/16	2½	1¾

Letter Box Plates



FRONT PLATES ONLY

Cat. No.	Outside dimensions, in.	Opening, in.
602	2½x7	1⅛x5
603	2⅝x7½	1½x5⅞
604	3 x9¼	1⅝x7¼

All sizes are furnished with either back plates or hooded back plates if so specified.

Door Holders

Note: Specially designed rubber prevents slipping. The length signifies the distance from center of base to floor.



No. 452 4 and 5 in. long

Door Stops and Holders



No. 445
Diam. base, 2¼ in.
Projection, 3½ in.



No. 446
Diam. base, 2½ in.
Height, 3 in.

Door Stops



No. 64
Projection, 3¼ in.



No. 431
Height, 1¾ in.



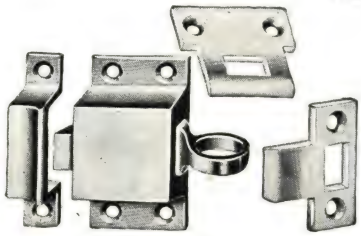
No. 062
Projection, 2⅝ in.



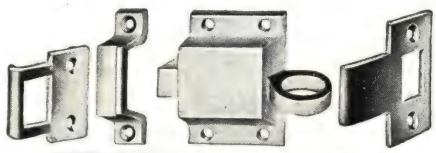
No. 430
Height, 1⅛ in.

MISCELLANEOUS HARDWARE

Transom Catches



No. 081
Specially constructed spring action gives added ease in operation
Size 2⅝x1½ in.



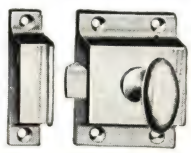
Cat. No.	Case, in.
029	1⅞x1⅛
29	2 3/16x1½
30	2¼x1⅜
31	3 x1¾
81	2¾x1¾

Transom Chains

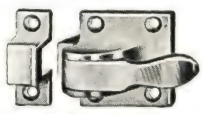


Cat. No.	Chain	Plate, in.	Length, in.
82	Medium	1½ x1	10, 12, 15, 18
84	Heavy	1 13/16x1	10, 12, 15, 18

Cupboard Catches



Cat. No.	Size, in.
530	2⅛x1½
540	1¾x1⅛



No. 562
Size 1 7/16x1 7/16 in.

Drawer Pulls



No. 505



No. 35



No. 39



No. 38

Cat. No.	505	35	38	39
Length c. to c., in.	3 1/16	3½	3½	3 5/16

Handrail Brackets



No. 59
Base, 3⅜x1⅜ in.
Base to c. of rail, 2¾ in.

Elbow Catches

Plate 1⅜x⅝ in.



No. 2

Drawer Knobs



No. 524

Diam., ¾, 1, 1¼ in.

READING HARDWARE CORPORATION

Manufacturers of "Reading" Hardware

READING, PA.

BRANCH OFFICES

NEW YORK, N. Y. PHILADELPHIA, PA. BOSTON, MASS. CHICAGO, ILL. SAN FRANCISCO, CAL. DETROIT, MICH.

Quality of "Reading" Products

"Reading" Hardware has no superior. In material, operation and design each piece is correctly produced not only for its individual appearance and mechanism but also to conform in its relation to the finished building.

"Reading" also offers a wide variety of designs for any type or size of construction. You are invited to ask for the new "Reading" 600-page Catalog showing the full line of builders' hardware of the better grade.

READING

"Reading" Service

The plant of the READING HARDWARE CORPORATION, Reading, Pa., comprises a complete unit of factory buildings for the modern manufacture of builders' dependable hardware. Starting 78 years ago in one small building, "Reading" has grown into one of the largest organizations capable of handling volume and maintaining quality with smooth-running efficiency. In these days of speeding up construction and cutting down costs, "Reading" is prepared to give architects and contractors the co-operation they expect and must have.

EARLY AMERICAN DESIGNS

Cast Bronze **Wrought Iron Finish**



Granby
Escutcheon-H1141
6½x1¾ in.
Knob—002284C



Moxon
Escutcheon-H1141
6½x2 3/16 in.
Knob—002823H



Haddon
Escutcheon-H1141
6½x1¾ in.
Knob—002821H



Breton
Escutcheon-H1141
6½x1⅞ in.
Knob—002201H



Etna
Escutcheon-H1141
6½x1¾ in.
Knob—02211H

KNOBS

002284C—1¾ in.—Polished
002201H—1¾ in.—Hammered
002211H—1¾ in.—With French Neck—Hammered
002821H—1⅞ in.—Octagon—Hammered
002823H—2 in.—Rose—Hammered

HINGE PLATES

We can supply hinge plates to match the handles illustrated on following page. When ordering specify:

No. 3218—18 in. long **No. 4218**—18 in. long
No. 3224—24 in. long **No. 4224**—24 in. long
No. 3230—30 in. long **No. 5218**—18 in. long
No. 5224—24 in. long

EARLY AMERICAN DESIGNS

Cast Bronze **Wrought Iron Finish**

KNOCKERS



3210
8⅞x2⅝ in.



5210
9x3⅞ in.



9210
8¼x3¾ in.

HANDLES



3240
14½x2⅝ in. over all
Grip 4½ in. c. to c.



9240
13½x2⅝ in. over all
Grip 5½ in. c. to c.



5240
12½x3⅛ in. over all
Grip 4⅛ in. c. to c.



4240
14x2 3/16 in. over all
Grip 4⅛ in. c. to c.

PERIOD DESIGNS



HURON DESIGN

Colonial

The severity of the usual Colonial lines has been softened in this new design to a pleasing degree without losing its individuality.

Cast Bronze

002822	Knob	2⅛ in. diam.
1241	Escutcheon	8¼x2 9/16 in.
1372	Escutcheon	11 x3 in.
1375	Escutcheon	11 x3 in.
2276	Push plate	15 x3¼ in.
2165	Door pull	15 x3¼ in.
1318	Sash lift	4¾x1¾ in.
01411	Push button	3½x1½ in.



LARISSA DESIGN

Greek

Greek beauty of architecture will never lose its charm and in this new design we have consummated an unusually attractive motif.

Cast Bronze

002822	Knob	2¼ in. diam.
1241	Escutcheon	8⅛x2 9/16 in.
1372	Escutcheon	11 x3 in.
1375	Escutcheon	11 x3 in.
2276	Push plates	15 x3¼ in.
2165	Door pull	15 x3¼ in.
1318	Sash lift	4¾x1¾ in.
01411	Push button	3½x1½ in.



LA VAL DESIGN

Modern

We have succeeded in producing in this lovely pattern a design of the modern school, without accentuating the extreme.

Cast Bronze

002822	Knob	2¼ in. diam.
1241	Escutcheon	8½x2 in.
1372	Escutcheon	12½x2¼ in.
1375	Escutcheon	10 x2⅛ in.
2276	Push plate	15 x2½ in.
2165	Door pull	15 x2½ in.
1318	Sash lift	4¾x1¾ in.
01411	Push button	3½x1½ in.



MELIG DESIGN

Modern

In this pattern our designer has created a jewel of everlasting beauty; unusual in character; and perfect in modeling.

Cast Bronze

002822	Knob	2¼x1 7/16 in.
1241	Escutcheon	9x1⅝ in.
1372	Escutcheon	15 x2 in.
1375	Escutcheon	12 x1⅞ in.
2276	Push plate	15 x2 in.
2165	Door pull	15 x2 in.
1318	Sash lift	5 x1¾ in.
01411	Push button	4 x1½ in.



RAMOS DESIGN

Modern

The architectural trend of present building is toward the new modern school. Here we have created a design of individuality.

Cast Bronze

002822	Knob	2¼ in. diam.
1241	Escutcheon	9 1/16x2 1/16 in.
1372	Escutcheon	15½x2½ in.
1375	Escutcheon	12½x2¼ in.
2276	Push plates	15½x2½ in.
2165	Door pull	15½x2½ in.
1318	Sash lift	5 x1¾ in.
01411	Push button	3¾x1½ in.



OBAN DESIGN

Modern

A pattern, perfect in its artistic proportions. The true modern school is here depicted in all its splendor.

Cast Bronze

003722	Oval knob	2½x1¾ in.
1241	Escutcheon	8⅛x2¼ in.
1372	Escutcheon	10 x2⅝ in.
1375	Escutcheon	9 x2⅜ in.
2276	Push plate	15½x3¼ in.
2165	Door pull	15½x3¼ in.
1304	Sash lift	5⅛x1⅜ in.
01411	Push button	3 x1⅜ in.

DOOR CLOSERS

For Either Right or Left-hand Doors



Guarantee

The Reading Closer is guaranteed against all imperfections in material or faulty workmanship. Every closer is thoroughly tested on operating doors before being packed. Special care should be used to see that the proper size closer is used for the door, taking into consideration whether there is any unusual draft condition. If the door is subject to any draft conditions, we suggest a size larger closer than listed.

SUGGESTED SIZES

No.	Cast Iron Regular Arm—Malleable Iron Arm
1	For screen or light inside doors.
2	For inside doors not exceeding 7 ft. high x 2 ft. 8 in. wide.
3	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.
4	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.
5	For extra heavy outside doors not exceeding 8 ft. high x 4 ft. wide.
6	For special conditions of extra heavy doors, or doors subject to ususual draft conditions. We suggest sending us door size and conditions with order.

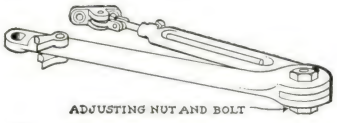
No.	Solid Bronze Regular Arm
151	For screen or light inside doors.
152	For inside doors not exceeding 7 ft. high x 2 ft. 8 in. wide.
153	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.
154	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.
155	For extra heavy outside doors not exceeding 8 ft. high x 4 ft. wide.
156	For special conditions of extra heavy doors, or doors subject to unusual draft conditions. We suggest sending us door size and conditions with order.

Above specifications apply to doors operating under normal conditions. If doors are subject to unusual draft, we suggest using size larger closer. Closers finished in gold bronze unless otherwise ordered.

Closers can be painted or plated to match special finishes at slight additional charge. Finish for prime coating, specify finish-PR; for aluminum bronze, specify finish-AL. *Specify number and hand.* Packed one in a carton.

Closer with Friction Hold-open Arm

(Holder Arm Closer)



This Closer Is Reversible—Its Tightening Nut Holds Door Open at Angle Desired

Advantages of the Hold-open Arm—The friction in the hold-open arm is obtained by loosening or tightening the nut and bolt. This friction can be set to hold the door open in any position up to 90°. If the door is to open 180°, the closer should be ordered with extra long arms. The hold-open arm is positive and avoids the use of all floor stops or hooks to hold the door open. The arm is reversible and can be used on either right or left-hand closers.

SUGGESTED SIZES WITH HOLD-OPEN ARM

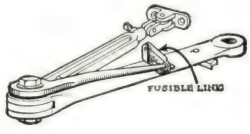
No.	
51	For screen or light inside doors.
52	For inside doors not exceeding 7 ft. high x 2 ft. 8 in. wide.
53	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.

No.	
54	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.
55	For extra heavy outside doors not exceeding 8 ft. high x 4 ft. wide.
56	For special extra heavy doors, or doors subject to unusual draft conditions.

Closer with Fusible Link for Fire Doors

Not reversible.

Door can be set in open position, and in case of fire, a temperature of 160° F. melts fusible link and door closes, thus protecting room from fire and water. *Specify hand.*

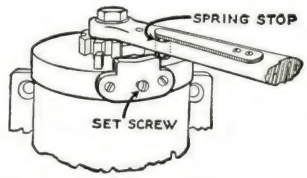


No.	
53-FL	For heavy inside doors not over 7 ft. 6 in. high x 3 ft. wide and medium outside doors not over 7 ft. high x 2 ft. 9 in. wide.
54-FL	For extra heavy inside doors not over 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not over 7 ft. 6 in. high x 3 ft. 6 in. wide.

Closer with Delayed Closing Arm for Hospital Doors

Two-point check feature. Not reversible.

Often preferred in hospitals and sanitariums. Door closes to within few inches and then stops. Can be closed remaining distance, if desired, by slight touch. Aids ventilation and quiet operation. *Specify hand.*



No.	
053	For heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide and medium outside doors not exceeding 7 ft. high x 2 ft. 9 in. wide.
054	For extra heavy inside doors not exceeding 7 ft. 6 in. high x 3 ft. wide or heavy outside doors not exceeding 7 ft. 6 in. high x 3 ft. 6 in. wide.

EXIT DOOR DEVICES—REGULAR TYPE

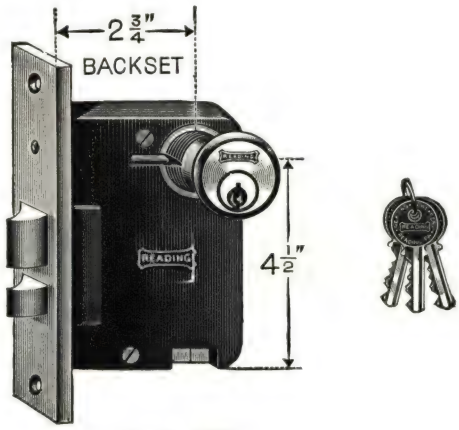
For Entrance Doors to Schools or Public Buildings

In Sets—Handle and Thumb Piece Outside with Bolts, 11 and 22 Inside

Set 1122, Gravity, for Double Doors

Butts and door closers not included.

Set 1122 consists of mortise lock 1571, with handle Benton 2444 for outside, and exit bolt 11 for inside of active door. For the inactive door, exit bolt 22.



Lock 1571

Case 5¼x3¾x1 in.
Backset 2¾ in.
Front 1⅜x7¼ in.
Spacing 4½ in.
With three keys, Class *622*

Operation—Key outside through cylinder sets outside thumbpiece. Key through outside cylinder will hold latch bolt back in case. *The inside exit bar can be operated at all times.* Auxiliary latch bolt when door is closed dead locks the main latch, so that it cannot be forced back from the outside when door is locked.

Description of Bolts

All exposed parts are made of cast bronze with heavy wrought 1-in. tubing for cross bars and solid ⅜-in. brass rods. The casting working in connection with the cross bar is made of malleable iron and will withstand the hardest of use. Pressure against the cross bar releases the latch and permits the doors to open. *The latch bolts of Device 22 remain in a retracted position when doors are open, and are not released until the door reaches a closed position.*



Device 11
For Active Door

Operation—Pressure to any part of cross bar releases latches instantly. Latches operate whether cross bar is pushed up or down.

Information Required

Door thickness; width of stiles; hand of door, taken from outside; width of door, taken between stops; height of door, taken between stops.

A complete line of exit devices are shown in our General Catalog No. 21. *Specify number and finish.*

For Flat Front Doors



2½x2½ in.



2½x2½ in.

8 in.

1⅞x1⅞ in.

2444. Benton
Cast Brass Handle for Outside of Active Door



Device 22
For Inactive Door

Set 11122, Malleable Iron, Dull Black

Bolt for active door, 111. Bolt for inactive door, 122.

This set is same as 1122, except that cases of bolts are malleable iron, the cross bars of heavy steel tubing, and the solid rods of steel. Furnished in dull black finish only. Lock front and outside handle of cast brass.

CASE SIZES

Top case	3⅜x2⅛ in.
Large case	7¾x2⅛ in.
Small case	3⅛x2⅛ in.
Bottom case	3⅜x2⅛ in.

Cross Bars

Furnished 36 in. from bottom, unless otherwise ordered.

EXIT DOOR DEVICES—GRAVITY TYPE

For Entrance Doors in Schools or Public Buildings

In Sets—Handle and Thumb Piece Outside with Bolts 131 and 132 Inside

Set 4122 Gravity for Double Doors

Butts and door closers not included.

Set 4122 consists of mortise lock 1571, with handle Benton 2442 for outside, and exit bolt 131 for inside of active door. For the inactive door, exit bolt 132. Finished dull black; lock front and outside handle of cast brass.



Lock 1571
Case 5¼x3¾x1 in.
Backset 2¾ in.
Front 1⅜x7¼ in.
Spacing 4½ in.
With three keys, Class 622

For Flat Front Doors



2½x2½ in.



2½x2½ in.

8 in.

1⅞x1⅞ in.

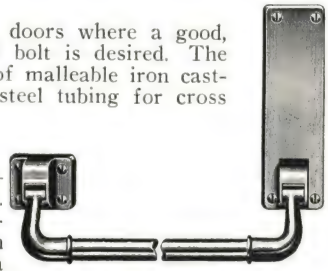
2442. Benton Cast Brass Handle for Outside of Active Door

Operation—Key outside through cylinder sets outside thumb piece. Key through outside cylinder will hold latch bolt back in case. *The inside exit bar can be operated at all times.* Auxiliary latch bolt when door is closed dead locks the main latch, so that it cannot be forced back from the outside when door is locked.

Description of Bolts

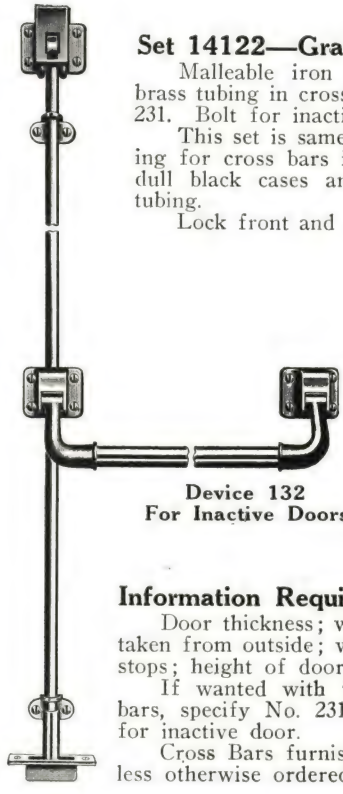
For exit and entrance doors where a good, practical, reasonably priced bolt is desired. The cases and arms are made of malleable iron castings, working with heavy steel tubing for cross bar, and solid steel rods.

Operation 131, 231—Side latching for active door. The cross bar works in connection with lock lever which is equipped with an extra heavy spring to bring the bar back in position when pressure is released.



Device 131
For Active Doors

Operation 132, 232—Gravity vertical rods for inactive door. Pressure on the horizontal bar raises the bolt which is automatically held in an extended position, releasing the gravity lever which leaves the bolt head free from the strike, allowing the door to open. The bolt is held in the open position until the door closes. The gravity lever, when door is closing, is released when it comes in contact with the strike, which action allows the bolt head to fall by gravity, locking the gravity lever in the strike.



Device 132
For Inactive Doors

Set 14122—Gravity

Malleable iron with steel rods and ¾-in. brass tubing in cross bars. Bolt for active door, 231. Bolt for inactive door, 232.

This set is same as 4122 except that the tubing for cross bars is of brass. Furnished with dull black cases and rods and polished brass tubing.

Lock front and outside handle of cast brass.

CASE SIZES

Top case	1 1/16x2¾ in.
Top strike	2½x1⅝ in.
Side case	1 1/16x2⅜ in.
Center case	1 1/16x2⅜ in.
Bottom strike	3½x1 3/16 in.
Plate	7¾x2⅛ in.

Information Required

Door thickness; width of stiles; hand of door, taken from outside; width of door, taken between stops; height of door, taken between stops.

If wanted with ¾-in. brass tubing in cross bars, specify No. 231 for active door. No. 232 for inactive door.

Cross Bars furnished 36 in. from bottom, unless otherwise ordered.

SCHLAGE LOCK COMPANY

Manufacturers of Schlage Locks and Trim

SAN FRANCISCO, CALIFORNIA

BRANCH OFFICES

NEW YORK, N. Y., 27 Park Place

CHICAGO, ILL., 228 No. La Salle Street

Products

TYPE A BUTTON LOCKS and TRIM.
TYPE B AUXILIARY LOCKS.
TYPE C and D HEAVY DUTY LOCKS.
TYPE E ENTRANCE DOOR LOCKS and TRIM.
TYPE F BUTTON LOCKS and TRIM.

SCHLAGE
TRADE-MARK

The Company and Its Products

The SCHLAGE LOCK COMPANY first introduced Schlage Locks nine years ago primarily for residential use.

The popularity of the Schlage method of locking, and unique manner of installation which gives security and privacy by a mere pressure of the button in the knob, has resulted in millions of locks being installed and giving dependable service under all conditions. This rapid growth in popularity created a demand from the commercial building field, and the Company has met this demand with Types C and D, Heavy Duty Locks, which are recognized as distinctly modern locks for modern commercial buildings. These additions to the line are treated in detail below. A new line of high quality locks for interior doors, the "F" line, with small knobs and roses, is also presented in this catalogue for the first time.

HEAVY DUTY LOCKS—TYPE C

Rigid, Self-contained, Factory Assembled Locks

A New Modern Lock

For modern hotels, commercial buildings, apartments, public buildings, schools, institutions, and fine residences.

Type C and D Locks are identical mechanically, the only differences being in the metals used for certain working parts (see italics under General Specifications); and the fact that while Type C Locks have cast trim, Type D Locks have wrought trim.

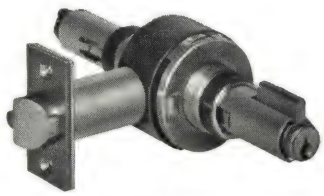


Assembled Type C Lock Showing Simple and Rugged Construction

Mechanism—The Type C and D locking mechanism is concentrated within an area less than 2⅛ in. in diameter. It consists of two interlocking units—knob unit and latch unit—providing great strength and durability when installed. The heavy cadmium plated steel frame is fitted with long bronze bearings, in which the sturdy rustproofed spindles operate, insuring lastingly smooth action. The key and locking mechanism is contained entirely within the spindles.

Knob Unit—This unit contains the operating mechanism, which consists of two spindles, actuated by an anti-friction latch retractor or slide. This slide is equipped with roller bearings, greatly reducing friction and imparting a very smooth and easy knob action. All working parts are securely housed.

Latch Unit—The sturdy bronze housing contains the phosphor bronze coil compression springs actuating the latchbolt. The auxiliary bolt, which automatically deadlocks the latchbolt when the door is closed, combines the convenience of a spring-latch and the full security of a deadbolt.



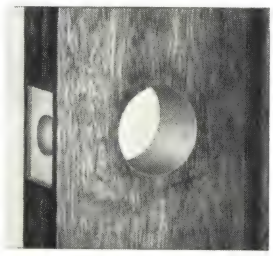
Type C Lock with Knob and Escutcheon Removed Showing Latch Unit and Knob Unit Interlocked

Knobs—Type C knobs and trim are cast brass or bronze; Type D, wrought brass or bronze. The knob itself contains the Schlage pin tumbler cylinder, providing practically unlimited key changes. Cylinders may be master-keyed or grand master-keyed as desired.

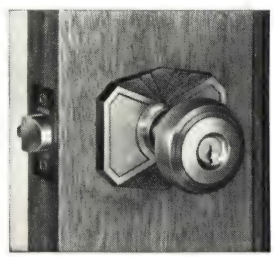
The Schlage button, or stop-work, conveniently located in the center of the inner knob, and which locks the outside knob against rotation except by key, replaces the common type of stop-work usually located in the lock face.

Our method of automatic unlocking, merely by turning the inside knob, makes Schlage locks panic proof without sacrificing security.

Trim—Due to the small diameter hole required for installation, the door is not weakened, and roses can be used for trim as easily as escutcheons. All escutcheons and roses are either cast or wrought solid brass or bronze. Both inner and outer escutcheons or roses are adjustable to any door thickness from 1⅜ to 2 in. always permitting the mounting of the lock in the center of the door. An auxiliary plate concealed behind the outside escutcheon prevents tampering with or removing the lock after installation. Both knobs and escutcheons are removable and interchangeable with other designs, providing unequalled flexibility.



Door Bored for Type C Lock
Boring two holes preserves door strength



Type C Lock Installed
Held firmly in place by two machine screws

Installation—Extremely economical and simple. A 2⅛-in. hole only is bored through the door stile for the knob unit, and a 1-in. hole in the edge of the door for the latch unit. Schlage patented template insures speedy, accurate installation. Exclusive friction grip prevents lock loosening on door. No adjustments required during or after installation.

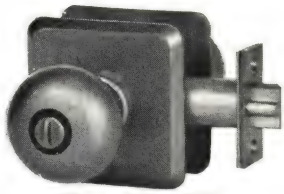
TYPE C AND D LOCK FUNCTIONS

TYPE C DESIGNS

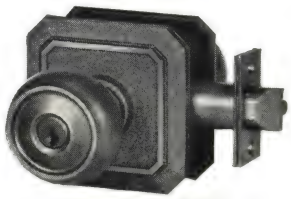
(Type D designs on next page)



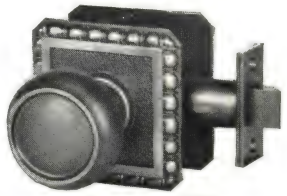
Type CL 3191
Cast Trim
No. 31 Knob—2¼ in.
No. 91 Rose—2⅝ in.



Type CMT 3181
Cast Trim
No. 31 Knob—2¼ in.
No. 81 Escutcheon—3¼x3¼ in.



Type COT 3283
Cast Trim
No. 32 Knob—2¼ in.
No. 83 Escutcheon—3½x3½ in.



Type CC 3282
Cast Trim
No. 32 Knob—2¼ in.
No. 82 Escutcheon—3¼x3¼ in.

Operation

FOR HOTEL DOORS

Fixed Outside Knob

Type C symbol		Type D symbol
CHS	Latchbolt by knob from inside only. Outer knob always rigid. By guest key, master key, grand master key and emergency key from outside. Stop button in inner knob shuts out all except emergency key, providing maximum privacy. Stop button automatically released by turning inner knob. Auxiliary bolt safeguards latchbolt.	DHS
CHSI	Same as CHS except has occupancy indicator in addition to shut-out feature. Stop button in inner knob shuts out all except emergency key and throws out indicator in outer knob, providing maximum privacy and convenience.	DHSI
CHSIE	Same as Type CHSI, except has key actuated display shut-out control, which makes guest key, and all other keys except emergency key, inoperative when desired.	DHSIE

Free Outside Knob

CWS	Latchbolt by knob from either side except when outer knob is locked by inside button. Provides maximum privacy as pressing button when room is occupied shuts out all keys except emergency key. Closing door as occupant leaves room automatically throws off shut-out feature, but outer knob remains locked until opened by guest key, master key, grand master key, or emergency key. Auxiliary bolt safeguards latchbolt.	DWS
CWSI	Same as CWS except has occupancy indicator in addition to shut-out feature. Provides maximum privacy, as pressing button when room is occupied throws out occupancy indicator in cylinder and shuts out all keys except emergency key. Closing door as occupant leaves room automatically throws off shut-out and indicator, but outer knob remains locked until opened by guest key, master key, grand master key, or emergency key. Auxiliary bolt safeguards latchbolt.	DWSI
CWSIE	Same as Type CWSI, except has key actuated display shut-out control, which makes guest key, and all other keys except emergency key, inoperative when desired.	DWSIE

FOR OFFICE, CORRIDOR AND ENTRANCE DOORS

COA	Latchbolt by knob from either side. By key from outside when outer knob is stopped by automatic stop button in inner knob. Auxiliary bolt safeguards latchbolt.	DOA
COT	Latchbolt by knob from either side. By key from outside when outer knob is stopped by convenient indicator turn-button in inner knob. Auxiliary bolt safeguards latchbolt.	DOT
COU	Latchbolt by knob from either side. By key from outside when outer knob is locked by pressing stop button in inner knob with door closed. Outer knob may be kept in fixed, or locked, position indefinitely, by rotating universal indicator stop button clockwise. Auxiliary bolt safeguards latchbolt.	DOU

FOR PUBLIC ENTRANCES

CKK	Latchbolt by knob from either side. Key locks or unlocks own knob. Auxiliary bolt safeguards latchbolt.	DKK
COY	Latchbolt by knob from either side. By key from outside when outer knob is locked by key in inner knob. Auxiliary bolt safeguards latchbolt.	DOY
COF	Latchbolt by knob from inside only. Outer knob always rigid. By guest key, master key and grand master key from outside. Auxiliary bolt safeguards latchbolt.	DOF

FOR CLASSROOM DOORS

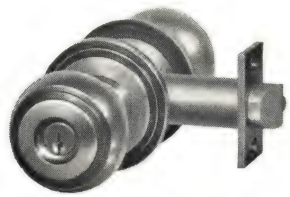
CK	Latchbolt by knob from either side. Locked or unlocked by key in outer knob. Inside knob is free at all times. Auxiliary bolt safeguards latchbolt. Panic-proof.	DK

FOR COMMUNICATING DOORS

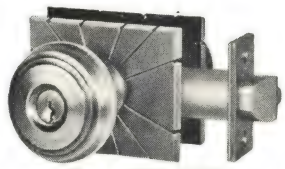
CMT	Latchbolt by knob from either side. Convenient indicator turn-button in either knob locks opposite knob. Auxiliary bolt safeguards latchbolt. *Note:* May be secured with display button on either or both sides, instead of turn-button by substituting letter "E" for "T," i.e., CME, CMTE, or CMET.	DMT
CMY	Latchbolt by knob from either side. Key in either knob locks opposite knob. Auxiliary bolt safeguards latchbolt.	DMY
CB	Latchbolt by knob from either side. Outer knob is locked by pressing stop button in inner knob. Stop button is automatically released by turning inner knob.	DB

TYPE C DESIGNS

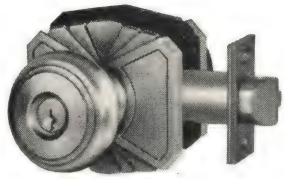
(Type D designs on next page)



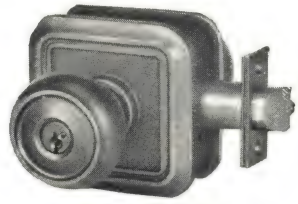
Type COT 3394
Cast Trim
No. 33 Knob—2¼ in.
No. 94 Rose—2⅝ in.



Type COT 3385
Cast Trim
No. 33 Knob—2¼ in.
No. 85 Escutcheon—2¾x3½ in.



Type COT 3386
Cast Trim
No. 33 Knob—2¼ in.
No. 86 Escutcheon—3x3½ in.



Type CHSI 3284
Cast Trim
No. 32 Knob—2¼ in.
No. 84 Escutcheon—3½x3½ in.

TYPE C AND D LOCK FUNCTIONS—Continued

TYPE D DESIGNS

(Type C designs on preceding page)



Type DL 2171
Wrought Trim
No. 21 Knob—2¼ in.
No. 71 Rose—2⅝ in.

Operation

Type C symbol	FOR LAVATORIES	Type D symbol
CE	Latchbolt by knob from either side. By emergency key, knife blade, or screw driver in outside knob, when outer knob is locked by pressing stop button in inner knob. Stop button is automatically released by turning inner knob.	DE
COY½	Latchbolt by knob from either side. By key from outside when outer knob is locked by key in inner knob.	DOY½

FOR PASSAGE DOORS

CL	Latchbolt by knob from either side.	DL

FOR CLOSET DOORS

CC	Latchbolt by knob from outside and turn-knob from inside.	DC
CKC	Latchbolt by knob from outside and turn-knob from inside. Locked or unlocked by key in outside knob. Inside turn is free at all times. Auxiliary bolt safeguards latchbolt.	DKC

TYPE D DESIGNS

(Type C designs on preceding page)



Type DOT 2272
Wrought Trim
No. 22 Knob—2¼ in.
No. 72 Rose—2⅝ in.

Fire Door Latch Unit

Designed to conform with Fire Underwriters' requirements. Anti-friction latch. ¾-inch latch throw. Supplied with any Type C or D lock when symbol "¾" is specified after regular lock symbol, i.e. COY¾, etc. Spring latch or dead latch, as specified.

Rabbeted Latch Unit

Any Type C or D lock will be supplied with a rabbeted latch unit and strike when letter "R" is specified after usual lock symbol, i.e., COTR—3181.

General Specifications—Type C Locks

Housing—*Bronze;* Slide—*Bronze;* Front—Bronze. Bevel ⅛ inch in 2 inches; Strike—Box type. Brass or bronze; Knobs—*Cast brass or bronze;* Escutcheons—*Cast brass or bronze;* Backset—2¾ inches; Doors—1⅜ to 2 inches. For 2¼-inch doors, specify thickness; Reversible—Cylinder locks reversible for right or left-hand doors. To insure cylinders being mounted correctly, always specify hand; Cylinder—Brass or bronze. Five pin tumblers. Six pin tumblers in master-keyed cylinders; Keys—Three nickel silver. Changes practically unlimited; Packed—Each in box, assembled for installation.

General Specifications—Type D Locks

Housing—*Rustproofed steel;* Slide—*Rustproofed steel;* Front—Bronze. Bevel ⅛ inch in 2 inches; Strike—Brass or bronze; Knobs—*Wrought brass or bronze;* Roses—*Wrought brass or bronze;* Backset—2¾ inches; Doors—1⅜ to 2 inches. For 2¼-inch doors, specify thickness; Reversible—For right or left-hand doors. To insure cylinders being mounted correctly, always specify hand; Cylinder—Brass or bronze. Five pin tumblers. Six pin tumblers in master-keyed cylinders; Keys—Three nickel silver. Changes practically unlimited; Packed—Each in box, assembled for installation.

Master-Keying C and D Locks

Type C and D cylinder locks are equipped with five pin tumblers if un-master-keyed, six pin tumblers if master-keyed. They may be master-keyed or grand master-keyed as desired. Unequalled for hotel master-key work where they are arranged under the customary hotel master-key system, embodying the use of Guest key, Master-key, Grand Master-key and Emergency key. A special display shut-out key is furnished for sample rooms.

TABLE OF CATALOGUE SYMBOLS—TYPES C AND D LOCKS

Type of door	Type C locks, cast trim																Type D locks, wrought trim			
	†Design 3181		Design 3191		Design 3282		Design 3283		Design 3284		Design 3385		Design 3386		Design 3394		*Design 2171		Design 2272	
Hotel Corridor	CHS	3181	CHS	3191	CHS	3282	CHS	3283	CHS	3284	CHS	3385	CHS	3386	CHS	3394	DHS	2171	DHS	2272
	CHSI	3181	CHSI	3191	CHSI	3282	CHSI	3283	CHSI	3284	CHSI	3385	CHSI	3386	CHSI	3394	DHSI	2171	DHSI	2272
	CHSIE	3181	CHSIE	3191	CHSIE	3282	CHSIE	3283	CHSIE	3284	CHSIE	3385	CHSIE	3386	CHSIE	3394	DHSIE	2171	DHSIE	2272
	CWS	3181	CWS	3191	CWS	3282	CWS	3283	CWS	3284	CWS	3385	CWS	3386	CWS	3394	DWS	2171	DWS	2272
	CWSI	3181	CWSI	3191	CWSI	3282	CWSI	3283	CWSI	3284	CWSI	3385	CWSI	3386	CWSI	3394	DWSI	2171	DWSI	2272
	CWSIE	3181	CWSIE	3191	CWSIE	3282	CWSIE	3283	CWSIE	3284	CWSIE	3385	CWSIE	3386	CWSIE	3394	DWSIE	2171	DWSIE	2272
Office, corridor and residence entrance	COA	3181	COA	3191	COA	3282	COA	3283	COA	3284	COA	3385	COA	3386	COA	3394	DOA	2171	DOA	2272
	COT	3181	COT	3191	COT	3282	COT	3283	COT	3284	COT	3385	COT	3386	COT	3394	DOT	2171	DOT	2272
	COU	3181	COU	3191	COU	3282	COU	3283	COU	3284	COU	3385	COU	3386	COU	3394	DOU	2171	DOU	2272
Public entrance	CKK	3181	CKK	3191	CKK	3282	CKK	3283	CKK	3284	CKK	3385	CKK	3386	CKK	3394	DKK	2171	DKK	2272
	COY	3181	COY	3191	COY	3282	COY	3283	COY	3284	COY	3385	COY	3386	COY	3394	DOY	2171	DOY	2272
	COF	3181	COF	3191	COF	3282	COF	3283	COF	3284	COF	3385	COF	3386	COF	3394	DOF	2171	DOF	2272
Communicating	CB	3181	CB	3191	CB	3282	CB	3283	CB	3284	CB	3385	CB	3386	CB	3394	DB	2171	DB	2272
	CMT	3181	CMT	3191	CMT	3282	CMT	3283	CMT	3284	CMT	3385	CMT	3386	CMT	3394	DMT	2171	DMT	2272
	CMY	3181	CMY	3191	CMY	3282	CMY	3283	CMY	3284	CMY	3385	CMY	3386	CMY	3394	DMY	2171	DMY	2272
Classroom	CK	3181	CK	3191	CK	3282	CK	3283	CK	3284	CK	3385	CK	3386	CK	3394	DK	2171	DK	2272
Toilet	CE	3181	CE	3191	CE	3282	CE	3283	CE	3284	CE	3385	CE	3386	CE	3394	DE	2171	DE	2272
	COY½	3181	COY½	3191	COY½	3282	COY½	3283	COY½	3284	COY½	3385	COY½	3386	COY½	3394	DOY½	2171	DOY½	2272
Passage	CL	3181	CL	3191	CL	3282	CL	3283	CL	3284	CL	3385	CL	3386	CL	3394	DL	2171	DL	2272
Closet	CC	3181	CC	3191	CC	3282	CC	3283	CC	3284	CC	3385	CC	3386	CC	3394	DC	2171	DC	2272
	CKC	3181	CKC	3191	CKC	3282	CKC	3283	CKC	3284	CKC	3385	CKC	3386	CKC	3394	DKC	2171	DKC	2272

†Same as Design 2171, except cast brass or bronze.

*Same as Design 3181, except wrought brass or bronze.

RESIDENCE AND APARTMENT LOCKS

The illustrations and descriptions below briefly summarize the groups of Schlage Locks designed for residential buildings.

Full description of these lines of locks is contained in our general catalog, sent upon request.

Type F Locks

For interior doors in the finest residential and apartment buildings. Small knobs. Small roses. Long latch throw. Smooth, silent operation. Roller bearing latch retractor. Original, exclusive designs. Interchangeable trims. Instantly adjustable to doors 1⅜ in. to 1¾ in. thick. All exterior parts solid brass or bronze. All interior parts heavily cadmium plated. Strong, compact mechanism. Every recognized Schlage advantage and many new ones included in these new locks requiring only a 1¾-in. hole for installation.



Type FB

Type FB—Interior button lock. *Operation:* Latchbolt by knob from either side. Outer knob is locked by pressing button in inner knob. Button is automatically released by turning inner knob. Automatic self-restoring slide prevents accidental locking out.



Type FL

Type FL—Knob Latch. *Operation:* Latchbolt by knob from either side.



Type FE

Type FE — Emergency Bathroom Lock. *Operation:* Latchbolt by knob from inside only; by emergency key, screwdriver, etc., from the outside (in emergency), when the outer knob is locked by pressing button in inner knob. Button automatically released by turning inner knob. Automatic feature prevents accidental locking out.



Type FC

Type FC—Closet Latch. *Operation:* Latchbolt by knob from outside. By thumb turn from inside.

General Specifications—Type F Locks

Housing—Rustproofed steel; *Front*—Flat. Brass or bronze; *Strike*—Box type. Brass or bronze; *Knobs*—Solid brass or bronze, or glass. See below; *Escutcheons*—Brass or bronze; *Reversible*—For doors of either hand; *Backset*—2½ inches; *Doors*—1⅜ to 1¾ inches thick; *Packed*—Each in a box. Assembled for installation.

Four of several available trim designs are shown below:



Trim 2171



Trim 2272



Trim 2373

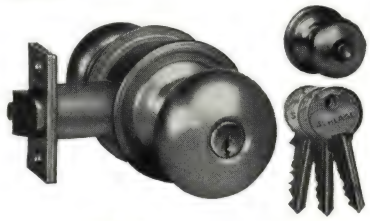


*Trim 2471

*Glass knobs (No. 24 Clear, No. 25 Opal, No. 26 Colored) may be used with any rose desired, i.e., 2571, 2672, etc.

Type A Locks

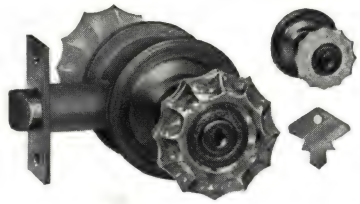
The original press-the-button locks, enthusiastically received nine years ago by architects and builders with the result that millions are now in use. For general residence and apartment work. Types for all interior and exterior doors. Wide choice of trims. Solid brass or bronze exterior trim. Quick installation, maximum security, smooth operation, exceptional convenience and great durability characterize Type A Locks. Two of the fourteen varieties of Type A Locks are shown below:



Top:

Type AV

For Apartment Corridor and Inside Doors. Pin tumbler cylinder. Free outside knob, except when locked by stop button in inside knob. Inside knob always free.



Bottom:

Type AE

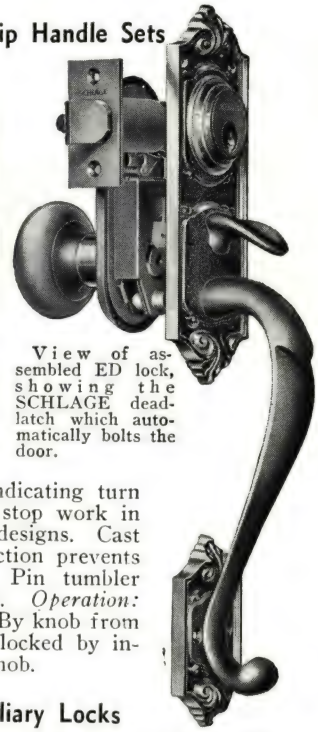
For Bathroom Doors. Free outside knob. Stop button in inside knob. Emergency keyhole in outside knob.

Type ED Entrance Door Grip Handle Sets



ED55 ED59 ED60

ED56



View of assembled ED lock, showing the SCHLAGE deadlatch which automatically bolts the door.

Special Features—Manual indicating turn button in the knob instead of stop work in lock face. Distinctive, original designs. Cast brass or bronze trim. Construction prevents forcible removal of cylinder. Pin tumbler cylinder. Deadlocking latchbolt. *Operation:* Latchbolt by key from outside. By knob from inside when thumbpiece is not locked by indicator turn button in inner knob.

Type B Auxiliary Locks

Replaces the rim or mortise "night latch." Easy, two-bore installation. Takes only ten minutes. Backset, 2⅜ in. Solid brass or bronze trim. Five pin tumbler cylinders. Changes practically unlimited.



B-100 Springlatch

Pin tumbler cylinder. Operation: Key from outside. Turn knob from inside. Latch hold-back catch.

B-200 Automatic Deadlatch

Pin tumbler cylinder. Operation: Key from outside. Turn knob from inside. Latch hold-back catch. Deadlocking latch-bolt.

B-300 Deadlock

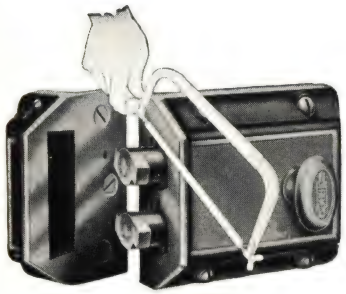
Pin tumbler cylinder. Operation: Key from outside. Turn knob from inside.

FRANCIS KEIL & SON, INC.

Burglar Jimmy-Saw-Proof Locks, Latches and Hardware Specialties

401-425 East 163rd Street, NEW YORK, N. Y.

For "Keilson" Apartment House Mail Boxes, see Manufacturers' Index



The Saw Test

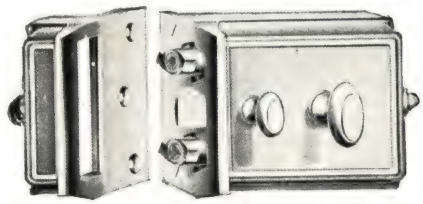
The revolving hardened steel inserts inside the bronze bolts can not be sawed through

Description

Keil Burglar Jimmy-Saw-Proof Locks cannot be jimmied, sawed or forced. Bolts shoot out with the lugs perpendicular; they then rotate so that in the locked position lugs are horizontal, anchored behind the face of the strike. They have been tested and approved by the Underwriters' Laboratories, Inc., and are recommended by burglar insurance companies.

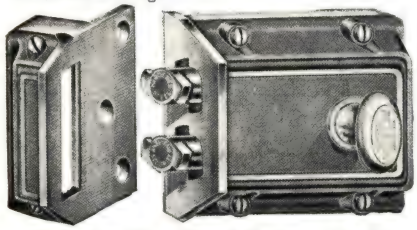
Made in rim and mortise, front and store door, cylinder patterns. Master-keyed for all purposes to order and other make cylinders replugged. All latch bolts reversible.

Ask for booklet.



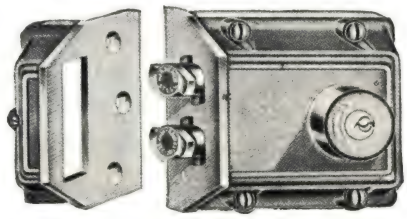
Night Latch Lock, Screwless Case

B51025—Bronze metal throughout. Operated by key outside and knob inside. Latch can be held in by stop, or deadlocked so key will not open from outside. Case 3⅝x4¼x1¼ in. Face to center of cylinder 2⅜ in.



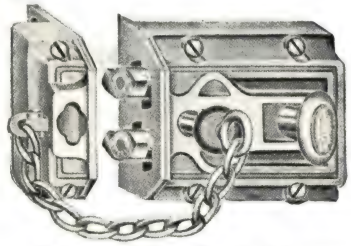
Cylinder Rim Dead Pattern Lock

B51000—Bronze metal throughout. Operated by key outside and knob inside. Case 3⅜x4x1¼ in. Face to center 2⅜ in.



Two-cylinder Rim Dead Lock

B51001—Recommended for glass paneled doors. Bronze metal throughout. Operated from both sides by key only. Case 3⅝x4x1¼ in. Face to center of cylinder 2⅜ in.



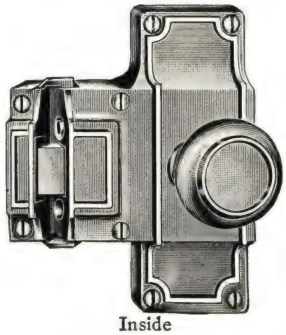
Cylinder Rim Dead Pattern Lock with Guard Chain

B51005—Bronze metal throughout. Chain is locked when door and lock are open. Operated by key outside and knob inside. Case 3⅜x4x1¼ in. Face to center of cylinder 2⅜ in.

Locks B51025, B51000, B51005, B51001 are for doors 1¼ to 2½ in., or to order with high rosettes for doors 1 to 2½ in. thick



Outside



Inside

Anti-mortise Apartment and Office Entrance Cylinder Door Latch Lock

Set 55100—Cast brass or bronze metal throughout. For either hand door, *suitable only for doors that swing in.*

One cylinder lock through knob, regular bevel latch bolt; rim nosing; door knobs operate latch from either side; latch can be deadlocked by stop so that knob will not operate from the outside; latch is operated by key from outside at all times.

Lock case and escutcheon combined, 6½x2⅜ and 4 in.; outside escutcheon, 6½x2⅜ in.; knobs, 2¼ in. diam.; special hub and spindle, ⅜ in.; face to center of cylinder, 2¾ in.

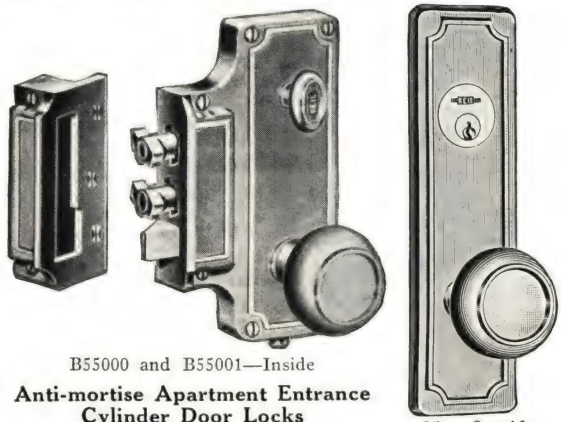


Anti-mortise Apartment and Office Entrance Cylinder Door Latch Lock

Set B55105—Cast brass or bronze metal throughout. For either hand door, *suitable only for doors that swing in.*

One cylinder lock through knob, regular bevel latch bolt; rim nosing; door knobs operate latch from either side; latch can be deadlocked by stop so that knob will not operate from the outside; latch is operated by key from outside at all times.

Lock case and escutcheon combined, 8x2½ and 4 in.; outside escutcheon, 8x2½ in.; knobs, 2¼ in. diam.; special hub and spindle, ⅜ in.; face to center of cylinder, 2¾ in.



B55000 and B55001—Inside

251—Outside

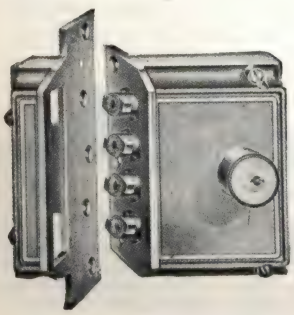
Anti-mortise Apartment Entrance Cylinder Door Locks

Brass or bronze case, latch, bolts and cylinder. Case, 7x4 in.; swivel hub, ⅜ in.; face to center of cylinder, 2¾ in.; center of cylinder to center of hub, 3⅝ in.

B55000—One cylinder lock with regular bevel latch bolt, rim nosing *for doors opening in.* Thumb knob operates bolts from inside. Door knobs operate latch from either side in combination with swivel hub and spindle. Latch can be deadlocked by stop (which is on bottom rim of lock case) so that knob will not operate from the outside. Bolts and latch are operated by key from either side at all times. Practically bronze metal throughout.

B55001—Same as B55000, with *flat strike* and reverse bevel latch. For doors opening out.

251—Comprising escutcheon plate, 8¾x2⅜ in.; one piece 2¼ in. knobs, *no* rose; ⅜ in. swivel spindle.



Left:

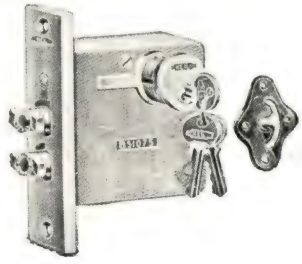
Two-cylinder Rim Dead Lock

B51011 — For business entrance doors, especially glass paneled doors. Bronze metal throughout. Operated from both sides by key only. Right or left hand. Case 5½x4x1¼ in. Face to center of cylinders 2½ in. For doors, 1½ to 2½ in.

Right:

Jimmy-Saw-Proof Dead Lock

B51075 — Lock with one cylinder and turn knob. B51076—Lock with two cylinders. Bronze metal throughout. Case 3¾x3½x⅞ in. Face 5¾x1⅛ in. Back set 2½ in. Note non-tampering cylinder screw device



ACKERMAN-JOHNSON CO.

Expansive Screw Anchors, Expansion Bolts, Concrete Inserts

625 West Jackson Boulevard, CHICAGO, ILL.

NEW YORK OFFICE, 53 Park Place

Products

ACKERMAN-JOHNSON EXPANSIVE SCREW ANCHOR; EXPANSION BOLTS; CONCRETE INSERTS. U. S. Patents: April 27, 1915, December 21, 1915, April 4, 1916, May 14, 1918; others pending. Patented in Canada, Great Britain, France, Belgium; others pending.

Ackerman-Johnson Expansive Screw Anchor

Adaptability—For attaching objects to hard materials, as concrete, brick, stone, tile, marble, etc.

Description and Operation—Consists of a doubly tapered internally threaded cone made of brass, iron or steel (Fig. 1), within a lead composition ductile sleeve (Fig. 2). These are assembled at the factory, the sleeve being forced on the cone to a normal position as at Fig. 3.



Fig. 1



Fig. 2



Fig. 3

Ackerman-Johnson Expansive Screw Anchor

When installed as illustrated, the sleeve is driven farther toward base of the cone and is expanded generally to any degree required to swedge tightly against the sides of hole, effecting perfect holding contact throughout the length and circumference of the anchor. Thus consolidated with the wall material, the anchor provides a machine threaded hole the same as an ordinary tapped hole in a machine part. Any object may then be attached with a standard screw or bolt of suitable diameter.

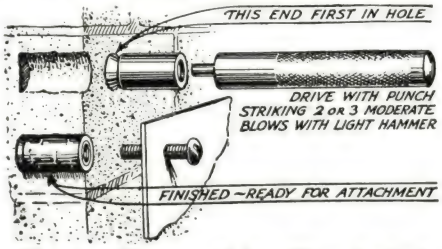


Fig. 4. Manner of Installing Anchor

The piloted setting punch supplied without charge with all anchors

The heavier the load attached, the more forcible becomes the expansion, causing the anchor to resist effort to pull it out far beyond the tensile strength of any screw or bolt.

Distinctive Advantages—Time saving through the use of Ackerman-Johnson anchors compared with old methods more than compensates their total cost.

They save much of drilling cost, requiring least depth for any stated load. They are installed instantly, without the aid of the screw, and before the fixture is lifted into position to be fastened. Their margin of safety is equal to that of steel bolts of correlating size.

They necessitate the least displacement of wall material and consequently less injury to buildings. They effect the neatest possible workmanship.

Sizes—The size of anchor is designated as the size of the bolt or screw to be used. Example: For No. 10-24 screw, use No. 10-24 anchor; for ⅜-in. bolts use ⅜-in. anchor.

SIZES, EXPANSIVE SCREW ANCHORS

Screw or bolt sizes	Threads per in.	Minimum dimension of holes required, inches		Specify anchor Size No.
		Diam.	Depth	
No. 6	32	¼	⅜	6-32
" 8	32	5/16	½	8-32
" 10	24	⅜	⅝	10-24
" 12	24	7/16	¾	12-24
¼"	20	½	⅞	¼-20
5/16"	18	⅝	1	5/16-18
⅜"	16	¾	1¼	⅜-16
7/16"	14	⅞	1½	7/16-14
½"	13	⅞	1½	½-13
⅝"	11	1⅛	2	⅝-11

Packed 50 or 100 in box.

Stud Type Expansion Bolts

So great is the holding power of this anchorage, that when set in strong stone or concrete with only its one primary sleeve expanded, the bolt shank can be pulled in two, without the anchorage yielding.



Bolt with Primary Expansive Sleeve Only



Bolt with Primary and One Secondary Expansive Unit

Secondary Expansive Units—Made up of an expansive sleeve and a slip steel cone, giving additional anchorage equal to the primary unit. Calculate the minimum depth of holes for setting at twice the diameter of hole drilled.



Sectional View Showing Bolt with Primary Expansion Sleeve, One Iron Spacing Sleeve, and One Secondary Expansive Unit

Fig. 5. Stud Type Expansion Bolt

Diam. of bolt, at thread .....in.	¼	⅜	½	⅝	¾
Diam. for hole ...in.	⅜	9/16	¾	1	1⅛
Lengths of bolts in inches	1¼	1¾	2½	3½	5
	1½	2	3	4	6
	1¾	2½	3½	5	7½
	2	3	4	6	9
	2½	3½	4½	7½	10
	3	4	5	9	12
	3½	4½	6	10½	15
	4	....	7	12	18
	....	....	8	15	....

Concrete Inserts

Ackerman-Johnson concrete inserts for moulding into the concrete when poured, afford minimum displacement of the concrete and maximum speed in setting. Can be furnished for all sizes of screws and bolts up to ⅝-in. diameter.

We invite requests for full information concerning inserts.

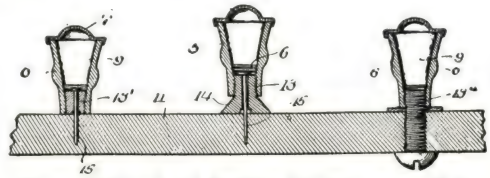


Fig. 6. Three Methods of Setting Inserts on to Form Lumber

Users of Ackerman-Johnson Products

Extensively adopted by leading contractors, manufacturers, railroads, shipyards, government departments and public utility companies.

U. S. EXPANSION BOLT CO.

Manufacturers of Expansion Bolts and Anchoring Devices

Holland Plaza Building, 75 Varick Street
NEW YORK, N. Y.

BRANCH OFFFICES

CHICAGO, ILL., 160 No. Wells Street — LOS ANGELES, CALIF., 320 E. 3rd Street — SAN FRANCISCO, CALIF., 550 Howard Street
TORONTO, ONT., Metropolitan Building — WINNIPEG, MAN., Galt Building

FACTORY, COLUMBIA, PA.

Products

EXPANSION BOLTS, SCREW ANCHORS, TOGGLE BOLTS, WIRE ROPE CLIPS, WIRE ROPE THIMBLES, CABLE CLAMPS.
Also Stone Drills.

"U.S.E." Nut-Lok Expansion Shield



This expansion shield bolt development is designed to effectually rebuff all violence which tends to destroy its hold.

This most important feature is accomplished by the use of a patented split nut as an expanding member. The slot collapses against the bolt as the material is fastened firmly, locking it. By this method the necessity of lock washers is entirely eliminated.

Size, in.	Length, in.	Drill size, in.
1/4	1	9/16
5/16	1 1/8	9/16
3/8	1 1/4	5/8
1/2	1 1/2	7/8
5/8	1 3/4	1
3/4	2	1 1/4

"U.S.E." Forway Expansion Shield



"U.S.E." Forway certified malleable iron expansion bolt shields embody the mechanical principles that influenced many of the world's largest users to adopt them.

The sides of the shield expand four ways, giving four points of contact as against two in the usual expansion shields.

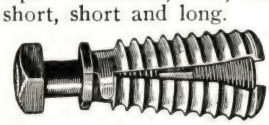
Bolt size, in.	Lgth., in.	Drill size, in.	Bolt size, in.	Lgth., in.	Drill size, in.
3/16	1	7/16	1/2	3 1/2	3/4
1/4	1 1/2	1/2	5/8	3 1/2	7/8
5/16	1 3/4	9/16	3/4	3 1/2	1 1/8
3/8	2 1/2	5/8	7/8	4 1/2	1 3/8
7/16	2 3/4	11/16	1	5	1 5/8
1/2	3	3/4			

Lag Screw Expansion Shield



"U.S.E." lag screw expansion shields are of the friction type whereby expansion is obtained by friction of the lag screw against the walls of the shield. The inner threading of "U.S.E." shields are designed to minimize friction and insure flexible expansion.

They are made in three lengths for each of the principal diameters, viz., extra short, short and long.



Bolt size, in.	Long length, in.	Short length, in.	Extra short length, in.	Drill size, in.
3/16	1			7/16
1/4	1 1/2	1		1/2
5/16	1 3/4	1		9/16
3/8	2 1/2	2	1 1/2	5/8
7/16	2 3/4	2		11/16
1/2	3	2	1 1/2	3/4
1/2	3 1/2			3/4
5/8	3 1/2	2		7/8
3/4	3 1/2	2		1 1/8
7/8	4 1/2			1 3/8
1	5			1 5/8

Bolt size, in.	Length, in.	Drill size, in.
1/4	1 1/2	9/16
5/16	1 3/4	5/8
3/8	2 1/4	3/4
7/16	2 1/2	7/8
1/2	2 3/4	1
9/16	3 1/4	1 1/8
5/8	3 1/4	1 1/8
3/4	3 3/4	1 3/8
7/8	4 1/4	1 1/2
1	4 3/4	1 5/8

"U.S.E." Closed Back

"U.S.E." closed back malleable iron expansion shields are a push type of expansion shields. They are particularly designed for sprinkler work and all pipe line suspension. They are used exclusively by some of the world's largest sprinkler companies.

"U.S.E." Korker Anchors



Consists of an internally threaded brass cone over which is fitted a ductile lead sleeve. When installed, the ductile sleeve is tamped over the tapered cone.

Korker shields can be safely used without danger of fracturing the surface of material, such as mosaic tile, glass or marble.

Screw size, in.	Anchor length, in.	Drill size, in.
6/32	3/8	1/4
8/32	1/2	5/16
10/24	5/8	3/8
12/24	3/4	7/16
1/4/20	7/8	1/2
5/16/18	1	5/8
3/8/16	1 1/4	3/4
1/2/13	1 1/2	7/8
5/8/11	2	1 1/8

Wood Screw Anchors



Made of lead in various sizes to take wood screws 6x3/4 to 24x1 3/4 ins.

Spring Head Toggle Bolts



"Ziffer" spring toggle bolts comprise a rigid toggle head equipped with a flat steel spring, an oval steel nut pivoted to the toggle head. Their toggle action is positive even though the free space in which the toggle is to turn is limited.

Dia., lgth. of screw, in.	Dia. hole required, in.	Dia., lgth. of screw, in.	Dia. hole required, in.
1 1/8 x 3	3/8	6	9/16
4	3/8	1/4 x 3	5/8
3/16 x 3	9/16	4	5/8
4	9/16	5	5/8
5	9/16	6	5/8

One-Hole Pipe Clamps



Malleable Iron

Pipe size, in.	Weight per 100, lb.
3/8	3
1/2	4
3/4	5 1/2
1	9 1/2
1 1/4	18
1 1/2	22
2	32
2 1/2	70
3	95

Wire Rope Thimbles



Hot galvanized

Size, in.	Weight per 100, lb.	List price
3/16	3	$4.40
1/4	4 1/2	4.40
5/16	5 1/2	5.25
3/8	6 3/4	6.00
1/2	10 3/4	8.00
5/8	25	11.00
3/4	32	13.00
7/8	49	16.00
1	61	21.00



Wire Rope Clips

Made of malleable iron, galvanized or japanned. Sizes 3/16 to 1 in.

GRANT PULLEY AND HARDWARE COMPANY

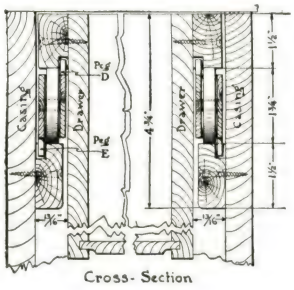
TELEPHONE CONNECTION

33-36 Fifty-seventh Street
WOODSIDE, LONG ISLAND, N. Y.

CALIFORNIA REPRESENTATIVES, Grant Products & Hardware Co., 912 E. 3rd Street, LOS ANGELES

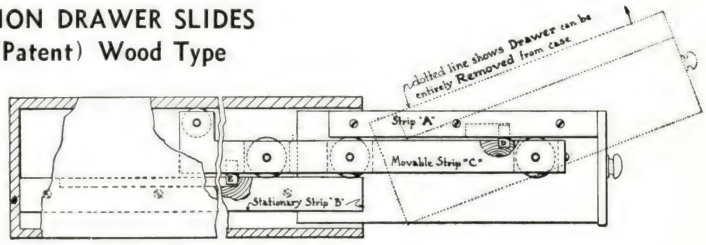
Agents in all the principal cities of the United States and Canada, and our Name will be found listed in the Telephone Directories
For Our Sash Pulleys, Window Hardware, etc., and for Grant Elevator Equipment Corp., see Manufacturers' Index

ANTI-FRICTION DRAWER SLIDES
"Turner" (Patent) Wood Type



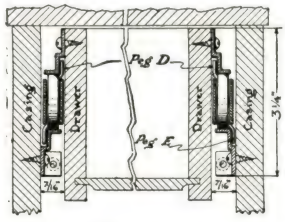
Cross-Section

Two types: 1½-in. and 2-in. strips. 1½-in. requires 4¾-in. height. 2-in. requires 6¼-in. height. 2-in. sets for heavy duty made of hardwoods.



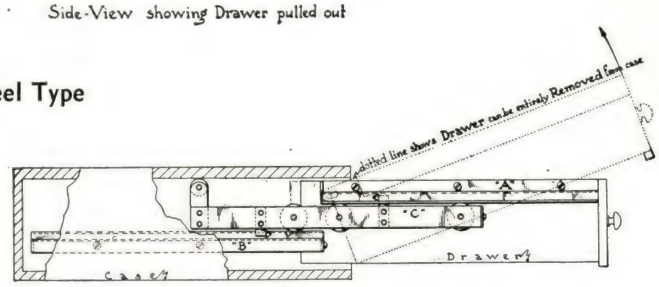
Side-View showing Drawer pulled out

"Gem" Steel Type



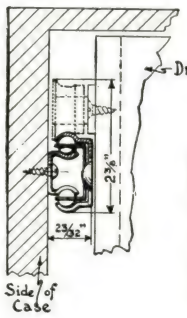
Cross-Section

All-steel, except fibre wheels are steel bushed. Requires 3¼-in. height. Operating and removing features same as "Turner" Wood Slide above.

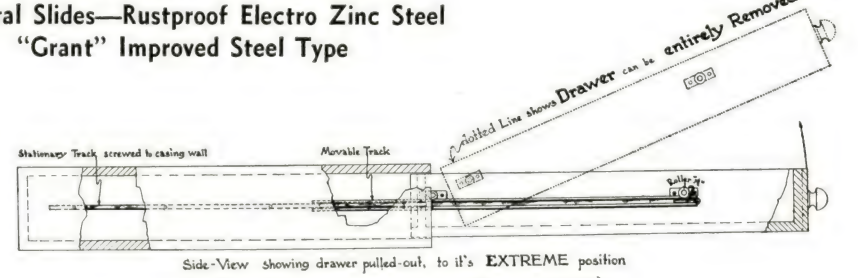


Side View showing drawer pulled-out

BALL BEARING DRAWER SLIDES
All-metal Slides—Rustproof Electro Zinc Steel
"Grant" Improved Steel Type

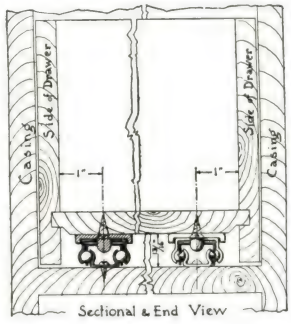


All-steel ball bearing slide. Requires 2⅜-in. height. For heavy duty, medium weight drawers. Installed with minimum labor. No mortising.



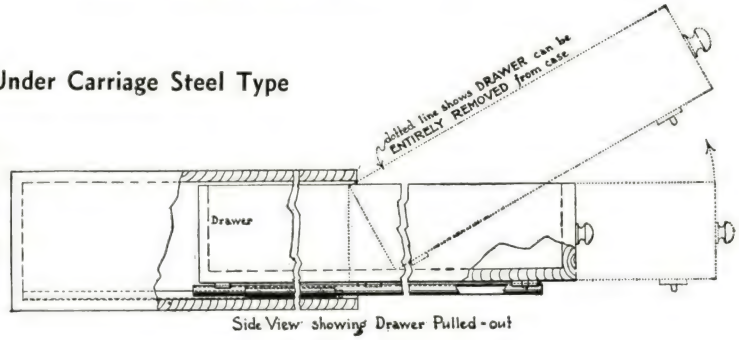
Side-View showing drawer pulled-out, to it's EXTREME position

Manufactured of Electro-Zinc Plated Steel, (Rust-proof)

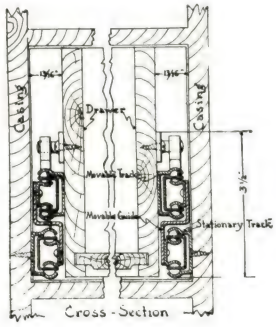


"Grant" Under Carriage Steel Type

All-steel ball bearing slide. No side clearance needed; $\frac{13}{16}$ in. between bottom of drawer and case. Existing drawers can be altered to suit.

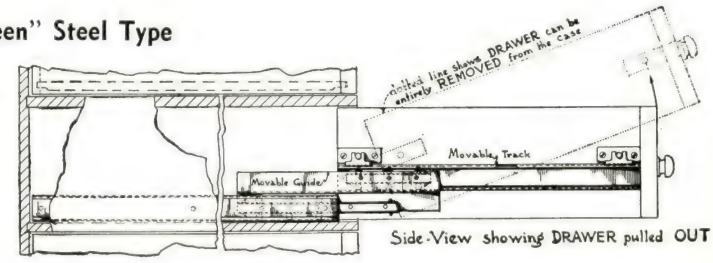


Side View showing Drawer Pulled-out



"Queen" Steel Type

All-steel ball bearing slide. Requires 3½-in. height on side of drawer. A heavy duty slide for heavy drawers. Safe load, 150 lbs.



Side-View showing DRAWER pulled OUT

FURNISHINGS

HAMILTON MANUFACTURING CO.

Manufacturers of Drafting Room Furniture

GENERAL SALES OFFICE AND FACTORY

TWO RIVERS, WIS.

RAHWAY, N. J. CHICAGO, ILL. LOS ANGELES, CALIF.

Products

OAK and STEEL SECTIONAL PLAN FILE CABINETS; ADJUSTABLE DRAWING TABLES; DRAWING BOARDS.

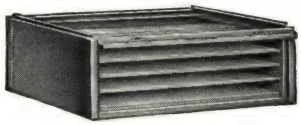
Also manufacturers of Collapsible Drawing Tables and Easels, Parallel Rule Attachments, Artists' Tables, Typewriter Tables, School Tables, etc.



Shallow Drawer Unit



5-Drawer Unit



Shelf-filing Unit

Hamilton-Calumet Plan File Units

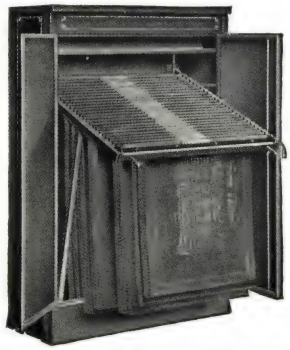
Hamilton-Calumet Plan File Units

Made for sheets from 24x36 to 42x72 in.

Shallow Drawer Units—The shallow drawer units are for active tracings. The semi-mechanical lifter eliminates wear and tear. This feature permits active tracings to be filed rapidly and efficiently.

5-Drawer Unit—The 5-drawer unit is for semiactive tracings in folders; 4 folders of 50 sheets to a drawer.

Shelf-filing Units—The shelf-filing units are for storage of inactive plans; 4 folders of 50 sheets to a shelf.



Hamilton-Calumet Vertical Plan File

Hamilton-Calumet Vertical Plan File

A vertical file for the most efficient handling of large records or sets of plans. The sheets are held in binders, 26 binders of 100 tracings each to a cabinet.

Made for plans from 24x70 to 48x70 in.

Made of steel, olive green finish.



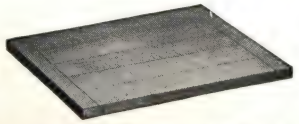
Oak Plan File Cabinet Units, Combination 29

Hamilton Oak Plan File Units

These units are thoroughly well made of seasoned oak and well finished.

They are made for drawings 24x36, 30x42 and 36x48 in. Special sizes can be made to order.

Bases are supplied in four different styles; flush to the floor or on legs, sanitary style.



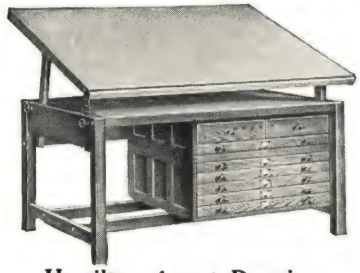
Style A Drawing Board

Hamilton Drawing Boards

Made in pine or basswood in seven styles and in any size from 10x12 to 48x96 in. Special sizes made on order.



Hamilton Drawing and Reference Table No. 239-A

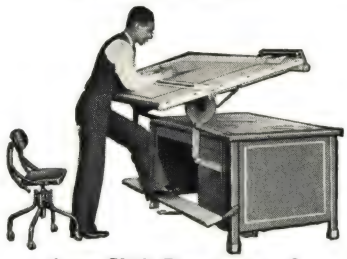


Hamilton 4-post Drawing Table

Nos. 142, 145, 149, 150, 154 and 155



Hamilton Steel Base Drawing Table, No. 214-D



Auto-Shift Drawing and Reference Table

Hamilton Drawing and Reference Table No. 239-A

The top is of pine 36x54 in., which can be tilted to any angle or used vertically. The top also slides forward or back 17 in.

Table No. 239 — no units.

No. 239-A, with 2-drawer unit, with letter file drawer and tool drawer.

Has dust covers on drawing board and reference surface.

Hamilton Adjustable 4-Post Drawing Table

The pine top is adjustable in height and slant. Any drawer combination can be supplied. They are made from 36x60 to 42x84 in.

Hamilton Steel Base Adjustable Drawing Table

This table has an unbreakable steel base, with pine top; in sizes from 36x48 to 48x120 in., and is made with or without the drawers.

The top is easily adjustable in height by a new screw device.

Hamilton Auto-shift Drawing and Reference Table

A new table with an absolutely unique mechanism for adjusting the top to any height or slant. Any adjustment desired in three seconds. Body of steel, olive green. Made with tops 36x60 to 42x84 in. Ask for Circular 47-S.

Hamilton Ideal-Universal Adjustable Drawing Table



Hamilton Ideal-Universal Drawing Table

The pine top is adjustable in height and slant as well as vertically. Top also slides forward or back 25 in., making the table adaptable to any kind of drafting or art work.

Further Information

For further information on Hamilton Drafting Room Furniture, ask for Catalog No. 7-S.

For further information on the Hamilton-Calumet Plan File System, ask for Catalog No. 9-S.

A. N. RUSSELL & SONS CO.

Designers and Manufacturers of Museum and Trophy Cases

ILION, N. Y.

RUSSELL BUILT EXHIBITION CASES

Russell Exhibition Cases are now usually built with frames of aluminum alloy as such is a most satisfactory material for the purpose. Light, strong and durable, aluminum will, with minimum care, retain its original appearance and beauty. The frame members of this material so blend with their surroundings that they are almost imperceptible when the exhibit is being viewed, yet when examined, they impress the observer with their beauty and daintiness.

Where the necessity for conforming to existing types makes the use of aluminum inexpedient, the Russell organization can produce with greatest economy, cases in bronze, wood or other materials. Bronze frames can be electroplated or finished in any of the standard finishes.

Where it is desired to adopt aluminum cases for all exhibits we can easily treat any old cases the retention of which is desired with our Anralium lacquer to make the appearance of all cases uniform.

In the design and manufacture of Russell Museum Cases we keep constantly in mind the fact that our cases must meet the following requirements:

(1) They must display the exhibit to the best possible advantage.

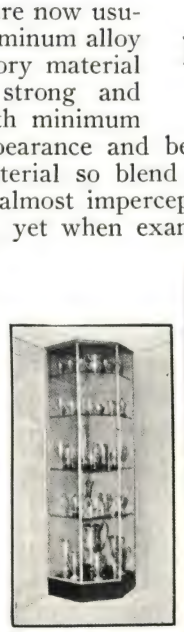
(2) They must give the maximum convenience for arranging the exhibits.

(3) They must have ample strength and rigidity.

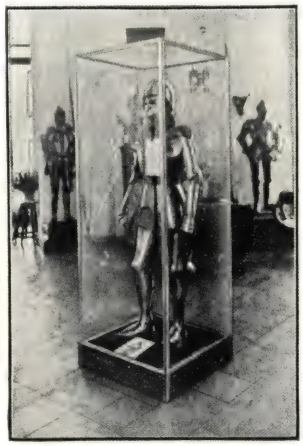
(4) They must protect and preserve the exhibit.

(5) They must be in themselves things of beauty, yet so inconspicuous that they do not attract the eye away from the exhibit.

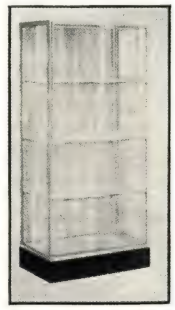
We shall be most pleased to send to interested architects our catalogue which describes in more detail the construction of our cases, illustrates some of the installations which we have made and describes and illustrates a few of our standard cases.



Special Aluminum Frame Trophy Case



Free-standing Aluminum Frame Museum Case



Typical Single Unit Wall Museum Case

CONSTRUCTION OF METAL CASES

Composite Members—The various composite members of the frames of our cases are fitted together with a tongue and groove construction of patented design which makes a strong, rigid, and dustproof case. All joints between different members in contact are packed with an asbestos fibre which is unattacked by any form of vermin and which makes the cases vermin, dust, and moisture proof.

Mounting of Glass—Glass is embedded in frames with a special packing compacted by a continuous crimped spring on the inner surface.

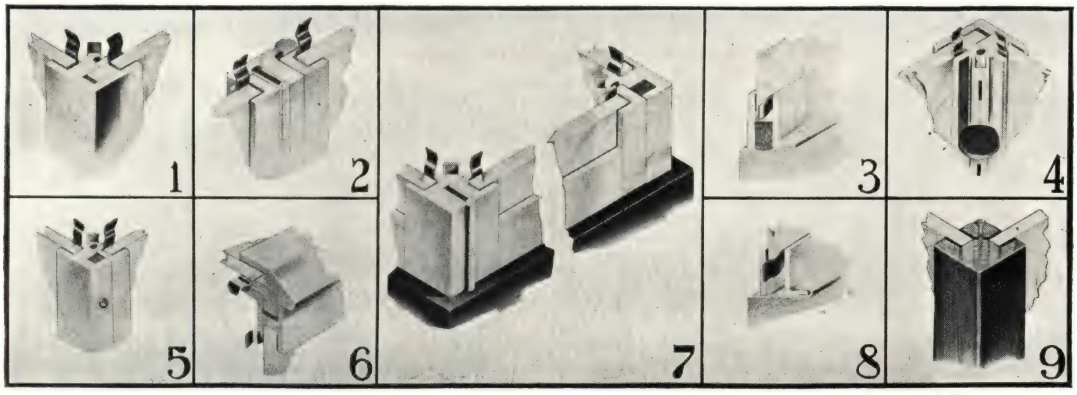
Locks—Cases are ordinarily provided with Rix positive locks controlled by a pentagonal sleeve key. These are spaced sufficiently close together to bring proper contact between members. Yale paracentric key locks or special locks may be fitted if desired.

Interior Equipment—Interior shelves carried on corner brackets or on center uprights with arm brackets are furnished as desired. Interior diaphragms of glass, plywood, vehisote or other material can also be furnished.

Illumination—Interior electric lighting equipment can be installed in Russell built cases if proper provision is made for ventilation. Exterior lighting may be provided by either built-in or detachable equipment.

Glass—All of the glass used in Russell built metal frame cases is ¼ in. thick polished plate glass.

Bases—Bases are usually specially designed to harmonize with the character of the exhibits or with the interior architecture. They may be made up in a wide variety of material and design. Suggestions will be made on request.



1. Section through corner upright.
2. Section through center mullion.
3. Section through sill member.
4. Section showing corner bracket adjustment.
5. Section of corner upright, Rix lock.
6. Section through lid of table case.
7. Section through hinged door.
8. Section showing dustproofing member at door bottom.
9. Section of wood frame corner upright.

Details of Construction of Russell Built Museum Cases

WM. H. JACKSON COMPANY

ESTABLISHED 1827

Mantels and Fireplace Equipment

2 West 47th Street
NEW YORK, N. Y.

318 No. Michigan Avenue
CHICAGO, ILL.

5514 Wilshire Boulevard
LOS ANGELES, CALIF.

FACTORY AND FOUNDRIES—335 Carroll Street, Brooklyn, N. Y.

Exclusive Representatives for Mantels and Fireplace Fixtures:—

BALTIMORE, MD.
J. G. Valiant Company

BOSTON, MASS.
Pettingell-Andrews Company

CINCINNATI, OHIO
The A. B. Closson Jr. Company

CLEVELAND, OHIO
The Sterling & Welch Company

DAYTON, OHIO
The A. B. Closson Jr. Company

DENVER, COLO.
Denver Dry Goods Company

DETROIT, MICH.
The Martin-Gibson Company

OKLAHOMA CITY, OKLA.
Harbour-Longmire Company

PHILADELPHIA, PA.
J. G. Valiant Company

PITTSBURGH, PA.
Beaux Arts

PROVIDENCE, R. I.
Tilden Thurber Corporation

ST. LOUIS, MO.
Scruggs-Vandervoort-Barney

WASHINGTON, D. C.
J. G. Valiant Company

Since 1827 the WM. H. JACKSON COMPANY has specialized in fireplace design, manufacture, installation and adornment. These pages scarcely indicate the range and scope of WM. H. JACKSON COMPANY'S selections, which are conceded to be the finest and most extensive in this country. WM. H. JACKSON COMPANY fireplace services are based on unsurpassed experience and embrace every phase of fireplace usage.

CRETAN STONE MANTELS

Cretan Stone, developed by and exclusive with WM. H. JACKSON COMPANY, is a perfect medium for the reproduction of fine antique stone mantels. It is a hard, close-textured, durable and attractive stone which can be carved, tooled and chiseled. It contains *no* portland cement or plaster. All surfaces are hand-tooled. But the moderate price of Cretan Stone is far below the cost of quarried limestone or Caen stone. The designs are authentic to the minutest detail, as in most cases they reproduce originals in our collection.

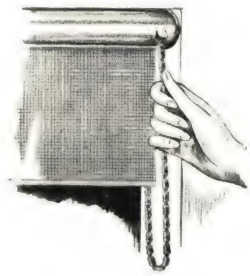
The No. 228 Cretan Mantel illustrated is a replica of a stone mantel, dated 1610, removed from Norwich Cathedral Building, Upper Hillisdon, England. It is one of more than fifty designs shown in our Cretan Mantel Catalog.



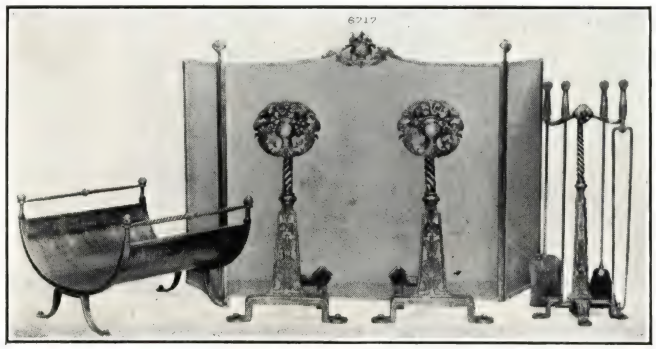
A Quaintly Shaped Hand-hammered English Coal Scuttle



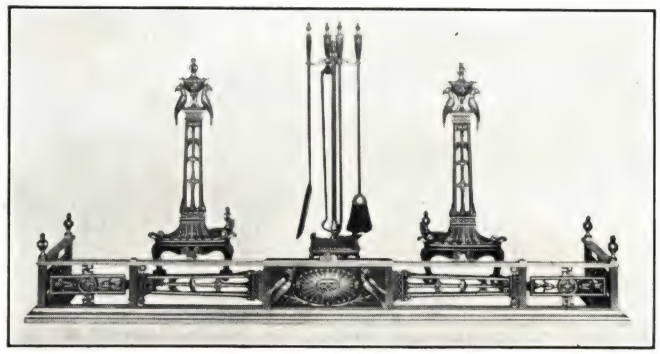
228 Cretan Stone Mantel



Showing Operation of Wm. H. Jackson Company Patented Rolling Fire Screen



Sturdy Wrought Iron Andirons, Fire Tools, Screen and Woodholder



Graceful Bronze and Gold Chippendale Fender, Andirons and Fire Tools

GENUINE ANTIQUE MANTELS



R-4 Carved Wood Mantel

Above is an example of the exquisitely carved wood mantels always to be found in wide variety in our show rooms—many 18th Century originals, like the one shown, which comes from a mansion in Grosvenor Square, London. All sizes and degrees of elaborateness.

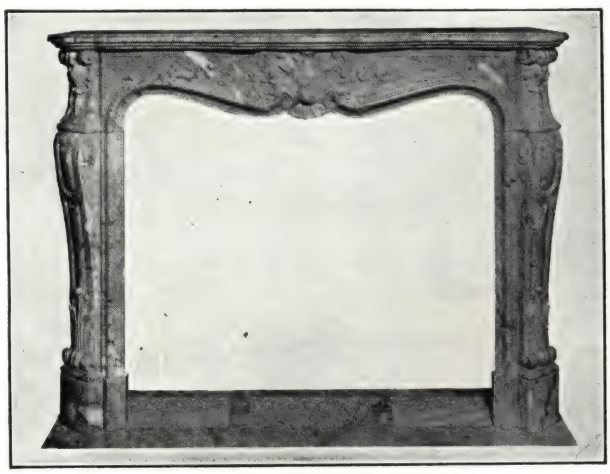


1405 Georgian Marble Mantel

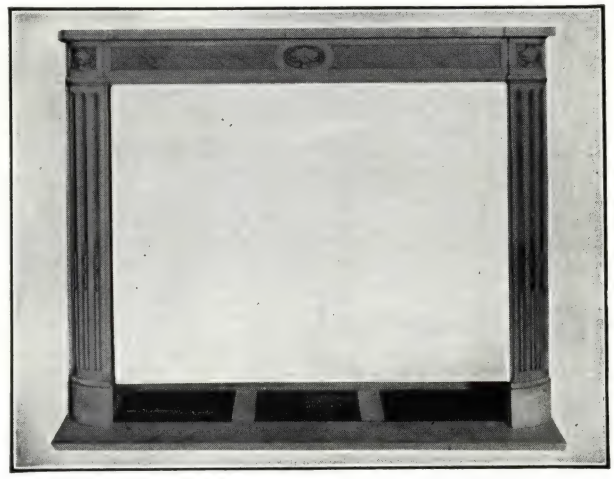
Our stock includes literally dozens of genuine antique marble and stone mantels of every period from French, English and Italian houses. The Statuary and Convent Siena marble mantel shown above is from the Castle of Lady Levett Wimborne and is distinguished by carving of exceptional refinement.

AUTHENTIC REPRODUCTIONS

WM. H. JACKSON COMPANY'S A. I. A. folder of marble mantel designs contains fifty cuts of authentic reproductions which are always carried in stock in a variety of marbles. From early Italian Renaissance stone mantels the continuity is unbroken through French Louis XV, Regency, Louis XVI, Directoire, Empire and modern mantels, and English Georgian, Adam and Regency examples. Below are two of the French designs.



22A Louis XV Marble Mantel



104 DS Directoire Marble Mantel

FURTHER INFORMATION ON JACKSON PRODUCTS

For information concerning any of the following products or services of WM. H. JACKSON COMPANY consult the index or write the nearest branch.

Mantels

Antique and Modern: in Marble, Stone, Wood and Cretan Stone.

Fireplace Fixtures

Andirons, Fire Tools, Screens, Fenders, Wood Holders, Electric Fires, Iron Plaques and Linings, Rolling Fire Screens.

Garden Features

In Marble and Stone: Benches, Urns, Well Heads, Fountains, Pergolas, Sun Dials, Columns.

Fine Tile Work

Swimming Pools, Bathrooms, Terraces, Loggias.

Architectural Metal Work

Bronze and Aluminum Windows. Ornamental Bronze, Aluminum and Wrought Iron. Bronze Tablets.

Art Objects

Lamps, Book Ends, Smoking Stands, Ash Trays, Coffee Tables, Mirrors.

More Than A Century of Recognized Leadership

MIDWEST CONCEALED BED CORPORATION

Manufacturers of All Types of Concealed Bed Equipment

MAIN OFFICE AND PLANT
EVANSVILLE, IND.

CHICAGO OFFICE
Frank H. Johnson & Son,
228 N. LaSalle Street

PACIFIC COAST PLANT
L. A. Wall Bed Co.,
LOS ANGELES, CALIF.

AGENTS IN PRINCIPAL CITIES

NEW YORK OFFICE
Apartment Equipment Corporation,
205 East 42nd Street

FEATURES OF MIDWEST CONCEALED BEDS

The Midwest Line of Concealed beds carries the prestige and refinement of twenty-two years of continuous research and development. These pages illustrate and describe some of the many features developed by this company during its long experience in this field to add to the comfort of concealed equipment for sleeping.

Bed Ends—Art line tubing 1½-in. diameter furnished in variety of designs and finishes.

Spring Equipment—Full size springs contain 108 coils of high tempered premier wire with soft helical tied top. Ample depth of coils insures maximum comfort. Furnished in both single and double deck types.

Midwest Beds are unusually attractive. Their durable, compact construction, reduced to a minimum of weight, makes them one of the most desirable of their class offered.

Finishes—Standard finishes: wood brown and hand grained American walnut. Our hand grained wood finishes are beautiful reproductions of natural woods. These artistic finishes represent the handwork of experts whose artistry lend the realistic qualities lacking in average commercial wood finishes. We produce an unsurpassed finish, both in appearance and durability.

Note:—We can match any special color scheme or wood finish to order provided sufficient time is allowed.

We are in position to manufacture special patterns of beds made up according to your designs, in quantities of twenty-five or more.

Catalogue—And full details of the complete Midwest Line on application to factory or nearest representative.

MIDWEST JAMB TYPE CONCEALED BEDS

These beds can be pivoted either to right or left of the jamb as the occasion demands, provided there is sufficient pocket depth "C" as shown below.

Details show minimum dimensions which are taken from inside plaster line to face of door based on the use of regular stock door thickness (1⅜ to 1¾ in.)

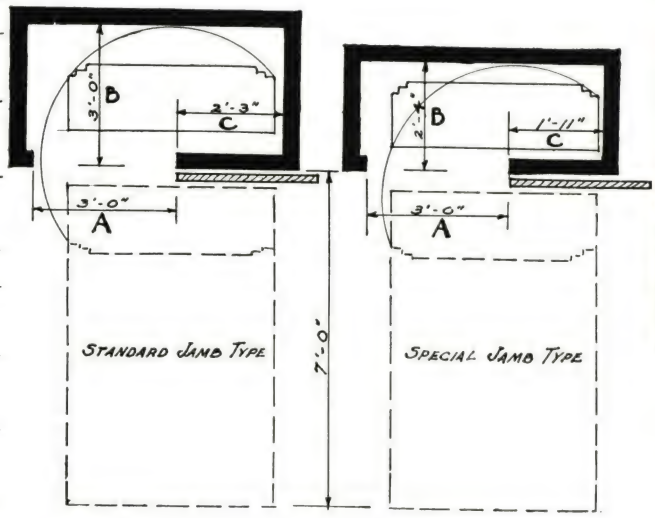
The special jamb type has a newly developed mechanism which enables the bed to be concealed in a closet of 8 ins. less depth; see dimension "B."

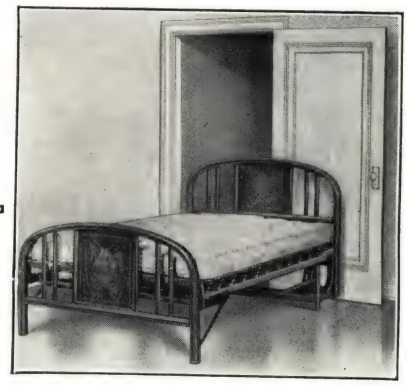
All jamb and pivoted installations are equipped with four positive legs, so that bed when in lowered position automatically shifts its full weight to floor, thereby relieving head end and pivotal mechanism of all strain.

MINIMUM DIMENSIONS

Standard Jamb Type		
Full size	A	3′–0″
	B	3′–0″
	C	2′–3″
¾ size	A	2′–10″
	B	2′–10″
	C	1′–11″
Twin size	A	2′–8″
	B	2′–8″
	C	1′–7″
Special Jamb Type		
Full size	A	3′–0″
	B	2′–4″
	C	1′–11″
¾ size	A	2′–10″
	B	2′–2″
	C	1′–7″
Twin size	A	2′–6″
	B	2′–0″
	C	1′–3″

Intermediate size beds furnished on order.





Full Size Jamb Type Bed

Mattress Sizes—

Full Size	4′ 4″ x 6′0″
Intermediate	4′ 1″ x 6′0″
Three Quarter	3′10″ x 6′0″
Twin Size	3′0″ x 6′0″

MIDWEST BEDS FOR SPECIAL REQUIREMENTS

To the architect we wish to point out that the Midwest Concealed Beds described above together with some seven or eight other distinctly different types will meet practically any peculiar condition that may arise in the planning of a new building or in the remodeling of an old one. However, our facilities and patents permit us to design beds which may be entirely different in application for specific cases.

In the development of such new and peculiar type of beds we will be able to incorporate the many features that make Midwest Concealed Beds a superior product.

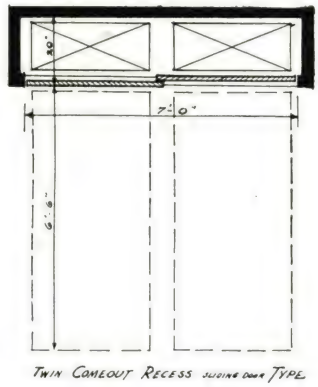
MIDWEST TWIN COME-OUT RECESS BEDS, ROLLING DOOR TYPE

A method of twin bed concealment designed especially for use where only minimum space is available. A special feature of this installation is that the doors may be closed while the beds are in use. Although the space required is small these beds embody all the sturdy features and unusual sleeping qualities of the entire Midwest Line.

Minimum closet depth 20 in. Size of opening 7x7 ft. with two sliding doors each 3 ft. 6½ in. x 7 ft.



Twin Come-Out Recess Installation No. 35, with Beds Concealed



TWIN COMEOUT RECESS SLIDING DOOR TYPE



Twin Come-Out Recess Installation No. 35, Beds Lowered, Recess Closed

MIDWEST PORTABLE CLOSET BEDS—ROLLER TYPE

A scientifically, all-steel-constructed bed designed to occupy a minimum of space, which, being free of all cumbersome mechanism, can be rolled from concealment to desired position in room with but slight effort.

Individual Features—Circular carriage or base construction (no sharp corners) only 20½ in. wide; all contact surfaces fully protected with felt buffer strip.

Exceptional Balance—Solely by tension springs (Eliminating excessive weight existing in counterbalance types).

Automatically Controlled Center Swing Leg—A positive guarantee against jackknifing or folding over of head end when bed is in lowered position.

Ball Bearing Casters—Faultless ball bearing "rubberex" casters, 4-in. diameter, insure easy rolling.

Spring Frames—When raised or lowered, swing well within back line of carriage, insuring against defacement of walls or interior trim.



No. 104 Bed End Design

Finished in hand grained American walnut with maple inlay and drape transfer

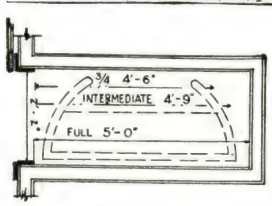


Midwest Bed

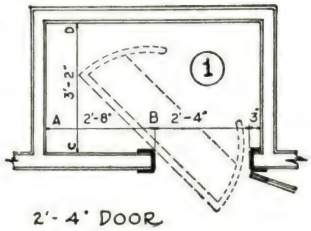
Upright position, showing narrow base only 20½ in. wide

Over-all dimensions of carriage or base of bed

Size bed	Length	Width
Full size.....	4 ft. 10 in.	20½ in.
Intermediate..	4 ft. 7 in.	20½ in.
Three-quarter.	4 ft. 4 in.	20½ in.
Twin.....	3 ft. 7 in.	20½ in.

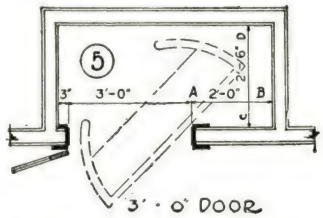


Minimum door width 2 ft. where door opens full back



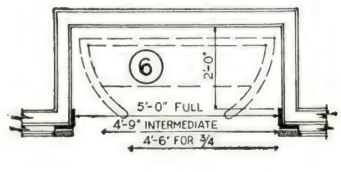
2'-4" DOOR

Minimum depth of closet in combination with a 2 ft. 4-in. door



3'-0" DOOR

Minimum depth of closet in combination with a 3-ft. door



TWO 2'-6" FRENCH DOORS

One pair of 2 ft. 6-in. doors, minimum depth of closet 2 ft.

Note: All dimensions are based on full size beds. On Plans 1 and 5 for intermediate size bed, closet can be 3 ins. less between A and B and 1½ less between C and D. For three-quarter size bed, closet can be 6 in. less between A and B and 3 in. less between C and D. All doors 6 ft. high.

MURPHY DOOR BED COMPANY

ATLANTA, GA., 266 Peachtree St., N. W.
BALTIMORE, MD., 506 St. Paul St.
BIRMINGHAM, ALA., 513 No. 21st Street
BOSTON, MASS., 248 Boylston Street
BUFFALO, N. Y., 132 W. Chippewa Street
CHICAGO, ILL., 173 W. Madison Street
DALLAS, TEX., 1919 Pacific Avenue
DENVER, COLO., 1534 Blake Street
DETROIT, MICH., 7th Floor, Kresge Building
EL PASO, TEX., Neff-Stiles Building
HOUSTON, TEX., 3914 Main Street
KANSAS CITY, MO., 1114 Grand Avenue
LOS ANGELES, CALIF., 1801 So. Main Street
NEW JERSEY REPRESENTATIVE, 57 Grove Avenue, Maywood, N. J.
NEW ORLEANS, LA., 319 Dryades Street
NEW YORK, N. Y., 19 W. 44th Street
OKLAHOMA CITY, OKLA., 2414 No. Robinson Street
PHILADELPHIA, PA., 307 Lewis Building
PITTSBURGH, PA., 501 Keystone Bank Building
ST. LOUIS, MO., 315 No. 10th Street
SAN ANTONIO, TEX., 101 W. Pecan Street
SAN FRANCISCO, CALIF., Phelan Building
SEATTLE, WASH., Terminal Sales Building
TORONTO, ONT., CANADA, 118 Alton Avenue
WASHINGTON, D. C., J. G. White, Lobby No. 5, Investment Building

Products

All Types of DISAPPEARING BEDS, including Type "A" and "B" Pivot, Offset Pivot, Recess, Two-Door Pivot, Roller and Specials for extreme conditions.

For Murphy Cabranette Steel Kitchens, see Manufacturers' Index.

Bed Sizes, Designs, Castings and Springs

Sizes—Standard sizes to take standard mattresses and operating through a 6 ft. 8 in. minimum height door.

Bed End Designs—Stock and custom built designs, one and two-piece foot ends, continuous posts of "Graceline" tubing used throughout. Standard finishes, brown and walnut.

Castings—All castings of malleable iron.

Springs—Single and double-deck coil, flat fabric "Slumber King" and box springs. Helical tied.

Pivot Type Beds

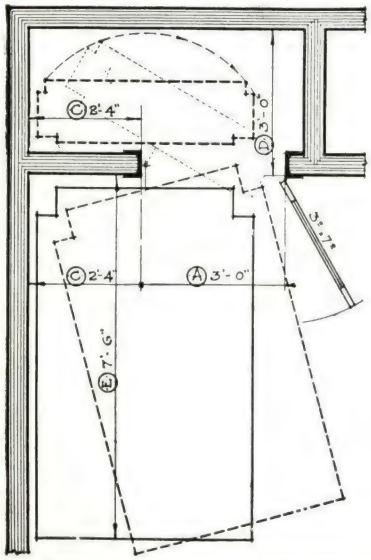
Type "A" Pivot—The finest concealed bed. Perfectly balanced at all angles. Head stands out from the wall and the folding head end holds the pillows snugly in place while the bed stands in the closet.

Type "B" Pivot—Has one-piece head end. Comes down close to door or wall, occupying a minimum of floor space. Multiple spring balance, sturdy construction and economical cost.



Type "A" Pivot, Open Filler Design

Showing position of door and the bed ready for use. Standard stock door. Door and bed independent of each other



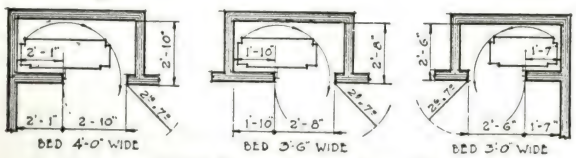
Installation No. 1 Bed and Door on Opposite Jambs

Minimum closet dimensions for Murphy Pivot Beds, Types "A" and "B."

A standard full size bed 4'6" wide. Accommodates standard mattress.

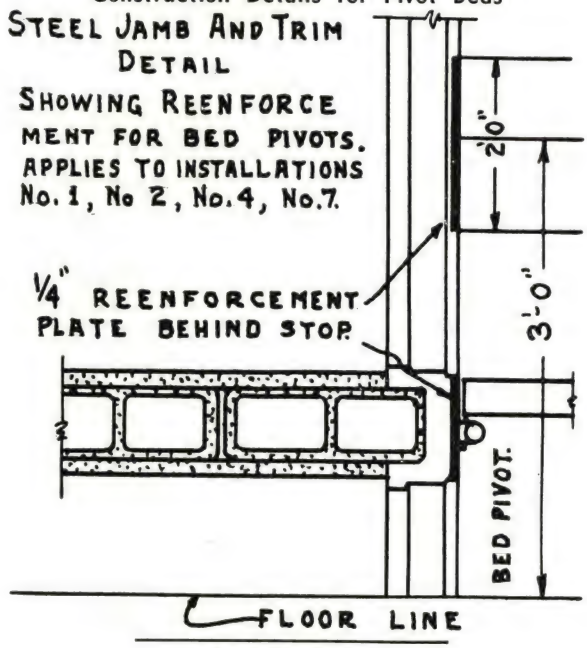
Bed can be pivoted to either right or left jamb—provided there is sufficient bed pocket.

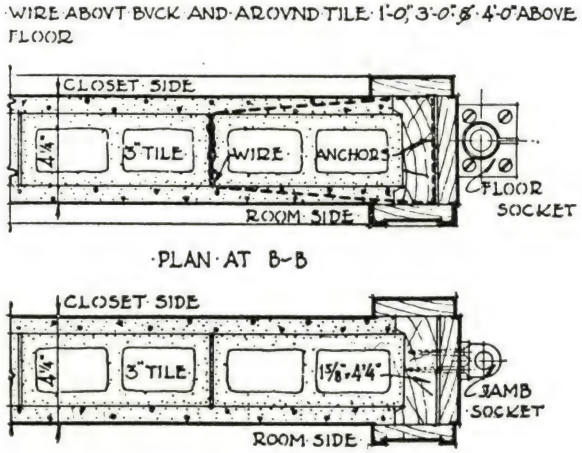
A—Door: width	3'0"
height	6'8" or 7'0"
C—Bed pocket	2'4"
D—Depth of closet inside plaster line to outside plaster line.	3'0"
E—Bed clearance wall to foot end of bed when lowered in room.	7'6"
Door knob height	3'0"



Minimum Closet Dimensions for Other Width Beds

Construction Details for Pivot Beds

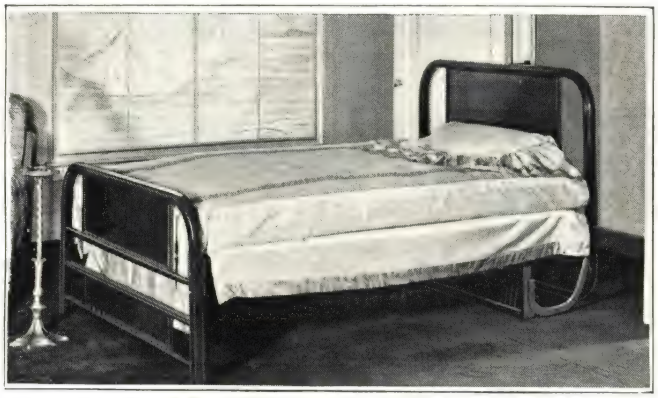




Method of Tying Wood Buck to Tile Partition

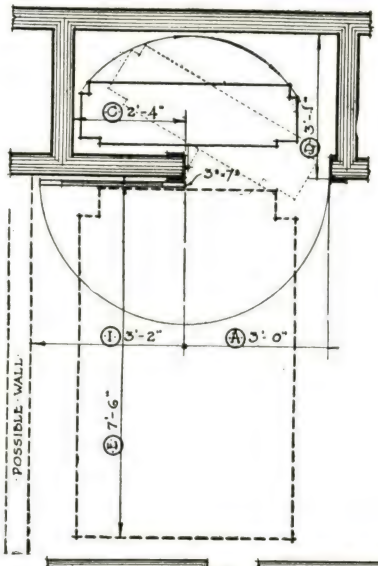
For all partitions other than the standard stud partition, the wood buck should be anchored with wire ties to the partition wall as shown on the detail above

Installation No. 2, Bed and Door on Same Jamb



Type "B" Pivot, ¾ Solid Panel

Showing position of door (behind bed) and the bed ready for use. Standard stock door. Door and bed independent of each other



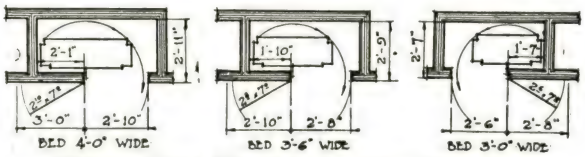
Installation No. 2 Bed and Door on Same Jamb

Minimum closet dimensions for Murphy Pivot Beds, Types "A" and "B."

A standard full size bed 4'6" wide. Accommodates standard mattress.

Bed can be pivoted to either right or left jamb—provided there is sufficient bed pocket.

A—Door: width 3'0"
height 6'8" or 7'0"
C—Bed pocket 2'4"
D—depth of closet 3'1" inside plaster line to outside plaster line.
E—bed clearance 7'6" wall to foot end of bed when lowered in room
I—Door clearance 3'2"



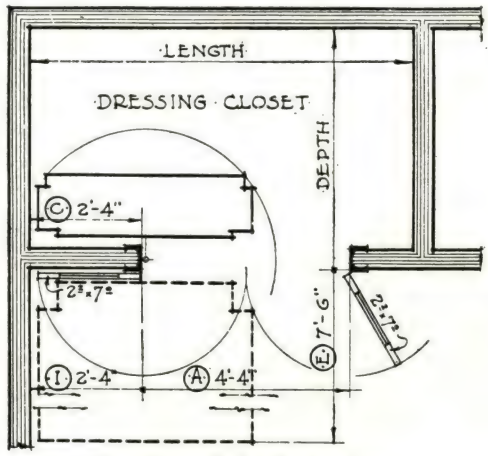
Minimum Closet Dimensions for Other Width Beds

Installation No. 4, Double Door



Type "B" Pivot Open Filler

This installation is used where it is essential to have full entrance to and through dressing closet to bath or other room. (See floor plan below) Bed independent of doors



Installation No. 4 Double Door

Minimum required dimensions for full size Murphy bed 4'6"x6'1" in dressing closet, where entry must necessarily be made through bed opening

A—Doors: width, two 2'2"
height 6'8" or 7'0"
C—Bed pocket 2'4"
E—Bed clearance 7'6" wall to foot end of bed when lowered in room.
I—Door clearance 2'4"

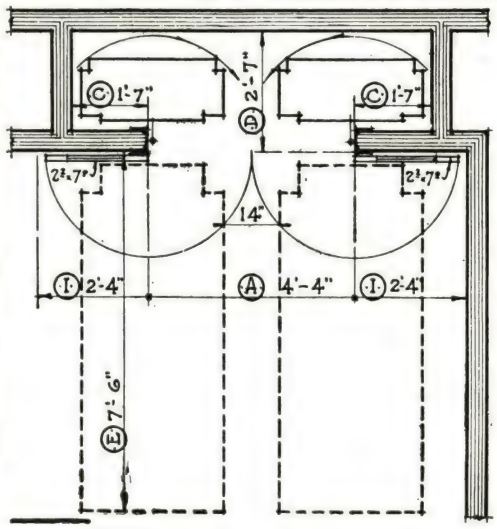
Installation No. 7, Twin Murphy Beds, Both Beds Through Same Opening

Minimum closet dimensions for Murphy Pivot Bed—twin arrangement for standard 3 ft. 0 in. beds



In-A-Dor Type, Special Custom Design No. 17517

Both beds through same opening. Beds independent of doors

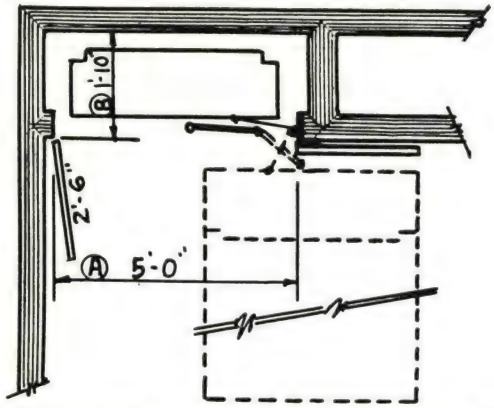


A—Doors:
Width 2' 2"
Height 6' 8"
or 7' 2"
C—Bed pocket 1' 7"
D—Depth of closet (inside plaster line to outside plaster line) 2' 7"
E—Bed clearance wall to foot end of bed when lowered 7' 6"
I—Door clearance (must swing back to wall) 2' 4"

Murphy Offset Pivot Bed



Murphy Offset Pivot Bed with One-Piece End



Standard full size bed accommodating standard mattress. Bed can be pivoted to either right or left jamb.

A—Doors (two) width 2'6"
Minimum height 6'8" or 7'0"

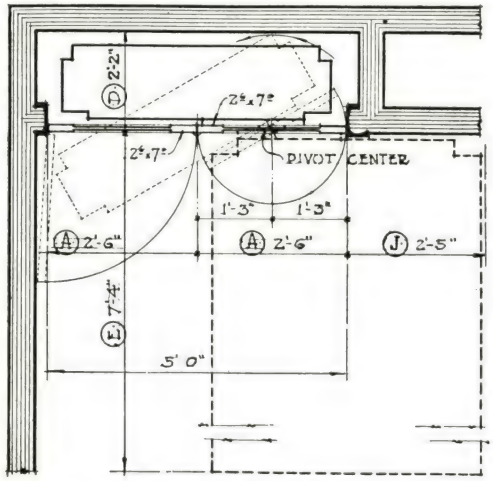
B—Depth of closet inside plaster to outside plaster 1'10"

Installation No. 11A, Two-door Off Center Pivot



Off Center Pivot Murphy Bed—Two-piece Special Decorated End

Requires two 2 ft. 6-in. doors, one hinged, the other center pivoted. Bed fastened to pivot door as shown. For access to closet through bed opening, bed must be pivoted into room as shown. Opening closed when bed is in room. ¾ Solid Panel, Special Finish, illustrated



Minimum closet dimensions for standard full size bed 4'6"x6'1" inside head and foot ends

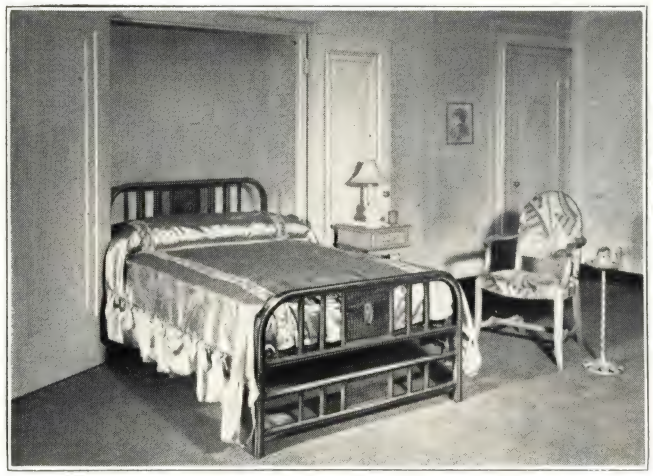
(A)—Doors: width, two 2'6"
height 6'8" or 7'0"

(D)—Depth of closet 2'2" outside face of door to plaster line in back of closet.

(E)—Bed clearance 7'4" wall to foot of bed when lowered in room.

(J)—Wall clearance 2'5"

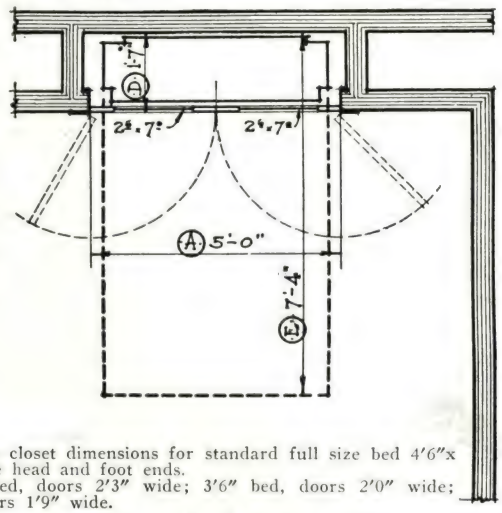
Installation No. 13, Murphy Recess Type



Murphy Recess Bed—Standard Type—Two-piece End

Fastened to floor in shallow recess—lowers straight to floor, does not pivot. When on floor, ready for use, bed is projected forward so head end is in line with door opening. Cane Panel, illustrated.

Note: When closet can not be provided, a canopy rod can be furnished which permits concealing bed behind draperies



Minimum closet dimensions for standard full size bed 4'6"x 6'1"—inside head and foot ends.

For 4' bed, doors 2'3" wide; 3'6" bed, doors 2'0" wide; 3' bed, doors 1'9" wide.

A—Doors: width, two 2'6"
height 6'8" or 7'0"

D—depth of closet inside to outside plaster line. 1'7"

E—Bed clearance back of closet to foot end of bed. 7'4"

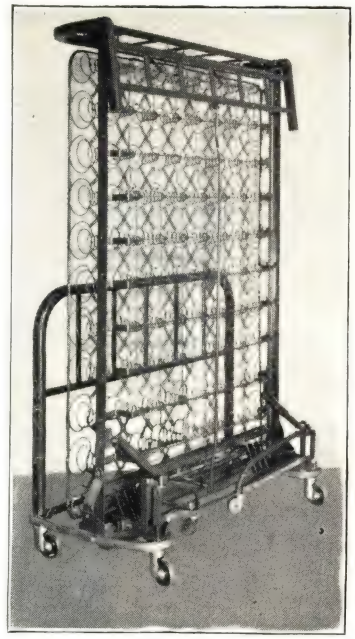
Murphy Improved "Easy Roller" Bed



Rests Solidly on Floor
May be had with one-piece or two-piece ends

Outstanding Features

(1) One hundred pounds lighter.
(2) Ball bearing casters.
(3) Rubber wheels.
(4) "Never-mar" and "No-stretch" bumpers.
(5) Automatic opening and closing of carriage.
(6) Coil or "Slumber King" springs.
(7) Smart styles.
(8) Narrow base—23½ in. over-all depth.



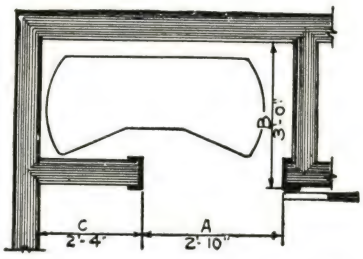
Easy to Lower and Raise—Easy to Roll Around

Description

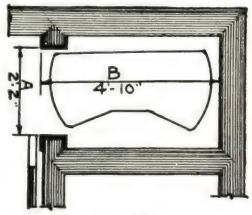
This modern "Easy Roller" bed is free from heavy counterweight, extremely easy to handle and brings no undue wear to floors and carpets. The ball bearing casters roll at a finger tug, even over small rugs.

Coil or "Slumber King" springs and choice of stock or special ends are available.

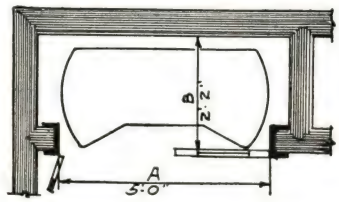
Minimum Closet Dimensions of Murphy "Easy Roller" and "Economy" Roller Beds



Bed width	A	B	C
4′ 6″	34″	36″	28″
4′ 0″	32″	34″	24″
3′ 3″	30″	32″	18″

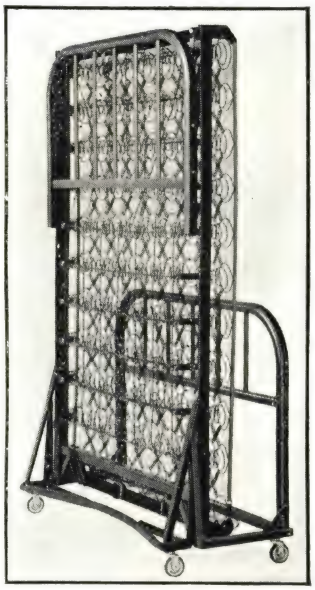


Bed width	A	B
4′ 6″	26″	58″
4′ 0″	26″	55″
3′ 3″	26″	46″



Bed width	A	B
4′ 6″	60″	26″
4′ 0″	56″	26″
3′ 3″	48″	26″

New Murphy "Economy" Roller Bed

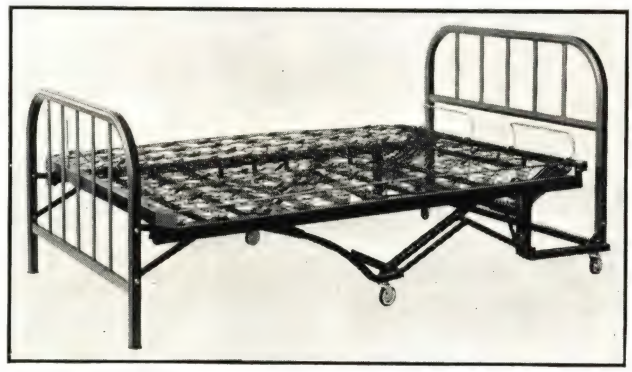


A simplified bed with minimum number of working parts. Special design casters with ball bearings on shaft as well as on axle. Concave rubber tires for quiet rolling.

New design carriage bases operate automatically when bed is raised and lowered. Absolutely safe. Improved locking device holds foot end secure at all times.

Only 21 in. deep when in vertical position.

Stocked in brown enamel and American walnut. Other finishes to order. Choice of "Slumber King" or coil springs, 6 ft. 3 in. long.



BASSICK FLOOR PROTECTION EQUIPMENT

MANUFACTURED BY
THE BASSICK COMPANY
BRIDGEPORT, CONN.

FLOOR PROTECTION WITH BASSICK NOMAR FURNITURE RESTS

A Positive Protection Against Marring of Soft Floors of Linoleum, Cork, Rubber

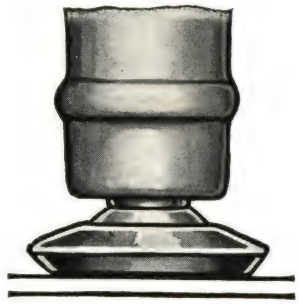
This information should be of particular interest to architects, for they may best serve the interests of their clients by recommending the installation of floor protection equipment.

THIS — OR — THIS



No Protection

Small metal slides so extensively used on furniture do not give adequate bearing surface to carry the weight without damage, marks and scars on floors and floor coverings.



Bassick Protection

The broad flat base of the Bassick NoMar Furniture Rests spreads the weight of furniture and protects floors. There is a size and type adaptable to any type of furniture.

Neat in Appearance

The dark brown Atlasite base adds a finishing touch of neat appearance to the furniture leg.

Durable

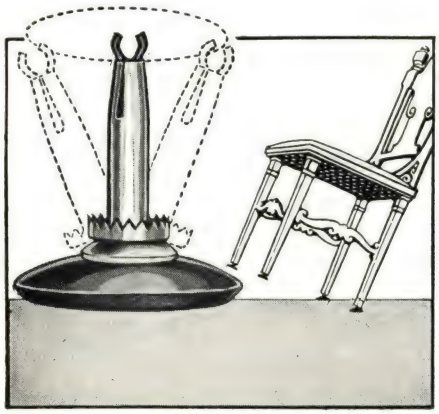
The Atlasite in the base is a special composition with a polished hard surface, which will not break, crack or chip under severe service.

Tilt

Every NoMar Rest has a flexible joint which allows the base to remain flat on floor when furniture is tilted. This is a very important feature when used on chairs. It prevents sharp edges of legs from digging into floors.

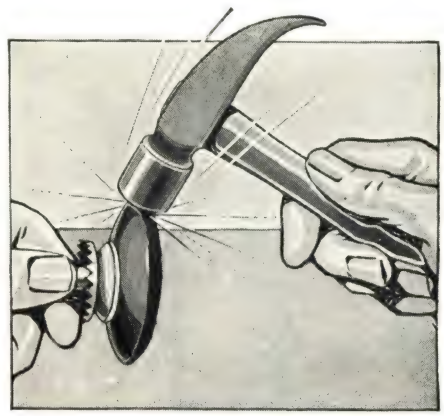
Quiet

The joint of the NoMar Rest is made with a spring tension to prevent rattles and chatter when furniture is moved.



Tilting Joint Keeps the Broad Base Flat on the Floor





Atlasite Base Will Not Break, Chip or Rust

SPECIFICATIONAL DATA BASSICK FLOOR PROTECTION EQUIPMENT

The "Drive-On" NoMar

Easy to Apply—Will Not Split



This type on furniture which has never been equipped with casters or bored for caster sockets, eliminates the necessity of boring holes.

A driving tool furnished with each set and a hammer will do the job as easy as driving a nail. A patented hollow driving tube gives a positive grip—it will not come off.



No.	Diam. of base, in.	List price, set of 4
NR-10	1¼	$0.50
NR-20	1½	.60
NR-30	2	.70
NR-40	2½	1.00

The "Socket" NoMar

For Use with Grip Neck Caster Sockets



The "Socket" type NoMar is furnished with standard ⅜-in. grip neck caster sockets. Where it is desirable to replace casters or where furniture legs have caster socket holes this type should be used.



No.	Diam. of base, in.	List price, set of 4
NR-1	1¼	$0.50
NR-2	1½	.60
NR-3	2	.70
NR-4	2½	1.00

Bassick NoMar Desk Cups

For Use Under Round or Square Desk Legs, Stove Legs, Radiator Legs, etc.



Made of brown Atlasite, neat in appearance and unbreakable these cups fill a need for attractive durable floor protection. No. NDC-6 is especially adaptable for use as a caster cup. A curved depression in the center holds the caster wheel firmly in place.



No.	Size of opening, in.	List price, set of 4
NDC-125 Square	1½	$0.90
NDC-225 Square	1¾	1.00
NDC-325 Square	2	1.30
NDC-6 Round	1⅜	.60
NDC-7 Round	1⅝	.80



BASSICK CASTERS

THE BASSICK COMPANY, one of the largest manufacturers of casters, makes a complete line of casters for every purpose. Information regarding proper types of casters for any furniture or equipment for use on all kinds of floor will gladly be furnished on request.

Note: *These products can be secured through leading hardware distributors and dealers, office supply houses or direct from the manufacturer.*

THE BESSLER DISAPPEARING STAIRWAY CO.

AKRON, OHIO

BESSLER DISAPPEARING STAIRWAY IN WOOD AND STEEL

Bessler Wood Disappearing Attic Stairway

The Bessler disappearing attic stairway is a substantial, sightly and practical flight of stairs for one or two-story residences and other types of buildings, providing proper stair access to an upper floor when desired, and leaving clear the floor space ordinarily occupied by stairs when that is wanted. While not in use, the stair folds into the ceiling out of the way.

The treads are properly secured to heavy string pieces with open risers. The hand rail is strong, practical and attractive. At the top the stairs are attached to the end trimmer of an opening in the ceiling of the room or hall where the stairs are to be located. The mechanism and operation are very simple. To use the stairway a slight pull on a chain brings it into position, with very slight assistance from the operator. *Metal parts are all made of pressed steel.*

The panel is the only part visible when the stairway is closed, and this is flush with the ceiling line. There is no possibility of it coming down unassisted.

All models shown below can be furnished with either pine, oak, birch, gum or chestnut doors with one or two panels, also with flush laminated panel in pine, oak or birch.

Prices and literature furnished on request.

The Bessler disappearing stairway is guaranteed to last as long as the life of the building.

You can have the use of the Bessler for one month, and if it does not prove to be satisfactory, return it to us at our expense.

Specifications Wood Attic Stairway



Model 97

Stairway to be mounted on panel to slide on rollers. Panel to have adjustable hinges permitting edge to come to bottom of plaster. Hand rail for right or left side. One equalizing bar is to be on each side of the stairway. Double-acting spring barrel and spring drum on each side of the stair panel. The weight of the stair-stringers to bear down on the shaft which is attached to end trimmer. Adjustable cable clamps bearing against brackets attached to jambs



Model 39

This stairway is same style and made in same sizes as Model 29 illustrated at left except it is made for a 2 ft. 6 in. wide finished opening

Model 29

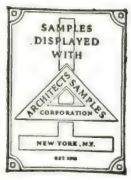
Stairway to be mounted on frame to slide through guides. Panel to be hinged on right or left side. (Mention which side panel is to be on so the proper operating parts can be furnished.) Hinges to be suitable so panel can be installed with edge flush with plaster. Spring drum attached to metal frame underneath stairway. A jointed arm for holding panel open and two coil springs for closing panel. Made in sizes up to 9 ft. 7 in. floor to floor and for finished opening 2 ft. wide



Model 50

Stairway to be mounted on panel to slide in guides. Hinges to be suitable so panel can be installed with edge flush with bottom of plaster if desired. Hand rail for right or left side. Spring drum on each side of the stair panel at the hinged end. The weight of the stair-stringers to bear down on the guides which are attached to the hinged end of frame.

Note: This model is made for floor to floor heights up to 10 ft. 7 in. only, and for finished openings 2 ft. wide

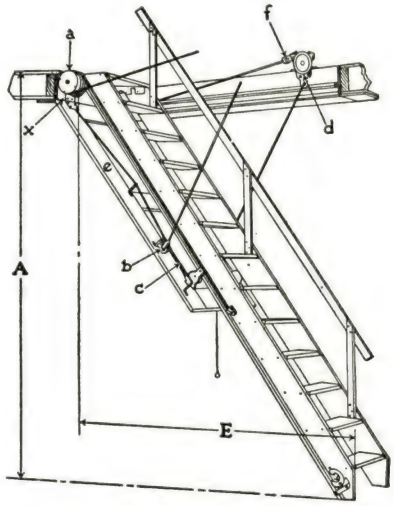




Model 60

Stairway to be mounted on panel to slide in guides. Hinges to be suitable so panel can be installed with edge flush with bottom of plaster if desired. Hand rail for right or left side. Spring drum on each side of the stair panel at the hinged end. The weight of the stair-stringers to bear down on the guides which are attached to the hinged end of frame.

Note: This model is made for floor to floor heights up to 10 ft. 7 in. only, and for finished openings 2 ft. 6 in. wide



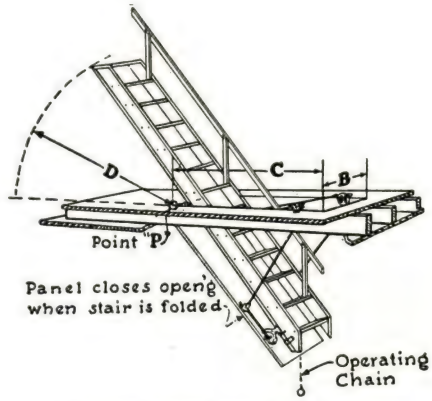
Stairway in Position for Use

Width of finished opening should be exactly as given in the table, $\frac{3}{16}$-in. clearance for panel has been allowed.

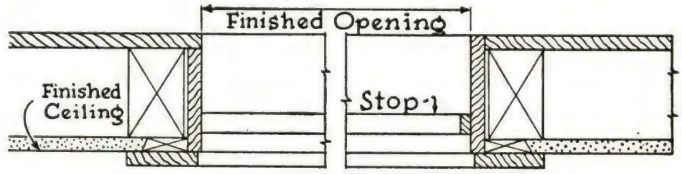
Note: Jambs to extend full depth of opening as shown.

Key for Model 97

a—Spring barrels
b—Cable holders
c—Equalizing bars
d—Pulley brackets
e—Stair panel
f—Lugs
x—Trimmer



Stairway Partly Down on Panel



Section Through Stair Opening

DIMENSIONS FOR VARIOUS FLOOR TO FLOOR HEIGHTS

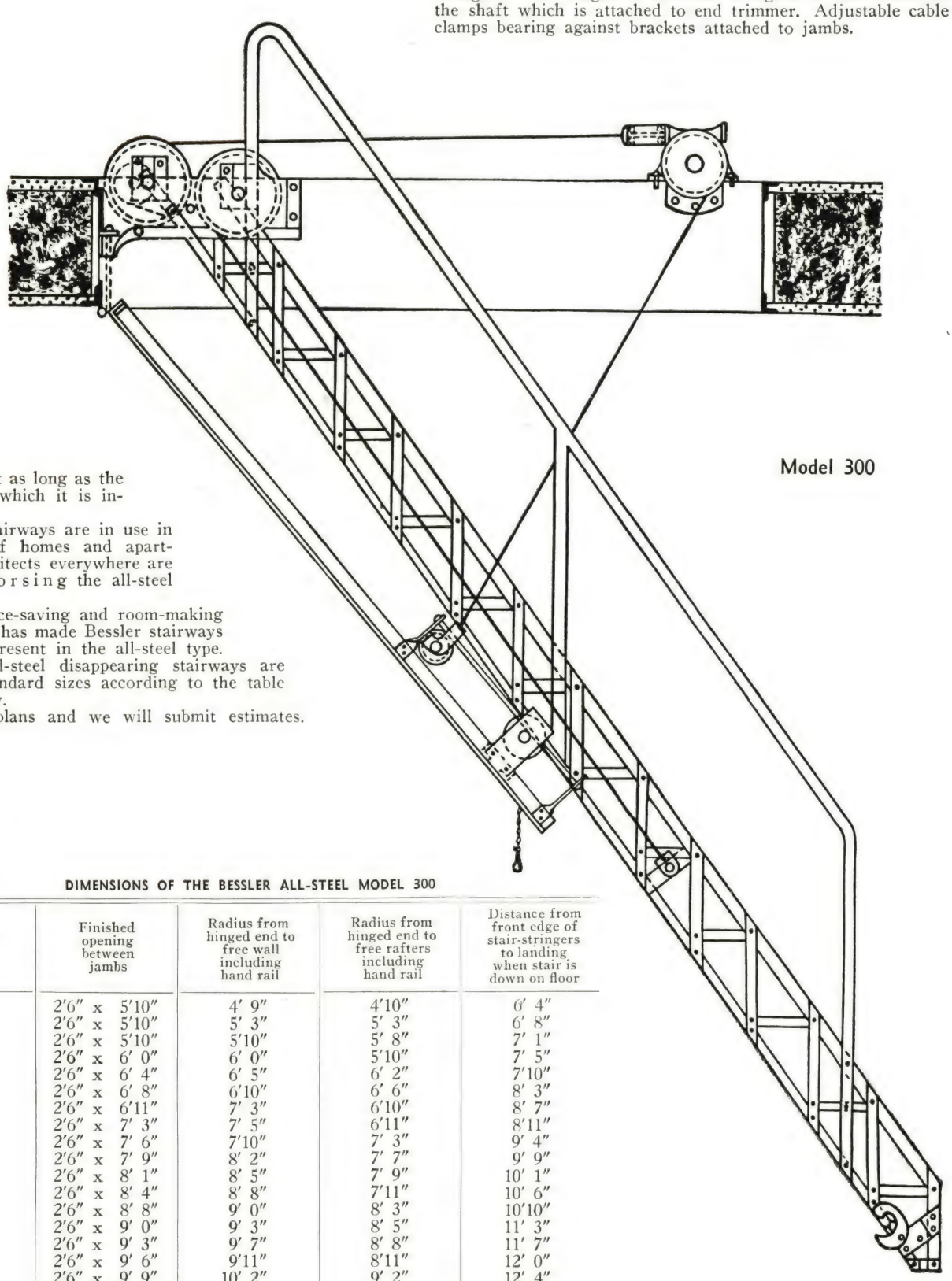
A—Height from floor to floor	B—Width of finished opening between jambs	C—Length of finished opening between jambs	D—Dimension from upper end of stair stringer to point "P"	E—Distance from front edge of stair stringer to finished jamb
		Model 29		
7′ - 7″	2′ - 0″	5′ - 6″	4′ - 5″	5′ - 6″
8′ - 1″	2′ - 0″	5′ - 6″	4′ - 10″	5′ - 10″
8′ - 7″	2′ - 0″	5′ - 6″	5′ - 2″	6′ - 1″
9′ - 1″	2′ - 0″	6′ - 0″	5′ - 6″	6′ - 6″
9′ - 7″	2′ - 0″	6′ - 0″	5′ - 9″	6′ - 10″
		Model 50		
7′ - 7″	2′ - 0″	5′ - 6″	3′ - 11″	5′ - 6″
8′ - 1″	2′ - 0″	5′ - 6″	4′ - 6″	5′ - 10″
8′ - 7″	2′ - 0″	5′ - 6″	5′ - 1″	6′ - 1″
9′ - 1″	2′ - 0″	5′ - 6″	5′ - 8″	6′ - 6″
9′ - 7″	2′ - 0″	6′ - 0″	5′ - 9″	6′ - 10″
10′ - 1″	2′ - 0″	6′ - 0″	6′ - 5″	7′ - 1″
10′ - 7″	2′ - 0″	6′ - 0″	7′ - 0″	7′ - 5″
		Model 60		
7′ - 7″	2′ - 6″	5′ - 6″	3′ - 11″	5′ - 6″
8′ - 1″	2′ - 6″	5′ - 6″	4′ - 6″	5′ - 10″
8′ - 7″	2′ - 6″	5′ - 6″	5′ - 1″	6′ - 1″
9′ - 1″	2′ - 6″	5′ - 6″	5′ - 8″	6′ - 6″
9′ - 7″	2′ - 6″	6′ - 0″	5′ - 9″	6′ - 10″
10′ - 1″	2′ - 6″	6′ - 0″	6′ - 5″	7′ - 1″
10′ - 7″	2′ - 6″	6′ - 0″	7′ - 0″	7′ - 5″
		Model 97		
7′ - 7″	2′ - 6″	5′ - 10″	4′ - 5″	6′ - 4″
8′ - 1″	2′ - 6″	5′ - 10″	4′ - 11″	6′ - 8″
8′ - 7″	2′ - 6″	5′ - 10″	5′ - 6″	7′ - 1″
9′ - 1″	2′ - 6″	6′ - 0″	5′ - 8″	7′ - 5″
9′ - 7″	2′ - 6″	6′ - 4″	6′ - 1″	7′ - 10″
10′ - 1″	2′ - 6″	6′ - 8″	6′ - 6″	8′ - 3″
10′ - 7″	2′ - 6″	6′ - 11″	6′ - 11″	8′ - 7″
11′ - 1″	2′ - 6″	7′ - 3″	7′ - 1″	8′ - 11″
11′ - 7″	2′ - 6″	7′ - 6″	7′ - 6″	9′ - 4″
12′ - 1″	2′ - 6″	7′ - 9″	7′ - 10″	9′ - 9″
12′ - 7″	2′ - 6″	8′ - 1″	8′ - 1″	10′ - 1″
13′ - 1″	2′ - 6″	8′ - 4″	8′ - 4″	10′ - 6″
13′ - 7″	2′ - 6″	8′ - 8″	8′ - 8″	10′ - 10″
14′ - 1″	2′ - 6″	9′ - 0″	8′ - 11″	11′ - 3″
14′ - 7″	2′ - 6″	9′ - 3″	9′ - 3″	11′ - 7″
15′ - 1″	2′ - 6″	9′ - 6″	9′ - 7″	12′ - 0″
15′ - 7″	2′ - 6″	9′ - 9″	9′ - 10″	12′ - 4″
16′ - 1″	2′ - 6″	10′ - 1″	10′ - 2″	12′ - 9″
16′ - 7″	2′ - 6″	10′ - 5″	10′ - 6″	13′ - 1″

Bessler All-steel Disappearing Stairway, Model 300

The all-steel stairway is fireproof and burglarproof, and is suitable for use where every hazard must be eliminated and every possible feature of safety must be provided.

Specifications All-steel Stairway

Stairway to be all-steel mounted on panel to slide on rollers. Panel to have adjustable hinges permitting edge to come to bottom of ceiling. Hand rail for right or left side. One equalizing bar is to be on each side of the stairway. Four spring drums, two operate the panel and the other two the stair-stringers. The weight of the stair-stringers to bear down on the shaft which is attached to end trimmer. Adjustable cable clamps bearing against brackets attached to jambs.



Model 300

It will last as long as the building in which it is installed.

Bessler stairways are in use in thousands of homes and apartments. Architects everywhere are highly endorsing the all-steel model.

Every space-saving and room-making feature that has made Bessler stairways famous is present in the all-steel type.

Bessler all-steel disappearing stairways are made in standard sizes according to the table shown below.

Send us plans and we will submit estimates.

DIMENSIONS OF THE BESSLER ALL-STEEL MODEL 300

Floor to floor height	Finished opening between jambs	Radius from hinged end to free wall including hand rail	Radius from hinged end to free rafters including hand rail	Distance from front edge of stair-stringers to landing when stair is down on floor
7′7″	2′6″ x 5′10″	4′ 9″	4′10″	6′ 4″
8′1″	2′6″ x 5′10″	5′ 3″	5′ 3″	6′ 8″
8′7″	2′6″ x 5′10″	5′10″	5′ 8″	7′ 1″
9′1″	2′6″ x 6′ 0″	6′ 0″	5′10″	7′ 5″
9′7″	2′6″ x 6′ 4″	6′ 5″	6′ 2″	7′10″
10′1″	2′6″ x 6′ 8″	6′10″	6′ 6″	8′ 3″
10′7″	2′6″ x 6′11″	7′ 3″	6′10″	8′ 7″
11′1″	2′6″ x 7′ 3″	7′ 5″	6′11″	8′11″
11′7″	2′6″ x 7′ 6″	7′10″	7′ 3″	9′ 4″
12′1″	2′6″ x 7′ 9″	8′ 2″	7′ 7″	9′ 9″
12′7″	2′6″ x 8′ 1″	8′ 5″	7′ 9″	10′ 1″
13′1″	2′6″ x 8′ 4″	8′ 8″	7′11″	10′ 6″
13′7″	2′6″ x 8′ 8″	9′ 0″	8′ 3″	10′10″
14′1″	2′6″ x 9′ 0″	9′ 3″	8′ 5″	11′ 3″
14′7″	2′6″ x 9′ 3″	9′ 7″	8′ 8″	11′ 7″
15′1″	2′6″ x 9′ 6″	9′11″	8′11″	12′ 0″
15′7″	2′6″ x 9′ 9″	10′ 2″	9′ 2″	12′ 4″
16′1″	2′6″ x 10′ 1″	10′ 6″	9′ 5″	12′ 9″
16′7″	2′6″ x 10′ 5″	10′10″	9′ 8″	13′ 1″

FARLEY & LOETSCHER MFG. CO.

Ceiling Suspended Disappearing Sliding Stairways

DUBUQUE, IOWA

Products

The "Presto" and "Victor" Disappearing Sliding Stairways.

Also Sash, Doors, Blinds, Frames, Mouldings, Interior Finish, Stair and Cabinet Work; Qualitybilt "In-the-Door" Ironing Boards.

For "Weatherseal" Fold-up Garage Doors, see Manufacturers' Index.

Qualitybilt DISAPPEARING STAIRWAYS

Presto and Victor Disappearing Stairs

"Presto" and "Victor" sliding disappearing stairways are strong, rigid and non-collapsible. They are pleasing in appearance and made for installation in any type of building where access to an upper floor is desired without the loss of floor space required for a stationary stairway. These sliding stairways, when not in use, roll up through an opening in the ceiling entirely out of view, leaving the space below clear for any desired use. The space thus saved is often sufficient for a bathroom or generous closet. Treads are housed into stringers and rigid hand rail is firmly attached to either string. One end of ceiling door is fastened to well hole and overbalancing of stairway when up keeps this door tightly closed.

Operation—Both stairways operate the same, as they slide up and down on roller brackets attached to the ceiling door. The weight of the stairs and ceiling door are counterbalanced by springs. The "Presto" being much heavier is equipped with powerful springs, which wind steel cables on twin drums. The "Victor" is counterbalanced with two long coil springs only, as it is lighter in weight. There is no possibility of either stairs coming down unassisted. When closed, nothing but the ceiling door is visible from below.

Shipping and Weights

Shipped in dustproof cartons. Complete instructions for installing included. Shipping weight of the "Presto" approximately 175 lbs.; of the "Victor" approximately 110 lbs.

PRESTO AND VICTOR STAIRS FOR VARIOUS CEILING HEIGHTS
See diagram below for key to measurements

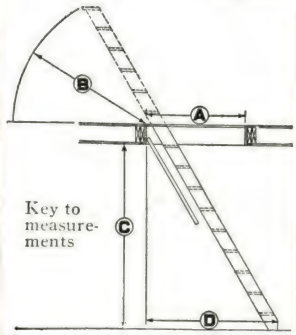
C Ceiling heights	D Projection into room when stair is down	B Projection into attic when stair is up	A Size of finished opening
The "Presto"			
7′ 6″ to 7′ 11″	7′ 2″	4′ 11″	2′ 6″ x 6′ 3″
8′ 0″ to 9′ 0″	7′ 6″	5′ 8″	2′ 6″ x 6′ 3″
9′ 1″ to 10′ 0″	8′ 1″	6′ 3″	2′ 6″ x 6′ 11″
10′ 1″ to 10′ 11″	8′ 10″	6′ 11″	2′ 6″ x 7′ 3″
11′ 0″	9′ 1″	7′ 5″	2′ 6″ x 7′ 6″
The "Victor"			
7′ 4″	5′ 0″	4′ 6″	2′ 4″ x 4′ 6″
7′ 6″	5′ 3″	5′ 3″	2′ 4″ x 4′ 6″
8′ 0″	5′ 7″	5′ 9″	2′ 4″ x 4′ 6″
8′ 6″	5′ 10″	6′ 6″	2′ 4″ x 4′ 6″
9′ 0″	5′ 10″	6′ 6″	2′ 4″ x 4′ 6″

Literature

Illustrated folders and complete prices furnished on request. Address Department S-32.



The Presto



Guarantee

Qualitybilt Disappearing Stairways are guaranteed to last as long as the building. If any stairway does not prove satisfactory when properly installed it may be returned to us within 60 days at our expense and the full purchase price will be refunded.



The Victor

The Presto (Patented)

The "Presto" is of high grade construction throughout with wide treads and stringers. Very rigid and substantial, built for the most severe usage. The large ceiling panel permits of taking bulky objects through opening. The operation is controlled by heavy steel cables, winding on powerful spring drums which counterbalance the weight of the stair and ceiling door and assist in the rolling of stairs up through the opening.

Specifications—The stairs complete include 1⅛-in. ceiling panel door, one flight of stairs with rigid hand rail and supports, all necessary *pressed steel* hardware with black japanned finish, two heavy spring drums and galvanized wire rope. Stringers are ¾x7¼ in. housed to receive 7-in. treads. Three reinforcing cross rods under treads. Stair stained serviceable brown, ceiling door not stained. No jambs or trim included. These furnished only as extras to match other room trim.

The Victor (Patented)

A serviceable, moderately priced stairway with simple but efficient hardware and especially adapted to limited spaces, as the ceiling door is smaller and stairs do not project so far into the room or hall as does the Presto. Well built and gives good service. Rolls into attic on brackets attached to ceiling door. Does not require spring drums or cable. Sliding operation is controlled by an ingenious arrangement of friction brake on a control cord which prevents the stair from sliding down without a gentle pull, but does not interfere with raising it.

Specifications—Stairs complete include 1⅛-in. ceiling panel door, one flight of stairs, rigid hand rail with supports and complete hardware, black japanned. Stringers are ¾x4 in., housed to receive ¾x5-in. treads. Stairs stained dark brown. No jambs or room trim included, furnished only as extras to match other room trim.

FRAZIER STAIR COMPANY, INC.

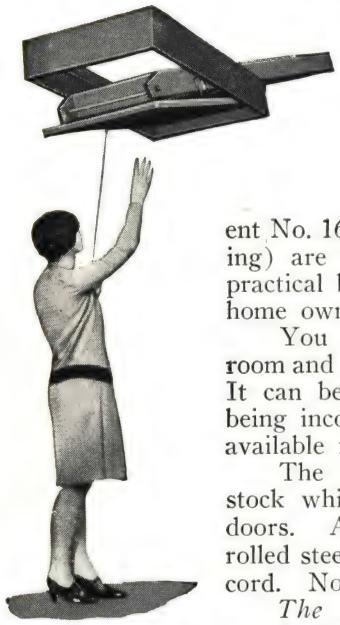
Manufacturers of Self-balanced Disappearing Stairs*

1817-1819 Banksville Avenue, PITTSBURGH, PA.

SOLD BY DEALERS EVERYWHERE

FRAZIER

TRADE-MARK Reg. U. S. Pat. Off.



Frazier Self-balanced Disappearing Stairs*

Frazier Self-balanced Disappearing Stairs (patent No. 1633321, other patents pending) are recognized as popular and practical by architects, builders and home owners everywhere.

You can save valuable floor, room and closet space with a Frazier. It can be installed in the hallway, being inconspicuous and yet readily available for access to the attic.

The stairs are made of clear stock white pine with fir panel in doors. All hardware is of cold-rolled steel, japanned finish. Silk pull cord. Nothing to get out of order.

The Frazier Stair is Self-balanced—Its overhanging weight balances and closes door—an exclusive Frazier feature. It can be installed in half an hour. "The only complete stair made—jamb included."

Operation

By pulling cord slightly the door is brought down, a stay hinge stops the door at desired operating position. Releasing the device which holds the stair in position brings the stairs down.

To return stair back in place slide up until locked in position. The overhanging weight of stairs balances and closes door.

The stair slides up and down through rollers mounted on the door and is easily operated.

Controlling device mounted on door facilitates the operation of stair through the rollers.



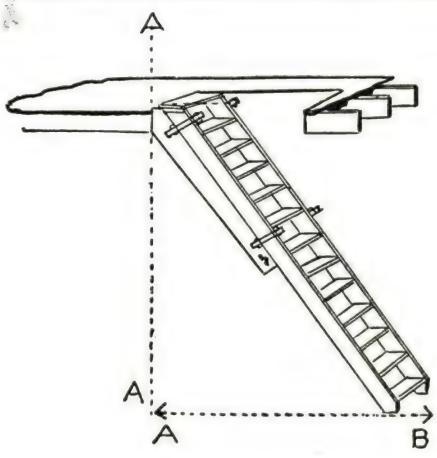
Construction

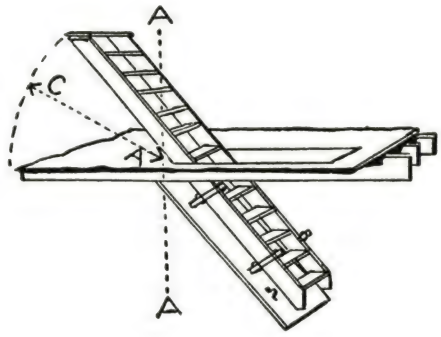
Door rails are 1 in. Jambs $\frac{13}{16}$ in. Stair strings $\frac{13}{16}$x4⅝ in. Treads $\frac{13}{16}$x5⅝ in. All of western white pine.

To Install

Nail jamb in opening. Slide stair into guide rollers from attic.

Stair is now ready to operate.





DIMENSIONS

Model No.	Rough opening space, in.	Floor to floor height	Run downstairs dimensions A to B, in.	Operating radius dimensions A to C, in.
0	26½x48½	7 ft. 10 in. to 8 ft. 2 in.	53	62
1	26½x50½	8 ft. 2 in. to 8 ft. 7 in.	55	64
2	26½x50½	8 ft. 7 in. to 8 ft. 11 in.	62	67
3	26½x52½	8 ft. 11 in. to 9 ft. 2 in.	60	70
4	26½x52½	9 ft. 2 in. to 9 ft. 7 in.	60	72
5	26½x57½	9 ft. 7 in. to 10 ft.	66	78

Note: In ordering stairs specify exact floor to floor height, and also size of ceiling joist. Be sure to state floor to floor height and joist size (not floor to ceiling). In framing opening two dimensions must be considered to provide sufficient operating space. 1—Run on floor below. 2—Operating radius under roof. Reference to table of measurements shows exact dimensions required by various models.

*Copyrighted.

THE MARSCHKE COMPANY

Manufacturers of Marco Folding Stairs

ST. PAUL, MINN.

EASTERN DISTRIBUTOR: Putnam & Co., Inc., 32 Howard Street, NEW YORK, N. Y.

Products

MARCO FOLDING STAIRS.
TELEFOLD STAIRWAYS.

Marco Folding Stairs

Marco Folding Stairs have, among other advantages, one important characteristic: they do not obstruct the attic floor and require no rafter clearance for operation. Marco Folding Stairs, when closed, fold entirely within the size of the opening in the ceiling.

Springs of high carbon spring steel properly counterbalance the stairs—the Folding Stairs need not be lifted into the ceiling when it is to be closed. Ease of operation is an essential requirement of disappearing stairways—and Marco Folding Stairs provide it.

There is no danger of a slip or fall with a Marco Folding Stairs. The stair is hinged to the header with extra heavy "T" hinges. Marco Folding Stairs are light in weight, very strong and, when in position for use, more rigid than solid one-piece side stringer construction. This is because of the center support by round steel hanger rods, one on each side.

Models—Marco Folding Stairs are made in two models. Each model is made in several sizes for varying heights of ceiling. All sizes are carried in stock for immediate shipment from the factory or from New York City. Complete detailed information is given in our free Catalog No. 7-W.

The Junior Model Folding Stairs may be used where there is room only for small stairs or where a small opening in the ceiling is sufficient to meet the requirements for the installation. Jambs and casings are not furnished with this model. Panel is of flat grained fir but may be had in hardwoods. Rise of 9 in., run of 5 in. Packed in dustproof carton.

The Standard Model Folding Stairs is the most widely used of our several models. Furnished complete with jambs and casings, fitted at factory. Clean woodwork stained a medium dark. Panel and casings are not stained and are to be finished to match woodwork. Panel and casings are of fir and may be had in hardwoods. Shipped complete in dustproof carton, ready for installation—which is easily accomplished. Rise is 8 in. to run of 5 in.







On the left is shown the Standard Model Folding Stairs lowered to the floor and in position for use. Note the handrail on the right side. The Folding Stairs may be opened or closed from above or below. From above it is controlled by the handrail, as shown by the little center cut above.

Telefold Stairway

The Model 24 Marco Telefold Stairway is shown at the right. The Telefold Stairway is made in two sections instead of in three, as are the Folding Stairs. The lower section of the Telefold Stairway slides over the upper (panel) section, and the stairway then folds into the ceiling. When closed, it is entirely concealed by the neat ceiling panel.

The Telefold Stairway is for those places where space is exceptionally limited. The Marco Telefold Stairway will operate in a closet where there is room for the opening in the ceiling. The Telefold Stairway is light, very strong, exceedingly easy to operate and simplicity itself for installation. Furnished completely assembled in the jambs, ready to install. Nothing to get out of order or to require further adjustments after once installed.

The Marco Telefold Stairway is considered by us to be the most economical, real, complete disappearing stairway made.

SIZES AND OPENING DIMENSIONS MARCO STAIRWAYS

No.	Model	Ceiling height, ft.—in.		Rough opening, in.		Finished opening, in.		Shipping weight, lb.
		Minimum	Maximum	Width	Length	Width	Length	
24	Telefold	7—10	9—4	22½	52	21	50	60
35	Junior	6—8	9—8	24	51	22½	49½	70
50	Standard	7—0	10—0	30	60	28	58	115
65	Standard	10—0	12—0	30	70	28	68	140

CHURCHILL FOLDING DOOR TELEPHONE BOOTHS

MANUFACTURED BY
CHURCHILL CABINET COMPANY
2119 Churchill Street, CHICAGO, ILL.
DISTRIBUTED NATIONALLY BY
J. H. BUNNELL & COMPANY, INC.
215 Fulton Street, NEW YORK, N. Y.

Churchill Folding Door Telephone Booths

The Standard No. 1 Type Folding Door Booths are designed for group installations, being built in units having unfinished sides. Each booth is a complete unit in itself, a self-contained construction that assures rigidity and perfect operation. Finished end panels can be placed at exposed ends of the group of compartments with hardwood separators placed between adjacent units. Finished hardwood backs are used instead of soft wood backs where rear of booth is exposed. The use of separators is recommended where the ends and back of compartment group are not exposed.

Folding Door Construction

Churchill Booths are particularly desirable where space is limited, as the movement of the door takes but 3 in. beyond the face of the booth. No interference with the doors of adjacent booths. The folding door remains in any position, being both opened and closed by a slight pull. It folds back out of the way and within the booth itself.

The folding door with its ingenious middle hinge fastened for the full length of the door assures alignment and ease of operation. Sagging, the greatest maintenance trouble, has been eliminated. Climatic conditions do not affect the operation of this type of folding door. The upkeep cost is eliminated.

General Features

The interior is finished in wood panel or lined with steel as desired. Special woods furnished on request. The booth floors are covered with linoleum protected at the threshold with a safety tread. Each booth is furnished with an elbow rest shelf. When specified, a seat made of the same material as the booth can be furnished. A space of 4½ in. between ceiling and roof of booth is furnished for electric light relay or door switch equipment wiring, which can be supplied at a slight extra charge.

Special Features

Special Booths—Special booths for particular jobs or specifications of the architect can be supplied and estimates will be gladly furnished.

Special Finishes—Any color sample furnished will be matched with extreme accuracy.

Special Pulls—Pulls to match existing hardware will be supplied when requested.

U-hinge—Unless otherwise requested this hinge (pictured below) is supplied in black enamel finish.

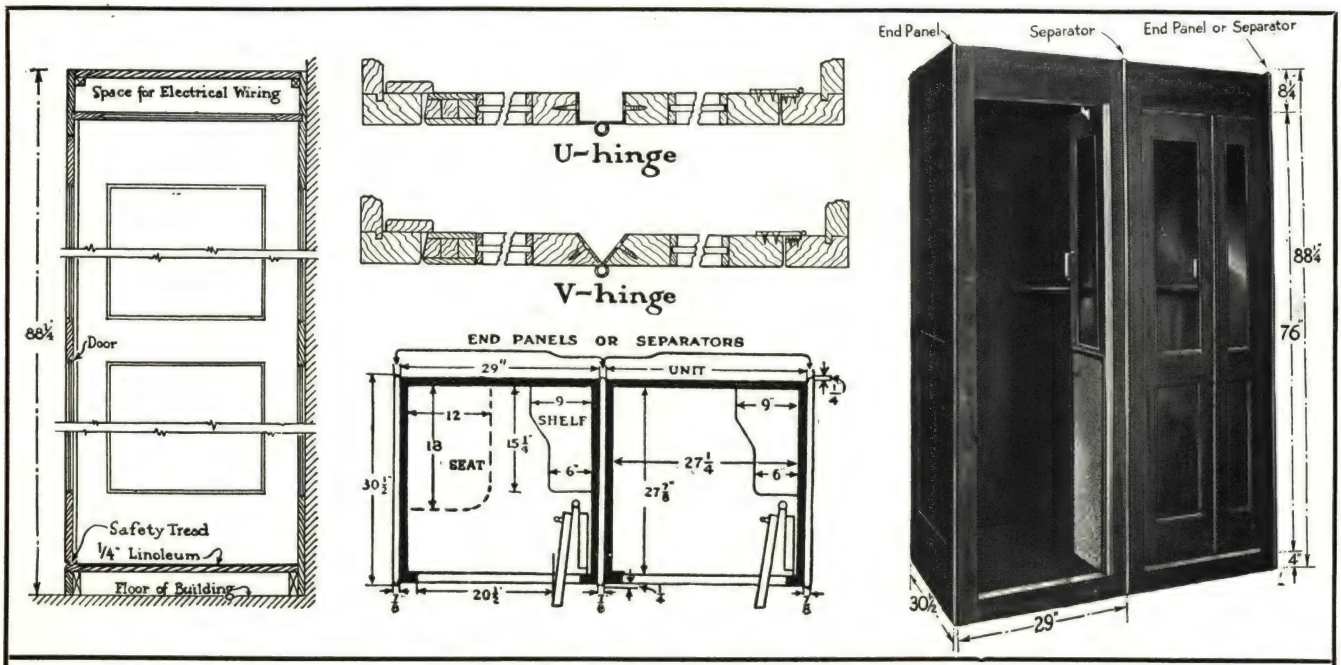
V-hinge—Also used on folding doors but supplied when specified. Finish oxidized.

Quotations—On request.

General Construction Details

Dimensions for standard booths: height 88¼ in.; width without end panels or separators attached, 29 in.; thickness of end panels or separators, ⅞ in.; height of door only, 76 in.; height of seat from floor, 22 in.; size of seat, 12x18 in.; depth of booth, 30½ in.; width of shelf, 6 in. at front and 9 in. at rear; height of floor 4 in., height of head rail 8¼ in.

Material: oak, mahogany, birch or walnut. Can be had in the white, that is, without finish, if desired. All booths are supplied glazed with two lights of ¼-in. polished plate glass in the doors.



Details of Folding Door Telephone Booths

ALL-STEEL-EQUIP COMPANY

(INCORPORATED)

GENERAL OFFICES AND FACTORY

150 Griffith Avenue, AURORA, ILL.

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PITTSBURGH, Pa., Renshaw Building
CLEVELAND, Ohio, 174 E. 213th Street
BIRMINGHAM, Ala., 614 Lincoln Life Building
LOS ANGELES, Cal., 800 No. Spring Street

Products

STEEL LOCKERS of all kinds, including Box Lockers.

STEEL STORAGE and WARDROBE CABINETS for every purpose, including Filing Blue Print and Plan Filing.

Engineering and Follow-up Service

A-S-E Engineers are available to architects—providing an experienced and intelligent consulting and design service. Branch offices offer a complete follow-up service at all times.

Company

All-Steel-Equip is a long established, successful, national concern that has pioneered the development of modern steel equipment, and offers a most complete line of steel lockers and cabinets to meet every conceivable purpose.

Acceptance

The large and increasing number of leading companies and institutions—including schools, colleges, factories, clubs, stores and offices—equipped with A-S-E Lockers and Cabinets, indicates their satisfactory design and construction.

Lockers

A-S-E Lockers are provided in many types and sizes, including: single tier, double tier, compartment, and golf lockers, also basket racks, and key cabinets. A-S-E Lockers are of unit construction.



Single Tier

SINGLE TIER LOCKERS—Standard Sizes

Width in.	Depth, in.	Height, in.	Max. over all, in.	Width, in.	Depth, in.	Height, in.	Max. over all, in.
12	12	60	66	15	15	72	78
12	15	60	66	15	18	72	78
15	15	60	66	18	18	72	78
15	18	60	66	18	21	72	78
12	12	72	78	24	18	72	78
12	15	72	78	24	24	72	78
12	18	72	78				



Double Tier

DOUBLE TIER LOCKERS—Standard Sizes

Width, in.	Depth, in.	Height, in.	Max. over all in.
12	12	36	78
12	15	36	78
12	18	36	78
15	15	36	78
12	15	42	90



Combination Locker



Golf Locker

Door—16-gauge U. S. Standard steel. Double flange extends entire length of both vertical edges, joined by cross flange at top and bottom. Will not warp or kink.

Latch—One-piece, one-movement, positive 3-point latch. Concealed behind reinforcing flange in door. Readily accessible when desired. Malleable handle riveted to latch. Operates with easy up and down movement.

Hinges—Embossed in door. Self-enclosed, completely concealed pin type. Set flush with door, which is formed out to cover pins entirely. Tamper proof. No rivet or bolt heads show.

Frame—Securely riveted insuring unusual rigidity. Steel angle uprights full ⅛ in. in thickness. No notches of any kind cut in angle frame. Cross channels of No. 16-gauge steel.

Ventilation—Louvre ventilation standard type top and bottom, or full length louvre. For additional ventilation, perforated top, bottom, sides or back provided.

Tops and Sides—All sides flanged up over top. Vertical edges offset, giving greatest strength. All tops individual, and flanged on all four sides. Top cannot come loose.

Bottom—Bottoms flanged four sides. Front side fits inside and is carried by lower flange of cross channel. Embossing front of locker bottom permits it to fit flush with top of frame channel, for easy cleaning. Bottom will never sag.

Shelves—9 in. from top of locker. No sharp edges. Double flange gives front of shelf additional strength. Shelves standard in 60 and 70-in. lockers. In double tier lockers only when specified.

Finish—Dark green, brown, or French gray to order. All parts thoroughly cleaned before enameling and oven baked at highest possible temperature to insure hardness.

Equipment—6-in. legs, or supplied without legs, for recessing in walls. Brass number plates with numbers etched in black. Single tier lockers have hat shelf and rust-proof ball-pointed coat hooks. Double tier have hooks only. Padlock attachment standard equipment, with provision for cabinet lock. Various locks, either master keyed or combination, supplied to order. Coat rods, mirror, comb and brush tray, towel rod and golf locker equipment of drip pan, umbrella holder, etc., to order. Sloping top lockers can be supplied on all except 42-in. height.

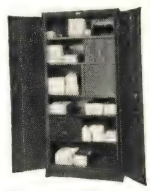
SIZES AND SECTIONIZING—Standard Sizes, in Inches

Widths	9	12	15	18	24
Depths	12	15	18	21	24
Heights	30	36	42	60	72

Heights are *exclusive* of 6-in. legs.

All lockers, whether single or double tier, can be furnished in double row, or back to back style, except 21 and 24 in. deep. All lockers may be assembled in sections of any desired width.

Shipment—Shipped completely assembled or knocked down.



Storage Cabinet with Private Compartment

Box Lockers

Used in gymnasiums, swimming pools, etc. Unit type with strongly riveted frame, and reinforced doors. Brass knob, padlock attachment and number plates standard equipment. Can be equipped with locks.

Sizes and Sectioning—In any combination of standard widths and depths of 12, 15, 18, 24 in. and same heights, so arranged to make total number of lockers conform to standard 60 and 72-in. lockers. Box lockers can be combined within same section with lockers of standard sizes.



Utility Rack

Cabinets

A-S-E manufactures two lines of cabinets—the "Master" and the "Popular." In these two lines are included cabinets to meet every conceivable need.

"Master" Line—This provides the finest construction features known to cabinet making. Selected steel gives a smooth surface for the baked-on enamel base. Over this, lacquer is hand sprayed, insuring a smooth, durable surface. Dustproof construction. Doors are full panel reinforced, and are hung by heavy offset hinges in a rigid frame of No. 16-gauge formed channel. Large sliding domes built into base permit cabinet to be moved easily. Shelves are adjustable on 1½-in. centers. Door handles are vault type, modern in design, chromium plated. Grooved key, disc-tumbler lock and 3-point latch. Standard color, dark green. Other colors and wood finishes to order.

Styles and Sizes—The "Master" line includes: storage, wardrobe and combination types, counter high and desk high cabinets. Sizes range from the 36x24x78-in. storage type down to the 18x20x30-in. desk high.

Special Inserts—"Master" Cabinets can be fitted with inserts, for greater convenience, such as file drawers, private compartments, electrotype drawers, document files, etc.

"Popular" Line—A-S-E "Popular" Cabinets meet the demand for good-looking, sturdy cabinets at lower cost. Built with heavy angle steel frames, full length panel reinforced doors, 5-in. closed base, and concealed, unbreakable A-S-E hinges. "Popular" Cabinets are essentially dustproof. Positive 3-point latching device actuated by chromium plated vault type handles of beautiful design. Shelves are easily adjusted. Grooved key, disc-tumbler lock. Lacquer finish and baked-on enamel base in choice of colors.

Styles—The "Popular" line includes: storage, wardrobe, and combination types. Sizes range from 36x18x78-in. to 18x18x66-in.



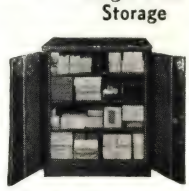
Wardrobe Cabinet



Single Door Storage

Special Equipment

A-S-E also provides unit shelving, racks and cabinets to meet virtually any need.



Counter High Cabinet

Catalogue

Write for file size Catalogue C-28, giving complete data on the extensive line of cabinets, lockers, racks, filing cabinets, stacking boxes, etc.

THE BERGER MANUFACTURING CO.

DIVISION OF REPUBLIC STEEL CORPORATION

Manufacturers of Steel Office Furniture, Lockers, Shelving and Storage Cabinets

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STEEL LOCKERS.

Also Shelving, Storage Cabinets, Wardrobes, Filing Cabinets, Desks, and Light Weight Fireproof Safes.

For our pages on Metal Building Material, see Manufacturers' Index.

BERLOY

Berloy Locker Specifications

Material—Doors and door frames of best two-pass deoxidized stretcher leveled sheet steel. Other parts made from a good grade mild annealed cold rolled and roller leveled steel. All steel free from buckle scale and other imperfections.

Doors—Formed from one sheet not less than 20 gauge, with one filleted tubular reinforcement at inner edge of door and two filleted tubular reinforcements at outside edge to provide for sufficient tensional strength and rigidity.

Frames—All parts of channel formation securely riveted together. Upright members 18 gauge and cross members 16 gauge steel. Upright members form a continuous strike for door.

Latching Device—Doors are provided with a positive automatic gravity type latching device. Latching lugs, keepers and lift handle of heavy gauge formed steel. Handle, black enameled with padlock attachment.

Body—Of 24 gauge steel with necessary formation to make rigid locker.

Finish—Standard neutral green enamel. Other colors at reasonable cost. Coat hooks, cadmium plated. Bolts and nuts, parkerized. All outside bolt heads are slotless type.

Hinges—2 in. wide with five loops and tight pin; securely riveted to frame and bolted to door.

Locks—Bell pin-tumbler locks with two paracentric keys each and master key.

Number Plates—Solid brass with black enameled background and brass numerals, $\frac{7}{16}$-in. high.

Ventilation—Standard ventilation consists of six louvers at top and six at bottom of each door.

Equipment—Single tier, one hat shelf 9 in. from top; double tier, no shelf. Three single prong wall hooks and one double prong ceiling hook, brass number plate and padlock attachment; all hooks to have ball points and arranged for attaching with two bolts.



Single Tier Lockers

W-D-H	W-D-H
12x12x60	12x12x72
12x15x60	15x15x72
12x18x60	12x18x72
15x15x60	15x15x72
15x18x60	15x18x72
18x21x60	18x18x72
	18x21x72

Double Tier Lockers

W-D-H	W-D-H
12x12x30	15x15x36
12x12x36	12x15x42
12x15x36	15x15x42

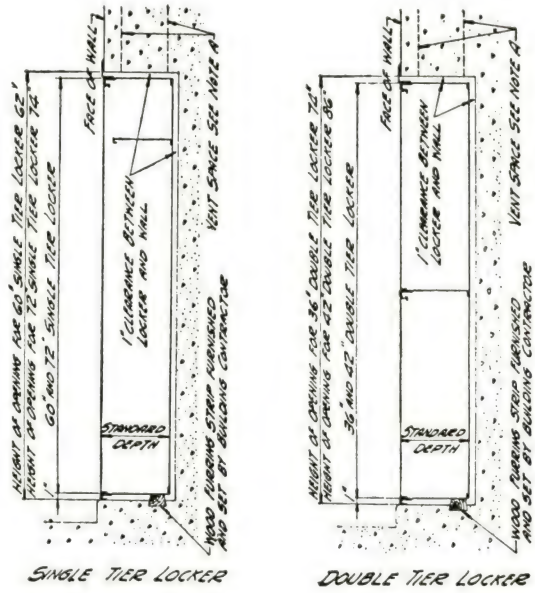
Compartment Lockers

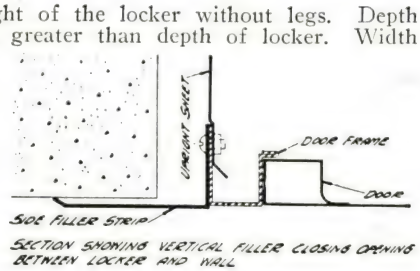
	W-D-H
5 or 6 high	12x12x12
5 or 6	12x15x12
5 high	15x15x14⅝
4 high	15x15x15

Lockers Recessed in Corridor Walls

These accompanying details are given to show the size opening required for the recessing of locker equipment. The height of the opening for recessed lockers should be at least 2 in. greater than the over-all height of the locker without legs. Depth of recess to be 1 in. greater than depth of locker. Width of recesses should be 2 in. greater than the over-all width of the total number of lockers in the group.

Example, five lockers 12 in. wide, 12 in. deep by 60 in. high, without legs, recess in one group, the opening should be 5 ft. 2 in. wide, 13 in. deep, 62 in. high.





SECTION SHOWING VERTICAL FILLER CLOSING OPENING BETWEEN LOCKER AND WALL

Combination Locker No. 2860

Large compartment is provided with a coat rod and lock. Small compartments have flat key locks with two keys each, all of which will open the large compartment. No keys are provided for large compartment. The keys for one unit will not operate those of an adjoining unit.

	W. D. H.
5 Small Compartments	15x21x15
1 Small Compartment	18x21x15
1 Small Compartment	18x21x60



For Additional Information

For complete information on steel lockers phone our nearest branch listed above or write us direct at Canton, Ohio, for the Berloy Locker Catalog.

DURABILT STEEL LOCKER CO.

507 Arnold Avenue, AURORA, ILL.

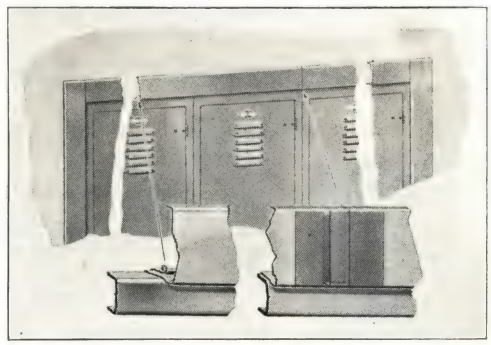
SALES OFFICES IN ALL PRINCIPAL CITIES

Products

STEEL LOCKERS for all purposes.
STEEL STORAGE and WARDROBE CABINETS.
STEEL GYMNASIUM RACKS and TRUCKS.

A complete set of architects drawings, A.I.A. File No. 28a-1, showing locker details will be gladly sent upon request.

"No Better Built Than Durabilt"



Top and End Finishing Strips

Locker Specifications

Doors—Full cold rolled, patent leveled No. 20 gauge special enameling steel with tubular reinforcement at each vertical edge and hemmed flange at each horizontal edge.

Frames—Uprights, 1x1x⅛ in. hard steel angles; cross members, 1½x¾ in. No. 14 gauge formed steel channels, joined by two $\frac{3}{16}$ in. countersunk rivets at each corner.

Body—The remaining parts of locker are made of No. 24 gauge steel.

Locking Device—Concealed type operated by stamped steel (not cast) straight lift handle with curled grip which provides ample space for comfortable hand-hold, latching automatically and quietly when door is closed. Handle has Udylite finish.

Lock Fingers—Improved design with rubber silencers. Three on both single tier and double tier standard lockers.

Padlocking Attachment—This attachment complete with rubber silencers furnished on standard single and double tier lockers at no extra cost.

Locks—Masterkeyed locks (with two keys each) fastened to inside of door without exposed bolt heads. Combination locks or padlocks can be furnished when specified.

Hinges—Reinforced, full-looped, 5-knuckle "strap" hinge permitting door to open approximately 180 degrees.

Legs—Front legs integral with frame. Adjustable feet furnished. Rear legs also adjustable.

Tops—All lockers have flat tops unless sloping tops are specified.

Ventilation—Standard louvre perforations in doors, "safety type" 4½ in. wide, $\frac{3}{16}$ in. deep.

Equipment—Single tier, one hat shelf 9 in. from top; double tier, no shelf. 12 in. wide lockers, one double prong ceiling and three single prong side hooks. Lockers more than 12 in. wide, one double prong ceiling and four single prong side hooks. All hooks arranged for attaching with two bolts.

Coat rods, mirrors, comb trays, towel rods, umbrella racks, drip pans, golf ball trays, golf bag chains, drawers and other special equipment to order.

Finish—Standard No. 307 olive green baked enamel, No. 425 standard brown, and No. 213 standard gray baked enamel. Other colors at reasonable cost. Coat hooks, bolts and nuts, Udylite finish. All outside bolt heads are slotless type.

Number Plates—Solid brass, Butler nickel finish, with $\frac{1}{16}$ in. black filled numerals.

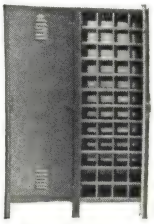
Sizes—Widths: 12, 15, and 18 in.; depths: 12, 15, 18, 21 and 24 in.; heights: 60 and 72 in. single tier; 30, 36 and 42 in. double tier.



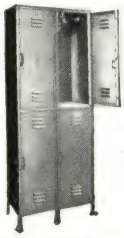
Single Tier Lockers

W. D. H.*	W. D. H.*
12x12x60"	12x12x72"
12x15x60"	12x15x72"
12x18x60"	12x18x72"
15x15x60"	15x15x72"
15x18x60"	15x18x72"
18x21x60"	18x18x72"
	18x21x72"

Equipment consists of hat shelf, one double prong ceiling and three or more single prong side hooks, depending on size of locker



Single Tier Shoe Lockers



Double Tier Lockers

W. D. H.	W. D. H.
12x12x30"	15x15x36"
12x12x36"	12x15x42"
12x15x36"	15x15x42"

Overall height, including legs, is 6 in. greater than combined height of lockers in section.

No hat shelf is furnished in Double Tier Lockers. Hook equipment is same as in Single Tier Lockers

Multiple Tier (Box) Lockers

Multiple Tier Lockers conform in general with specifications of standard lockers with following exceptions:

Doors—Full cold rolled, patent leveled No. 16 gauge special enameling steel, flanged on all edges.

Frames—Same as standard lockers with No. 20 gauge intermediate channel cross members between door openings.

Combination Handle and Padlock Attachment—All Multiple Tier Lockers are furnished with neatly formed stamped steel (not cast) straight-pull curl handle combined with padlock attachment. When doors are closed, spring clips keep them shut.

Equipment—No hooks or shelves.

Sizes—Widths: 12, 15 and 18 in.; depths: 12, 15, 18, and 21 in.; heights: 12, 15 and 18 in. Usually furnished in tiers four to six high. Also combinations of Lockers and Multiple Tier Lockers in all sizes.

Top and End Finishing Strips

The perfect fitting top and end finishing strips furnished for recessed locker installations are neat and attractive. Durabilt Finishing Strips project ⅜ in. in front of the face of locker. The edge of top strip adjacent to locker is offset ⅛ in. to overlap the locker. End strips do not overlap but do project ⅜ in. in front of locker same as top strip. Our strips are easily attached by means of concealed screws and joint clips. When the joint clips are engaged there is a spring contact which holds the finishing strips in alignment with a smooth, flush butt joint.



Gymnasium Lockers

Gymnasium Lockers

A complete unit consists of one standard single tier locker with multiple tier lockers, 2 or 3 high (depending on size) in sections of 1, 2, 3, or 4 wide.

Padlocks are most practical to use with gym type lockers.

Equipment—Each large compartment has one hat shelf. Small compartments have none. All compartments have one double prong ceiling and three or more single prong side hooks (depending on size of locker). Large compartment doors are standard single tier locker construction. Doors on small compartments are multiple tier (box) locker construction.

Large Compartments	
W. D. H.*	W. D. H.*
12x12x60"	15x15x60"
12x15x72"	15x15x72"

Small Compartments	
W. D. H.	
6	x12x30" Double Tier Arrangement
6	x15x36" Double Tier Arrangement
7½	x12x30" Double Tier Arrangement
7½	x15x36" Double Tier Arrangement
9	x12x20" Triple Tier Arrangement
9	x15x24" Triple Tier Arrangement



Key Cabinet

Key Cabinets

W. D. H.
Small—15x6x30 in.
Large—24x6x30 in.

The 15-in. wide cabinet furnished with 100 to 600 key hooks as follows: Panel on back only—100 hooks.

Panel on back and panel on door—200 hooks.

Panel on back and one swinging leaf—300 hooks.

Panel on back, panel on door and one swinging leaf—400 hooks.

Panel on back and two swinging leaves—500 hooks.

Panel on back, panel on door and two swinging leaves—600 hooks.

Above arrangements in a 24-in. wide cabinet would provide twice as many hooks. (Each hook will hold five *locker keys* but hanging capacity is reduced when larger keys are stored.)

Each combination hook and number or label holder is adjustable horizontally on 1-in. centers and vertically on 2½-in. centers. No tools required.



Multiple Tier (Box) Lockers

(Sometimes called cubicles)

	W. D. H.
5 or 6 high	12x12x12"
5 or 6 high	12x15x12"
5 high	15x15x14 2-5"
4 high	15x15x15"

Overall height, including legs, is 6 in. greater than combined height of lockers in section.

No shelves or hooks furnished in above sizes of multiple tier lockers

Two Person Lockers

W. D. H.*	W. D. H.*
15x12x60"	15x12x72"
15x15x60"	15x15x72"
15x18x60"	15x18x72"
	15x21x72"

Equipment consists of two hat shelves, vertical partition dividing lower part into two coat compartments each having one double prong ceiling and two or more single prong side hooks, depending on size of locker. Can be furnished without partition when desired



Two Person Lockers



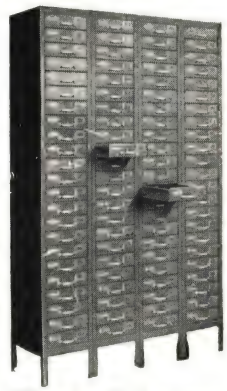
Two-in-One Lockers

Two-in-One Lockers

W. D. H.*
15x15x72" without coat rod
15x18x72" with coat rod
15x21x72" with coat rod

Coat compartments are 7½ in. wide x 54 in. high. Hat compartments are 15 in. wide x 9 in. high, making total height 72 in. *exclusive of legs.*

Equipment — One double prong ceiling hook and two or more single prong side hooks, depending on size of locker. Lockers 18 in. deep and over have a coat rod in addition to hook equipment.



"Doorless" Lockers with Trays

"Doorless" Lockers with Trays

Equipment consists of 19 3-in. trays in 60 in. high and 23 3-in. trays in 72 in. high lockers. Trays are removable. These steel lockers can be furnished with doors if desired. Can also be made without legs for recessing in walls when desired.

**Overall height with standard legs is 6 in. greater than nominal heights listed.*

LYON METAL PRODUCTS, INCORPORATED

3931 Montgomery Street, AURORA, ILL.

SALES OFFICES IN ALL PRINCIPAL CITIES

FACTORIES: Aurora and Chicago Heights, Ill. ASSEMBLY PLANTS: Los Angeles, Cal.; Jersey City, N. J.

Products

STEEL SHELVING, LOCKERS, CABINETS, BOXES.
Also Store Fixtures, Folding Tables and Chairs.

Technical Engineering Co-operation

Lyon Engineers, experienced in all phases of planning installations, will be glad to co-operate with you when your plans are being made.

Just write or telephone our nearest office, or communicate with our general offices at Aurora for detailed information.

Manufacturer's Specifications—Single and Double Tier Lockers



Single Tier Locker
(Inches)

60-in. heights		72-in. heights	
W.	D.	W.	D.
12	12	12	12
12	15	12	15
12	18	12	18
15	15	15	15
15	18	15	18
18	18	18	18
18	21	18	21



Double Tier Locker
(Inches)

36-in. heights		42-in. heights	
W.	D.	W.	D.
12	12	12	12
12	15	12	15
15	15	15	15

Right:
Golf and Club Locker
(Inches)

W.	D.	H.
24	18	60
24	21	60
24	18	72
24	21	72

Standard Equipment—Coat rod and hooks, shelves, and golf ball tray.

Optional—Private compartment, mirror, comb tray, towel rod, card holder, umbrella holder—at extra cost.

Doors—Full cold rolled, patent leveled 20-gauge furniture steel, formed with channel reinforcement at each vertical edge, providing double thickness where locking device and hinges are attached. Top and bottom are flanged and all joints and corners electrically welded.

Frames—Both vertical and horizontal members are 1x1x⅛-in. hard steel angles; joints rabetted and electrically welded.

Body—24-gauge steel flanged at all sides to give double thickness of metal at each edge.

Tops—Flat, unless sloping tops are specified.

Hinges—Full loop hinges—three hinges on 60-in. and 72-in. high doors; two hinges on 36-in. and 42-in. high doors.

Ventilation—Standard louver perforation 5 in. wide by ¼ in. deep.

Locking Device—Three-point locking device on single tier lockers; two-point locking device on double tier lockers. Gravity locking bar remains up when door is opened. Closing door releases locking bar which drops quietly into place.

Locks—Master-keyed flat key locks with two keys each. Combination locks or padlocks can be furnished when specified.

Legs—Front legs are integral with frame. Rear legs are 1x1x⅛-in. hard angle. Fitted with adjustable feet.

Number Plates—Brass, with ½-in. etched black enamel numerals.

Equipment—Single tier locker—one hat shelf. Double tier locker—no shelf. 12-in. wide locker has 3 single prong and one double prong ball pointed rustproof coat hooks. Over 12-in. width, four single and one double prong hooks.

Silencing Device—Rubber cushions at all points where door strikes jamb and where lock trigger passes through door. Gravity locking device which eliminates noise due to locking mechanism "riding over" jamb.

Standard Finishes—Lyon green or Lyon gray baked enamel. Coat hooks cadmium plated, bolts parkerized.

Recessing—Complete details in Locker Handbook No. 209.

Erection—All lockers shipped knocked down. We can erect or furnish erection superintendent.



Golf and Club Locker



Steel Folding Chair

Comfortable, durable, safe and attractive. Several types—fully upholstered, semi-upholstered, non-upholstered, with arms, and with steel cane saddle seat. A variety of finishes to harmonize with any interior. Catalogue No. 811



Box Locker
(Inches)

W.	D.	H.	Over-all heights
12	12	12	66 to 78
15	15	15	66
18	18	18	78

If legs are not required, deduct 6 in. from over-all heights. No shelves or hooks furnished.



Gymnasium Locker

One single tier locker, 9 in. wide, 12 in. deep, 60 in. high, used with 3 or more triple tier box lockers 9 in. wide, 12 in. deep, 20 in. high.

Equipment—Single tier locker: 1 hat shelf, 3 single prong and 1 double prong hooks. *Triple tier:* 2 single prong hooks and 1 double prong hook.



Two-person Locker
(Inches)

W.	D.	H.
15	15	72
15	18	72
15	21	72

Add 6 in. if legs are desired.

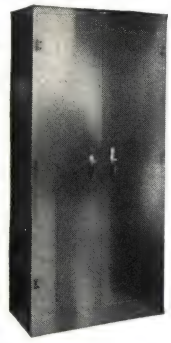
Hat compartment: 15 in. wide, 9 in. high.
Coat compartment: 7½ in. wide, 54 in. high.

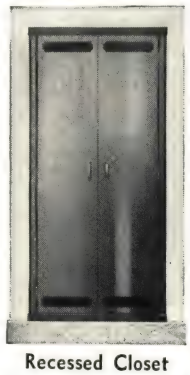
The lock on the locking device on small door controlled from interior of large compartment.

Storage or Wardrobe Cabinet
(Inches)

W.	D.	H.	
36	18	78	two door
36	24	78	
18	18	66	one door
24	18	78	
24	24	78	

Serves a wide variety of uses. Fitted with three-point locking device and flat key lock. Finished in green; grained walnut, mahogany and oak; gray and shell white





Recessed Closet

Steel closets for wardrobe and storage purposes built into wall recesses. More sanitary, economical, and space-saving than old type closet.

Flexible interior arrangements provide adaptability for all closet needs.

Write Aurora for details on specific requirements



Steel Storage Shelving

For books, food stuffs, supplies, stationery, Lyon shelving offers compact, easily accessible storage. Rigidly constructed, finished in green baked enamel. Shelves adjustable on 1½-in. centers. Variety and types for every storage use illustrated in Catalogue No. 118

FRED MEDART MANUFACTURING CO.

Manufacturers of Steel Lockers and Steel Shelving

Potomac and DeKalb Streets
ST. LOUIS, MO.

511 West 42nd Street
NEW YORK, N. Y.

For Gymnasium and Playground Apparatus, see Manufacturers' Index

MEDART STEEL LOCKERS

Doors—Made of 16-gauge full pickled, re-rolled, patent leveled and re-squared steel, reinforced by flanging top and bottom edges, and channeling side edges. Doors finished with depressed panel.

Frames—Made of 16-gauge full pickled steel, formed into channel shape with rolled edge. Upright and cross members electrically welded together, making a true, square and rigid frame.

Body of Locker—Backs, sides, tops and bottoms are made of 24-gauge steel.

Locking Device—Three-point contact in single-tier lockers; two-point contact in double-tier lockers. Doors are self-latching and equipped with rubber silencers.

Door Handle—Made of non-rustable aluminum alloy, die cast.

Locks—As selected from catalogue.

Hinges—36 and 42-in. doors hung on two hinges; 60-in. doors on three hinges; 72-in. doors on four hinges. Hinges bolted to inside of door and electrically spot-welded to frame. Bolts equipped with lock washers.

Legs—Adjustable front legs to overcome floor irregularities. According to width of lockers and grouping, legs are spaced 30 to 36 in. apart with clearance of 4⅞ in. above floor.

Cabinet Base—An extra 4⅞-in. cabinet base can be furnished at an additional charge.

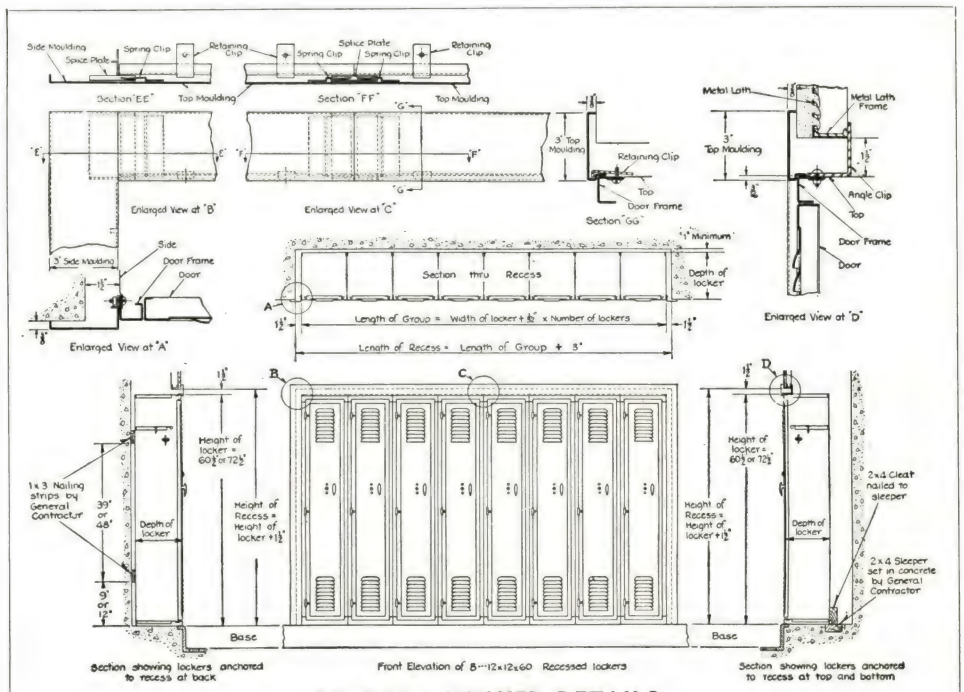
Ventilation—All standard locker doors are louvred at top and bottom to provide ventilation 6 louvres top and bottom for 36 and 42 in. lockers, 9 louvres top and bottom for 60-in. lockers and 12 for 72-in. lockers.

Finish—School furniture brown, French gray or olive green. All parts are cleansed in an acid bath before enameling; enamel is baked on to hard finish.

Hooks—Made of malleable iron, cadmium plated. Lockers 12 and 15 in. deep have 3 double-prong clothes hooks; lockers more than 15 in. deep have 5 hooks.

Shelves—Rolled in front and bolted to sides. Multiple tier lockers do not have shelves. Extra shelves can be provided.

Numbering—All lockers are equipped with brass number plates with black etched numerals.



RECESSED LOCKER DETAILS

These scale drawings show method of recessing lockers and give detailed dimensions of lockers and of recesses to accommodate them. Further information will be furnished on request.

Single Tier
9x12x60″
9x15x60″
*12x12x60″
*12x15x60″
*12x18x60″
*15x15x60″
*15x18x60″
*12x12x72″
*12x15x72″
*12x18x72″
*15x15x72″
*15x18x72″
*18x18x72″
18x24x72″



Double Tier
9x12x36″
9x15x36″
*12x12x36″
*12x15x36″
*15x15x36″
12x12x42″
*12x15x42″
*15x15x42″



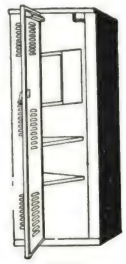
Gym Suit
(Shown with Single Tier)
7½x12x30″–2 tier
10 x12x24″–3 tier



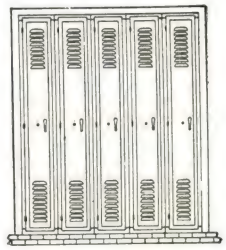
Box
*12x12x12″–5 tier
*12x12x12″–6 tier
*12x15x12″–5 tier
*12x15x12″–6 tier
*15x15x15″–4 tier
18x18x12″–5 tier
18x18x12″–6 tier



Two-person
15x15x72″
15x18x72″



Golf
24x20x60″
Private inner compartment, 3 shelf spaces, hooks and coat rod, golf ball rack.



Recessed Lockers
Moulding furnished to match lockers. See recess details

Locker sizes given are width x depth x height.
Standard Finishes: Olive green, French gray, school furniture brown.

*Locker sizes recommended as standard by the industry and conforming to Simplified Practice Recommendation No. 35-28 issued by the U. S. Department of Commerce through the Bureau of Standards. Experience has proven these sizes to be the most practical for average purposes, and we recommend their use. *Complete Locker Catalogue sent free on request.*

PENN METAL CO. of PENNA.

Manufacturers of Steel Lockers, Shelving and Cabinets

Oregon Avenue and Swanson Street, PHILADELPHIA, PA.

DISTRICT OFFICES

NEW YORK, N. Y., 41 East 42nd Street
BALTIMORE, MD., 629 Money Building
BOSTON, MASS., 141 Milk Street
BRIDGEPORT, CONN., 219 Liberty Building

Products

PENCO STEEL LOCKERS, SHELVING and CABINETS, METAL CEILINGS, TINCLAD and KALAMEIN DOORS.

Sixty-two Years' Experience at Your Service

A force of engineers with a background of 62 years' experience in design, fabrication and installation will submit layouts, recommendations and estimates without obligation.

1869 Penco FOR PERMANENCE

TRADE-MARK

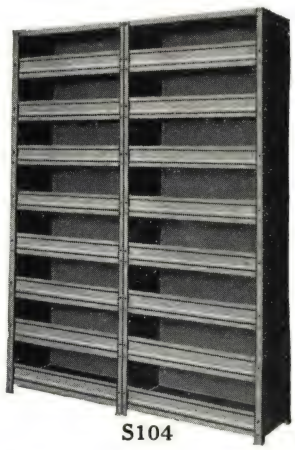
Penco Steel Shelves

Simple, durable, exceptionally strong and fully interchangeable. Readily erected with the aid of only a screwdriver. Quickly disassembled and re-erected.

Penco Standard Specifications—Uprights made of No. 14 gauge cold formed angles, 3, 6, 7, 8, 9 and 10 ft. high. A combination of the above will give any desired height. Punched for 2-in. adjustment.



S101



S104

Shelves are 9, 12, 15, 18, 24, 30 and 36 in. deep, 24, 30, 36, 42, and 48 in. wide, made of No. 18 gauge steel. Reinforcing angles are supplied for heavy duty shelving. The 24 and 30-in. widths are used to fill out shelving in lengths not a multiple of 36 in.

Flat steel backs and divisions, same heights as uprights, are punched for attaching to flanges of the uprights and shelves, and at equal distances from top and bottom edges to make them reversible.

Dividers of No. 24 gauge are 6, 8, 10, 12, 14, 16, 18 and 24 in. high by all shelf depths. (Flanged top and bottom for bolting to adjoining shelves). Beaded front and back.

Bin fronts (with continuous label holders when desired) are readily attached to uprights by steel clips.

Counter shelves and hinged doors with locks also supplied.

Finish is olive green baked enamel. Special finishes at additional cost.

Special shelving made in accordance with specifications or requirements. Blue prints and estimates on request.

Penco Tinclad and Kalamein Doors



Tinclad Door

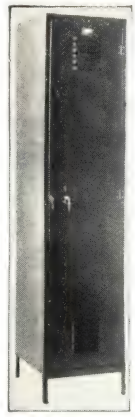
Standard equipment in office buildings, hotels, apartments, schools, hospitals, etc. Made to exact specification in any size or type, and installed by experts.



Kalamein Door

Penco Steel Lockers

Penco steel lockers are made of cold rolled steel, in single tier (full height) and double tier (half height), either in banks one row deep or in double rows (back to back).



50U2

STANDARD SIZES OF PENCO STEEL LOCKERS
(Width x depth x height, in.)

Single tier	Double tier
*12x12x60	*12x12x36
*12x15x60	*12x15x36
*15x15x60	12x12x42
*12x12x72	12x15x42
*12x15x72	
*15x15x72	
*15x18x72	
*18x18x72	
*24x24x72	

*Carried in stock for immediate shipment.

Sizes other than those listed above will be made to order. Write for prices.

Sides and backs are made of No. 24 gauge steel, or when specified, of expanded metal.

Tops, bottoms and shelves are made of No. 24 gauge steel doors reinforced on all edges, with ventilating louvres as illustrated, or with expanded metal.

Equipped with top shelf, gravity latch locking device and master-keyed cylinder lock.

Wall hooks supplied in single tier lockers (full height) and double tier (half height).

All lockers are supplied with 6-in. legs of 1x1x⅛-in. steel angle. Adjustable shoes permit leveling on uneven floors.

All Penco Lockers are accurately punched for quick assembly. Finish is olive green baked enamel; special finish at additional cost.



No. 201

Penco Steel Cabinets

Several types—two-door, single door, desk, counter high, and wardrobe.

Standard finishes—olive green, walnut and mahogany—baked on.



No. 200



No. 202

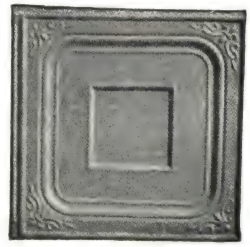
Penco cabinets are unusually serviceable and an ornament as well. They embody every feature of the well-known Penco locker line.

Penco Ceilings

A pattern for every purpose.

Experienced designers will submit sketches and suggestions for most practical treatment.

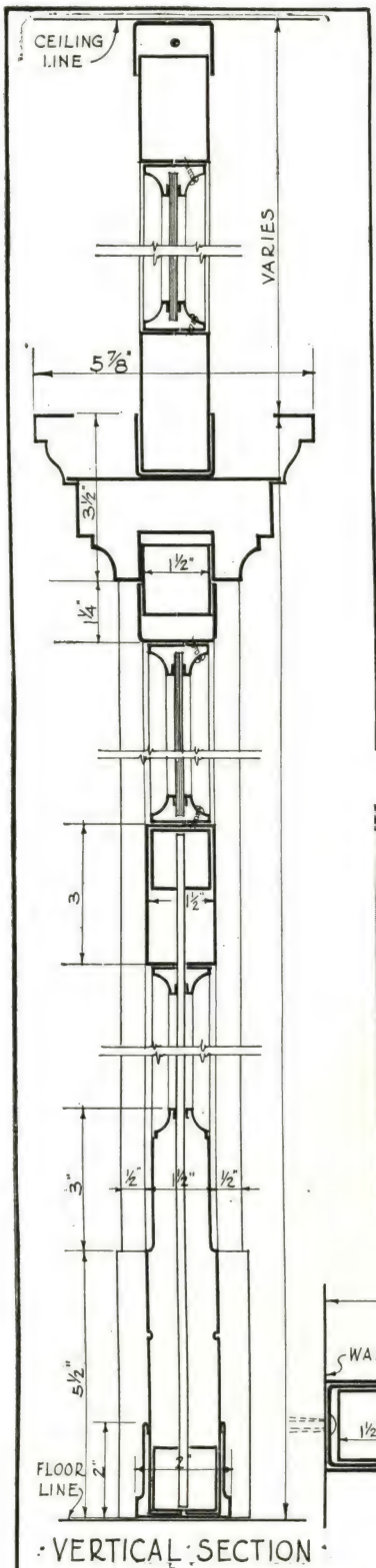
Penco ceiling is rigid, clear stamped and square sheared. Contracts for Penco installation—*thermalizing* and final decoration, carry assurance of complete satisfaction. Thousands of such contracts prove it.



ALL METAL PARTITION CO. INC.

50 West 22nd Street,
NEW YORK, N. Y.

A NEW TYPE OF TUBULAR FRAME PARTITION CONSTRUCTION



· VERTICAL SECTION ·

Here is a new type partition construction, that combines compactness with unusual strength or stiffness. "All Metal" Partitions not only take up less room but they are also economical in first cost. They are readily taken down, and rearranged. Transoms, grilles, wickets are easily built in.

Construction—"All Metal" Partitions are built entirely of steel in interchangeable sections of various widths and lengths. Door sections, also, are interchangeable with sections of same size. Frames are tubular steel and welded at all joints. Panels are set into the tubes for the entire depth of the tube. Sections are securely held together by spacer clips which act as a clamp for the pilasters. Base, chair rail, top rail securely welded in. Cornices are continuous and held rigidly in place by concealed fastenings. No exposed bolts or screws used in erection.

Types—There are 6 distinct types of "All Metal" Partitions. Each with its distinct use and application. We will gladly submit details, prints, etc., upon request.

Finishes—Sections can be had in any of the wood grain finishes, or standard colors in baked enamel or lacquer.

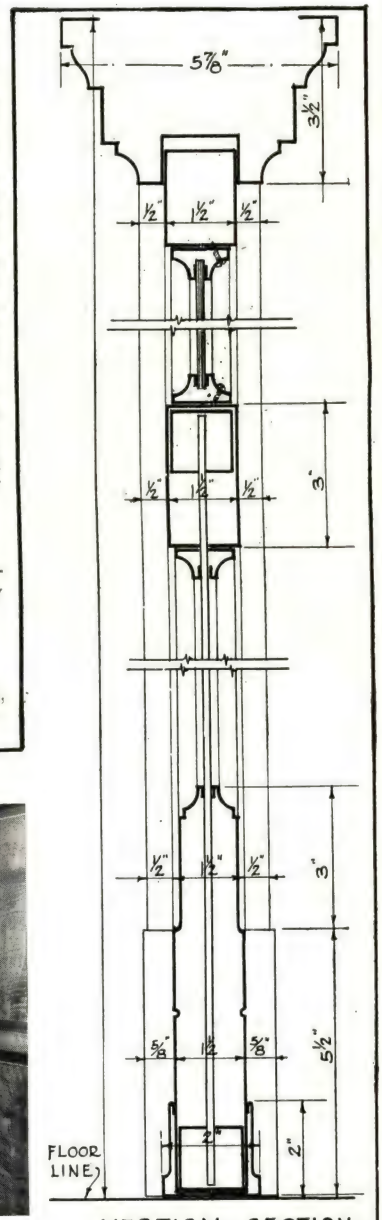
Service

The "All Metal" service department will always cooperate and advise on your partition problems and gladly submit estimates. Catalogue sent on request.

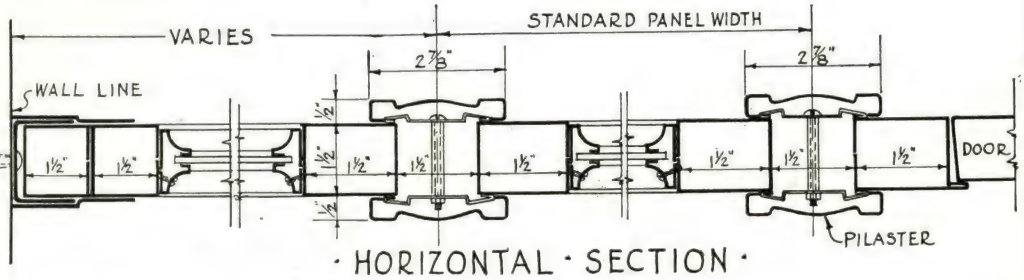
Other Products

Our other products include Adjustable Steel Shelving, Steel Cabinets and Steel Office Railing.





· VERTICAL · SECTION ·



· HORIZONTAL · SECTION ·

3 IN. SCALE DETAILS OF CORNICE HEIGHT AND CEILING HEIGHT PARTITIONS

ART METAL CONSTRUCTION COMPANY

GENERAL OFFICES AND FACTORIES

JAMESTOWN, N. Y.

For Branch Offices, see Bank, Office and Library Equipment Section

For Hollow Metal Doors and Trim, Ornamental Bronze Work, Equipment for Bank, Office and Library, see Art Metal Construction Company in Manufacturers' Index

TRADE-MARK

ART METAL VERTICAL UNIT PARTITION

All Units Are Made One Piece Full Height to Cornice

Type D

This partition is constructed as shown with double steel panels having insulation between.

Type F

This construction is identical with Type D except that single steel panels are used and set in rubber channels.

Type E

This partition is distinguished by flush type panels and a beveled post design. The construction details are the same as Type D.

Construction Details

The posts or pilasters consist of two members—a three side post formation with snap-on removable molding on the fourth side.

All shapes are made from best grade cold-rolled steel and are roller-drawn, producing clean angles and true profiles.

All units are keyed to posts, three keys to each side of unit.

For detailed construction, profiles of moulds, and gauges of materials used, see drawings.

Dimensions

Units are made in the following sizes in width: 20 in., 30 in., 40 in., and 50 in. Larger units when specified must be specially built. We recommend the use of stock sizes.

Cornice is made in the following lengths: 40 in., 60 in., 70 in., 100 in., 120 in., and 200 in. straight lengths, 40 in. mitered both ways, and coped lengths: 20 in., 30 in., 40 in., and 50 in.

Cornice height partition is 7 ft. 3½ in. high. This height permits the use of our regular standard height door.

Doors and Transoms

All doors are built for standardized hardware, such as hinges, lock, and door check.

Transoms are built for Rixson concealed center-hung operator or Monarch center-hung friction pivot.

Wall and Ceiling Fillers

Standard ceiling filler consists of ⅛ Asbestos Mill Board cut to suit layout of partition. Steel fillers will be supplied as alternate if desired.

Wall fillers are made in multiples of 1 in. starting with 5 in. up to and including 10 in. centers of posts. Fillers are fastened to the wall by means of pressure bolts.

Glazing

Partition is built to receive glass in the following thicknesses: ⅛ in. double thick, $\frac{3}{16}$ in. polished plate, ¼ in. polished plate, or any make of tapestry glass not exceeding $\frac{5}{16}$ in. in thickness. All glass is set in special plastic putty.

Erection

Art Metal Vertical Unit Partition is easily erected because it has fewer parts than any other make of partition on the market.

Wiring

All openings in partition for wiring are made large enough to accommodate two ¾-in. cables in all directions except in posts having concealed transom operators.

SPECIFICATIONS FOR ART METAL VERTICAL UNIT PARTITIONS

Steel Partitions—Where indicated on drawings (or mention locations) steel and glass partitions shall be installed, consisting of steel posts or pilasters, steel lower panels, glazed upper panels, (transom) and continuous steel cornice, (with asbestos mill board [or steel] filler to ceiling).

Manufacturer—All steel partitions shall be Art Metal Vertical Unit Partitions, as manufactured by the Art Metal Construction Company, Jamestown, N. Y.

Construction Details—Posts or pilasters shall consist of two members having a three-side post formation with snap-on removable moulding on the fourth side.

All shapes shall be made from best grade cold-rolled steel, rolled drawn, and shall have clean angles and true profiles.

Units shall be keyed to posts, three keys to each side of post.

All steel shapes shall be constructed of not lighter than No. 18 gauge steel plate, excepting the panels, mouldings and filler plates, which may be No. 20 gauge.

Profiles of moulds shall be in accordance with Art Metal Construction Company's stock designs.

Panel Units—Panel units shall be (specify type of panel desired).

Type D panels, consisting of double steel panels having insulating material between.

Type F panels, consisting of single steel panels of No. 12 (or No. 16) gauge steel plate, set in rubber channels.

Type E panels, consisting of double flush-type panels with all exposed surfaces flush.

Dimensions—The panels shall be made to suit the spacing of pilasters, in stock sizes, which are: 20 in., 30 in., 40 in. and 50 in., in width. (Larger units when specified must be specially built.)

Cornices shall be made in the following lengths: 40 in., 60 in., 70 in., 100 in., 120 in., and 200 in., straight lengths, 40 in. mitered both ways; coped lengths: 20 in., 30 in., 40 in., and 50 in.

Partition height shall be 7 ft. 3½ in. (except where transoms are required).

Ceiling Fillers—The space between top of cornice and ceiling shall be enclosed with double thickness of ⅛-in. asbestos mill board secured to wood strips and cut to suit layout of partition and ceiling.

(Alternate.) The space between top of cornice and ceiling shall be enclosed with a double thickness of No. 20 gauge steel, cut to suit layout of partition and ceiling.

Wall Fillers—Wall fillers shall be made in multiples of 1 in. up to and including 10 in. centers of posts. Fillers shall be fastened to the wall by means of pressure bolts.

Transoms—Where transoms are required, the height of cornice shall be raised to (specify height). All transoms over doors shall be pivoted transoms. (Specify whether transoms over panels are to be fixed or pivoted.)

Doors—Provide doors where indicated of the following sizes: (specify sizes). All doors shall have upper panels glazed.

Glazing—All upper panels, transoms and doors shall be glazed with (specify kind of glass desired). All glass shall be set in special plastic putty.

Hardware—All doors shall be equipped with one pair of 4½x4½-in. butts, door checks and cylinder type (or bitted key) locks of standard design and highest quality, as manufactured by (mention name of manufacturer).

Wiring—Openings shall be provided where shown or directed large enough to accommodate two ¾-in. cables.

Finish—All concealed members shall be given at least one coat of rust inhibiting paint. All exposed surfaces shall be finished in baked enamel, selected color, equal to standard finishes.

Erection—The partitions shall be erected with a minimum of floor fastenings and without the use of screw fastenings into walls, columns or ceilings, except in the case of free-standing partitions, which must necessarily be fastened to walls or columns. In such cases screw fastenings will be permitted to secure the cornice member to the walls or columns. No other defacements of the plaster on walls, columns or ceiling will be permitted. The partitions shall be rigidly held in place by means of jack screws engaging against steel shields to protect the plaster, thus making it possible to remove any partition without unnecessary defacement of walls, columns or ceilings.



Partitions Forming Office and Corridor, New York State Office Building, Albany, N. Y.



Partition Forming Corridor, New York State Office Building, New York, N. Y.



Partitions Forming Offices in a New York State Office Building, New York, N. Y.



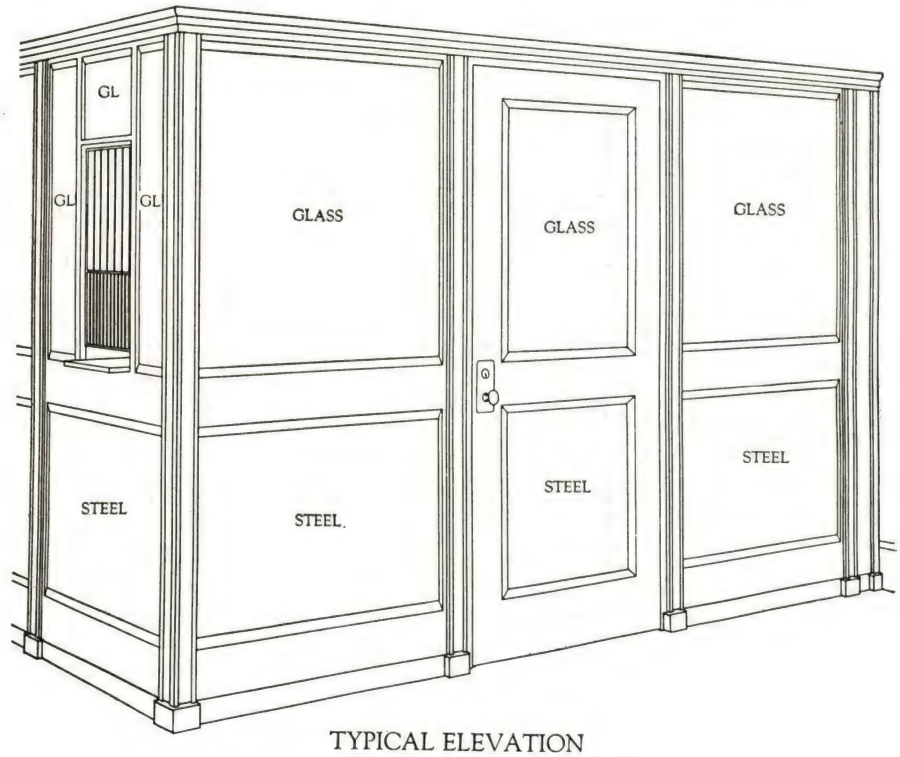
Close-up View of Partition, New York State Office Building, Albany, N. Y.

SCALE 3"-1'

PARTITION AND OFFICE RAILING

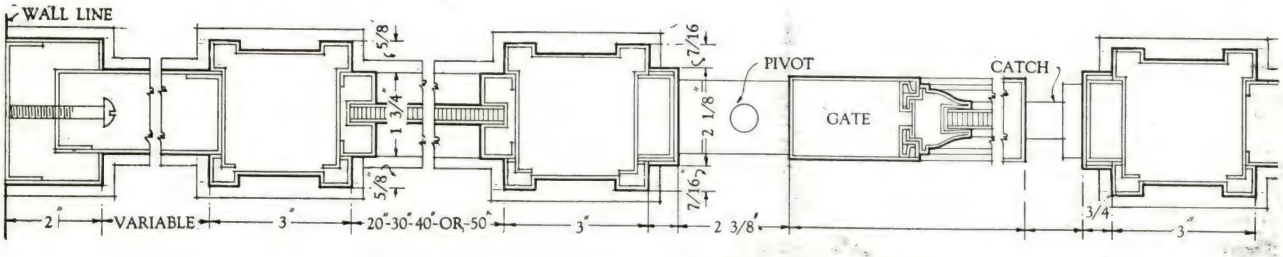
PLATE 1

ART METAL PARTITION – TYPES "D" AND "F"

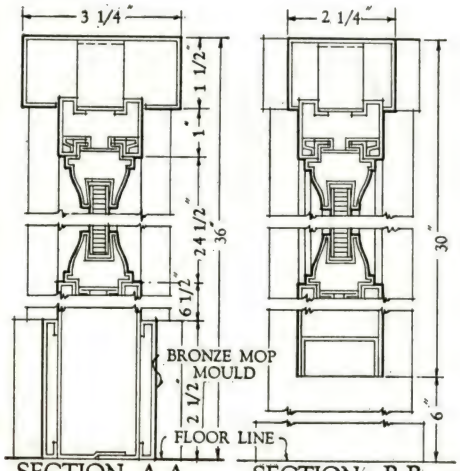


TYPICAL ELEVATION

ART METAL OFFICE RAILING – TYPE "DD"



HORIZONTAL SECTION C C

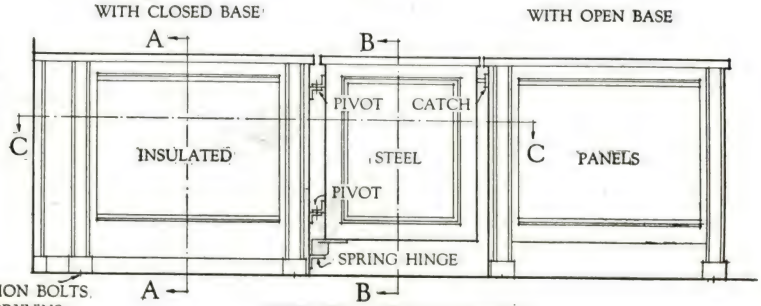


SECTION A A SECTION B B

VERTICAL SECTIONS

TYPE "FF" RAILING IS IDENTICAL EXCEPT THAT SINGLE SHEET (TYPE "F") PANEL IS USED

THIS RAILING CAN BE ADAPTED TO ALMOST ANY ARRANGEMENT DESIRED, BY INTERCHANGING THE GATE AND PANELS AND BY THE EMPLOYMENT OF PANELS OF VARIOUS WIDTHS.



EXPANSION BOLTS OR DRYVINS

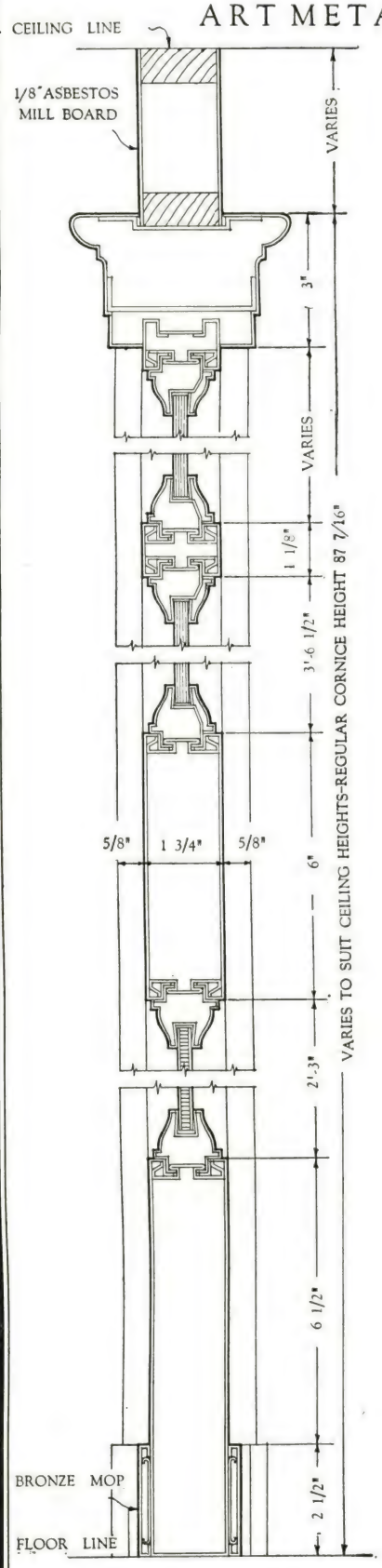
TYPICAL ELEVATION

SCALE 3" = 1'

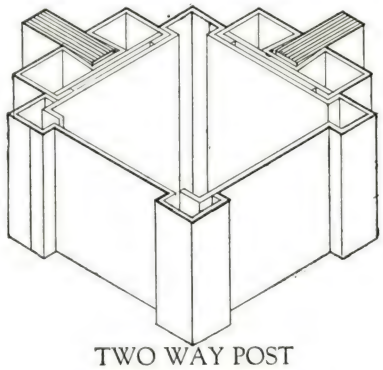
ART METAL PARTITION

PLATE 2

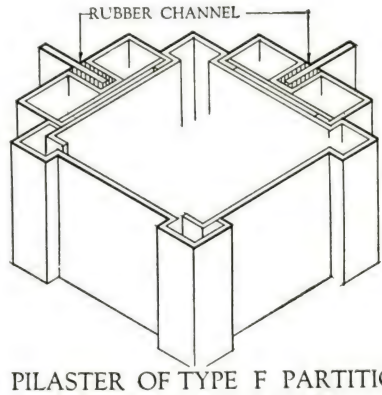
ART METAL PARTITION—TYPES "D" AND "F"
CEILING HEIGHT



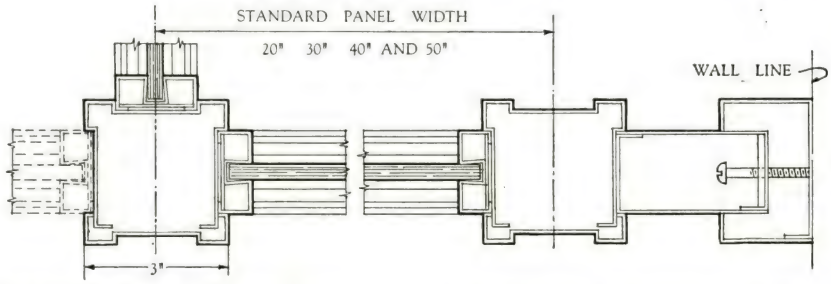
VERTICAL SECTION A-A



TWO WAY POST
CLIP ON PILASTER

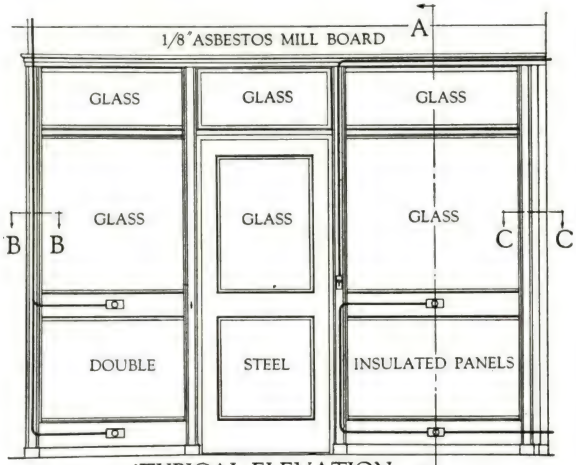


PILASTER OF TYPE F PARTITION
THIS PARTITION IS SIMILAR TO TYPE D
EXCEPT THAT SINGLE SHEET STEEL PANEL IS USED

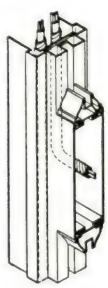


HORIZONTAL SECTION B-B

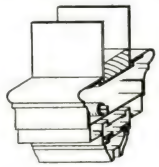
HORIZONTAL SECTION C-C



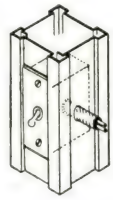
TYPICAL ELEVATION
SHOWING WIRING



BASE PANEL



CORNICE



PILASTER

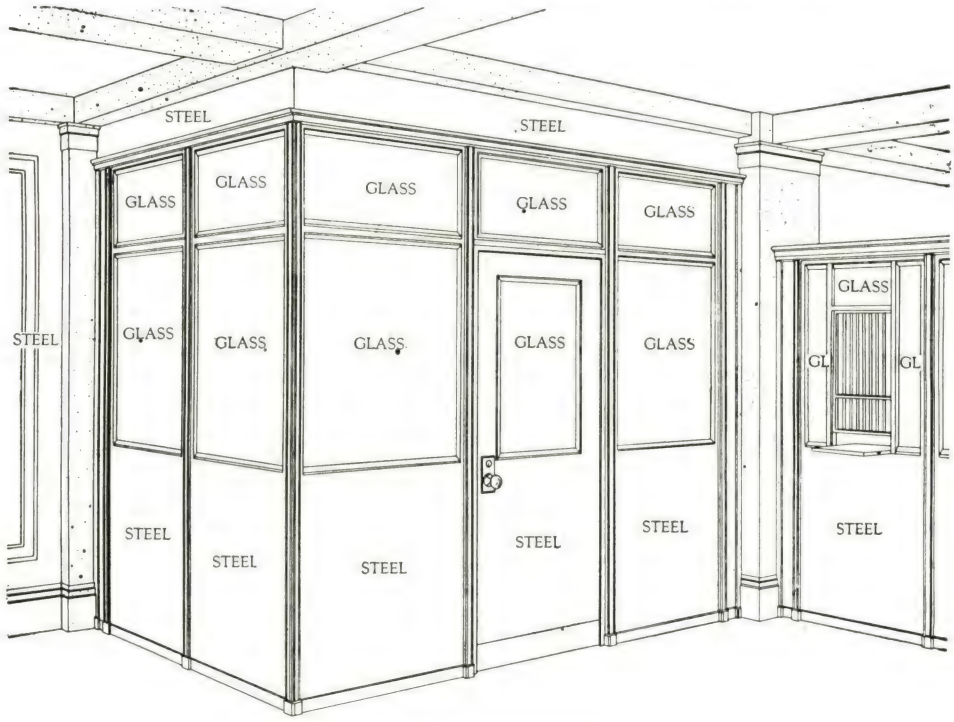
ACCESS TO WIRING IS OBTAINED THROUGH REMOVABLE SIDE OF PILASTER OR POST THIS IS ACCOMPLISHED BY REMOVING A SINGLE SCREW AT THE BOTTOM AND TILTING OUT THE REMOVABLE MEMBER TO DISENGAGE IT AT THE CORNICE

SCALE 3"-1"

PARTITION AND OFFICE RAILING

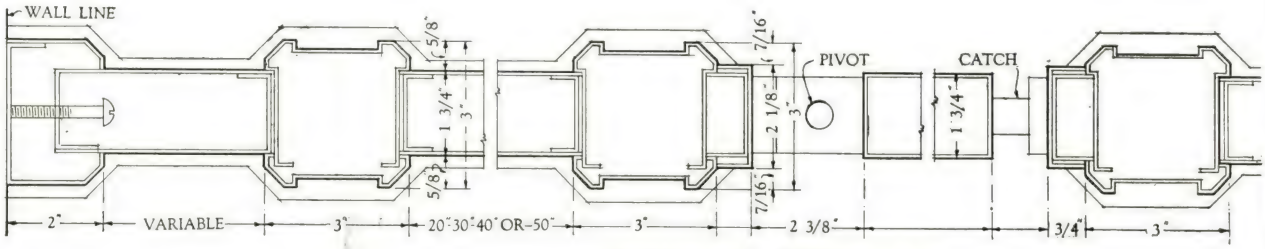
PLATE 3

ART METAL PARTITION — TYPE "E"

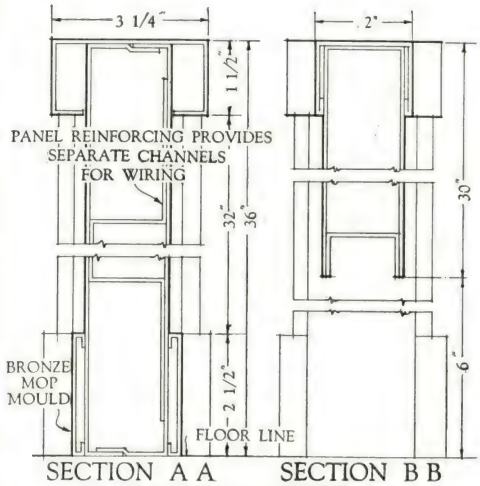


TYPICAL ELEVATION

ART METAL OFFICE RAILING—TYPE "EE"



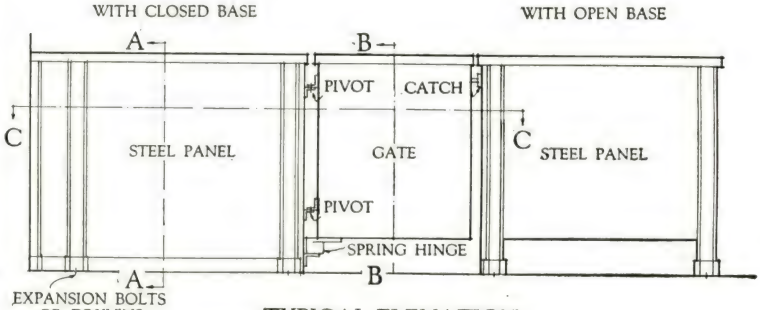
HORIZONTAL SECTION C C



SECTION A A SECTION B B

VERTICAL SECTIONS

THIS RAILING CAN BE ADAPTED TO ALMOST ANY ARRANGEMENT DESIRED, BY INTERCHANGING GATE AND PANELS AND BY THE EMPLOYMENT OF PANELS OF VARIOUS WIDTHS



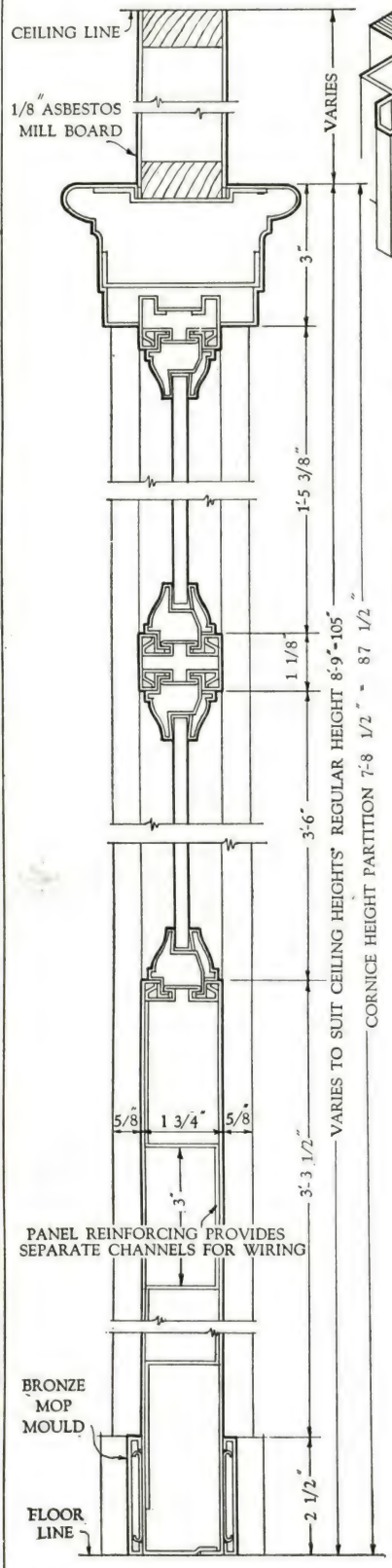
TYPICAL ELEVATION

SCALE 3"-1'

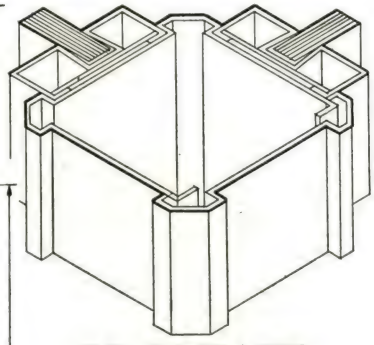
ART METAL PARTITION

PLATE 4

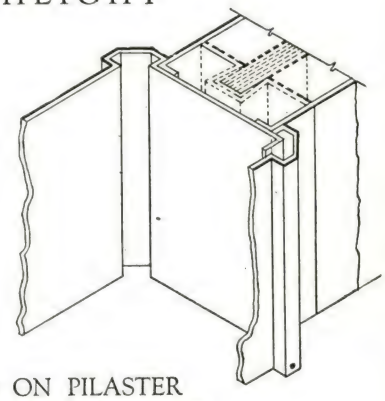
ART METAL PARTITION TYPE "E"
CORNICE HEIGHT OR CEILING HEIGHT



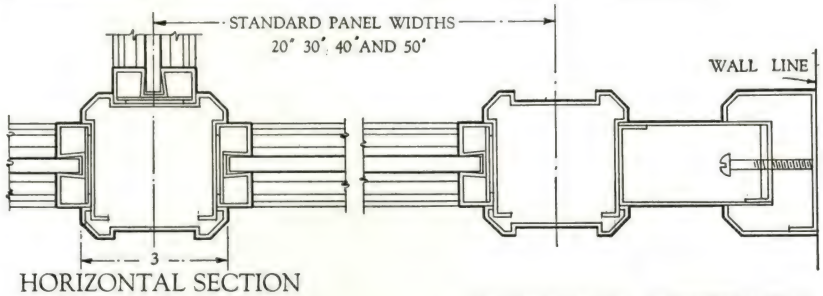
VERTICAL SECTION A A



CLIP ON PILASTER
SECTION TAKEN AT GLASS PANEL



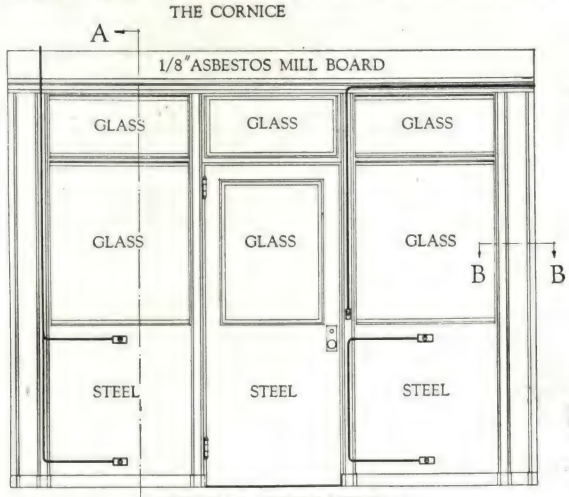
CLIP ON PILASTER
SECTION TAKEN AT FLUSH PANEL



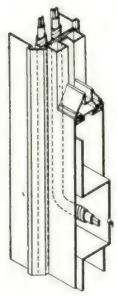
HORIZONTAL SECTION THRU 3 WAY PILASTER

HORIZONTAL SECTION B B

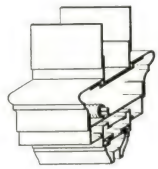
ACCESS TO WIRING IS OBTAINED THROUGH REMOVABLE SIDE OF PILASTER OR POST THIS IS ACCOMPLISHED BY REMOVING A SINGLE SCREW AT THE BOTTOM AND TILTING OUT THE REMOVABLE MEMBER TO DISENGAGE IT AT THE CORNICE



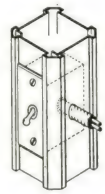
TYPICAL ELEVATION SHOWING WIRING



BASE PANEL



CORNICE



PILASTER

DAHLSTROM METALLIC DOOR COMPANY

EXECUTIVE OFFICES AND FACTORIES

JAMESTOWN, N. Y.

BRANCH OFFICES

NEW YORK, N. Y., 475 Fifth Avenue CHICAGO, ILL., 19 So. La Salle Street DETROIT, MICH., 1331 Dime Bank Building

PACIFIC COAST PLANT: 3350 East Slauson Avenue, LOS ANGELES, CALIF.

REPRESENTATIVES IN PRINCIPAL CITIES

Products

Manufacturers of ADJUSTABLE STEEL PARTITIONS.

Also Conduo Base, general trim for office buildings, hotels, apartments, hospitals, schools, banks, theaters; Hose Cabinets and Switch Box Panels.

For Metal Doors and Trim, see Manufacturers' Index.

TRADE-MARK

Improved Dahlstrom Partition

To service the user properly, a partition should be carefully designed. A partition is essentially a "Service" unit. The purpose to which it is to be applied constitutes its service. A design is the result of analyzing what is necessary in flexible units to render that service.

To give service, the manufacturer must have an article that can be quickly fabricated and erected. To have such an article, he must standardize it to the limits of its possibilities. Ceiling heights and ceiling conditions are variable. It would be difficult to standardize ceiling height partitions and still maintain good proportion combined with good construction. This is recognized as a factor of utmost importance. Dahlstrom Standardization developments are based on a known factor—Cornice Height Partitions. This is the standard unit. Consequently it is possible to furnish Dahlstrom Cornice Height Partition in any quantity without waiting for information as to conditions at the building.

This means service to the building tenants as the Cornice Height can be obtained on short notice. The



Dahlstrom Steel Partition in the Paine-Webber Co. Offices, Chicago, Ill.

owner will be able to service his tenants by partitioning off the offices at the required time. This cuts the waiting time for occupancy of the building and means revenue to the owner.

Where partitions are to be built to the ceiling, information on the ceiling conditions can be forwarded later. Extensions harmonizing with the design of the Cornice Height Partitions can be made up to suit that particular condition.

From an economic standpoint, we recommend that interoffice partition be Cornice Height. This offers the utmost flexibility and is particularly suitable for ventilation.

Careful and rigid paint tests have proven the best pigments and finishing materials for use on Metal Doors and Trim. The results of these tests, experience and experiments are all incorporated in the New Improved Dahlstrom Partition.

Flexibility

One of the major qualities in the New Improved Dahlstrom Partition is its flexibility. For example: the location of a door cannot always be predetermined when an office layout is made. It is therefore important that the sections be so constructed that a door can be taken out and a panel inserted or vice versa.

This is flexibility and is possible in the New Improved Dahlstrom Partition.

Again, it must be so flexible that the floor space may be divided as desired. In the New Improved Dahlstrom Partition a new unit can be extended from each vertical pilaster, making it possible to divide the floor space in very small units.

In addition, a variety of design combinations can be effected, such as changing cross rail heights and interchanging of steel and glass panels.

The application of the glass retainer moulding is such that a variety of glass or metal panel thicknesses can be accommodated. It is adjustable from a small part of an inch up to $\frac{5}{16}$ in.

Another feature is the telescoping wall filler. This does away with the necessity of cutting such fillers on the job, which is the general practice.

(1) Dahlstrom Standard Steel Partition is stocked and comes in lengths of 10¼-in. multiples, i. e., No. 1, 10¼ in.; No. 2, 20½ in.; No. 3, 30¾ in.; No. 4, 41 in.; No. 5, 51¼ in.; No. 6, 61½ in.

(2) There are six widths of panel member increments of a multiple width. Thus a space for one six width panel can be filled with either two No. 3 panels; one No. 2 and one No. 4 panel; one No. 1, one No. 2 and one No. 3 panel, etc.

(3) Door units are made to suit the same multiple width factor. Irrespective of what type or width of panel, a door can be installed at any given point without disturbing adjacent panels.

(4) Standard pivoted transom can likewise be interchanged with stationary panels.

(5) Any panel can be removed without disturbing other parts of the partition, except where a change is desired.

(6) A partition can be set in any direction from a pilaster without use of special fillers.

(7) All pilasters are prepared to receive door jamb.

(8) Cross rail heights may be either Counter Height or File Height.

(9) Upper panels may be in either steel or glass or interchanged as desired.

Adaptability

Partition must be adaptable to all uses and needs of the modern office. A clothes closet may be needed or perhaps a wash stand within the office is desired. Then again a private telephone or coupon booth is essential in the larger offices. It may be desired to partition off the telephone operator's booth, or to install a railing around the information desk.

After the installation seems complete and a tenant has moved in, there are usually many changes such as these that must be made.

With the flexibility of Dahlstrom Standard Partition such additions can readily be made with standard units. It is unnecessary to remove an entire section of partition, even though it is desired to tie these additions into the present or erected partition.

SPECIFICATIONS FOR METAL PARTITIONS

Two Cornice Type—The partitions designated on the plans as "Metal Partitions" shall be the "Two Cornice" type, built in standard width units. The lower units shall be 7 ft. high supported by a continuous cornice, said cornice being reinforced by a No. 12 U. S. standard gauge steel structure member, so designed and constructed that it will furnish a rigid support for the lower partition units. This will constitute a "Cornice Height" partition.

Where the partition is called for on plans to be "Ceiling Height" furnish extension panels and transom units of proper height to be set on top of the lower partition unit. These panel units shall be symmetrical in design with the lower units and shall be supported at top with a continuous cornice. The height of upper cornice to be determined by the depth of lowest ceiling beam. Space above upper cornice to ceiling to be neatly fitted with two parallel sheets of steel or Sheet Rock wallboards, scribed to ceiling and around beams and painted by the Painting Contractor to match the walls and ceiling.

Single Cornice Type—The partitions designated on the plans as "Metal Partitions" shall be the "Single Cornice" type, built in standard width units.

Where "Cornice Height" partition is called for the cornice will be on a line of 7 ft. from finished floor. Where "Ceiling Height" partitions are called for on plans the cornice will be on a line of 9 ft. (or as selected to suit building conditions) from finished floor.

The cornice shall run continuously to give horizontal support and be reinforced by a No. 12 U. S. standard gauge steel structure member so designed and constructed that it will furnish a rigid support for the partitions.

Space between the cornice and ceiling shall be neatly fitted with two parallel sheets of Sheet Rock or other approved wallboard, scribed to ceiling and around beams.

The ceiling fillers shall be painted by the Painting Contractor to match the plaster walls and ceiling.

GENERAL SPECIFICATIONS

All units shall be built in multiple widths such as 10, 20, 30, 40, 50 and 60 in.

Single door units shall be interchangeable with either 30 or 40-in. panels. Double doors shall be interchangeable with 60-in. panels. The partitions shall be so constructed that door units can be interchanged with panel units without the necessity for disturbing any other units than those to be interchanged.

Finish—All concealed members shall be given one coat of rust-inhibiting paint. All exposed surfaces shall be finished in baked-on enamel (color to be selected) equal to the standard finishes employed by recognized manufacturers of hollow metal doors and trim.

Transoms—To be the center pivoting type with friction pivots and transom catch (if concealed operator is used transom catch can be eliminated).

Hardware—Each door, according to location, to have—

For corridor doors to offices:

1½ pair of ball bearing butts 4½x4½ in.
1 cylinder lock set
1 door closer with hold open arm

For communicating doors between offices:

1½ pair of ball bearing butts 4½x4½ in.
1 communicating lock set
1 door closer with hold open arm

Glass—Shall be furnished by partition contractor to be as follows: (specify kind of glass).

Railing—Shall be 36 in. in height and symmetrical in design with partitions. Gates shall be hung on standard gate pivots and shall be double acting (where single acting gate is required a stop shall be furnished to be applied to the gate stop post). Railing tops shall be bronze.

EMPIRE STEEL PARTITION CO., INC.

Fifteenth Avenue and 120th Street, COLLEGE POINT, N. Y.

Products

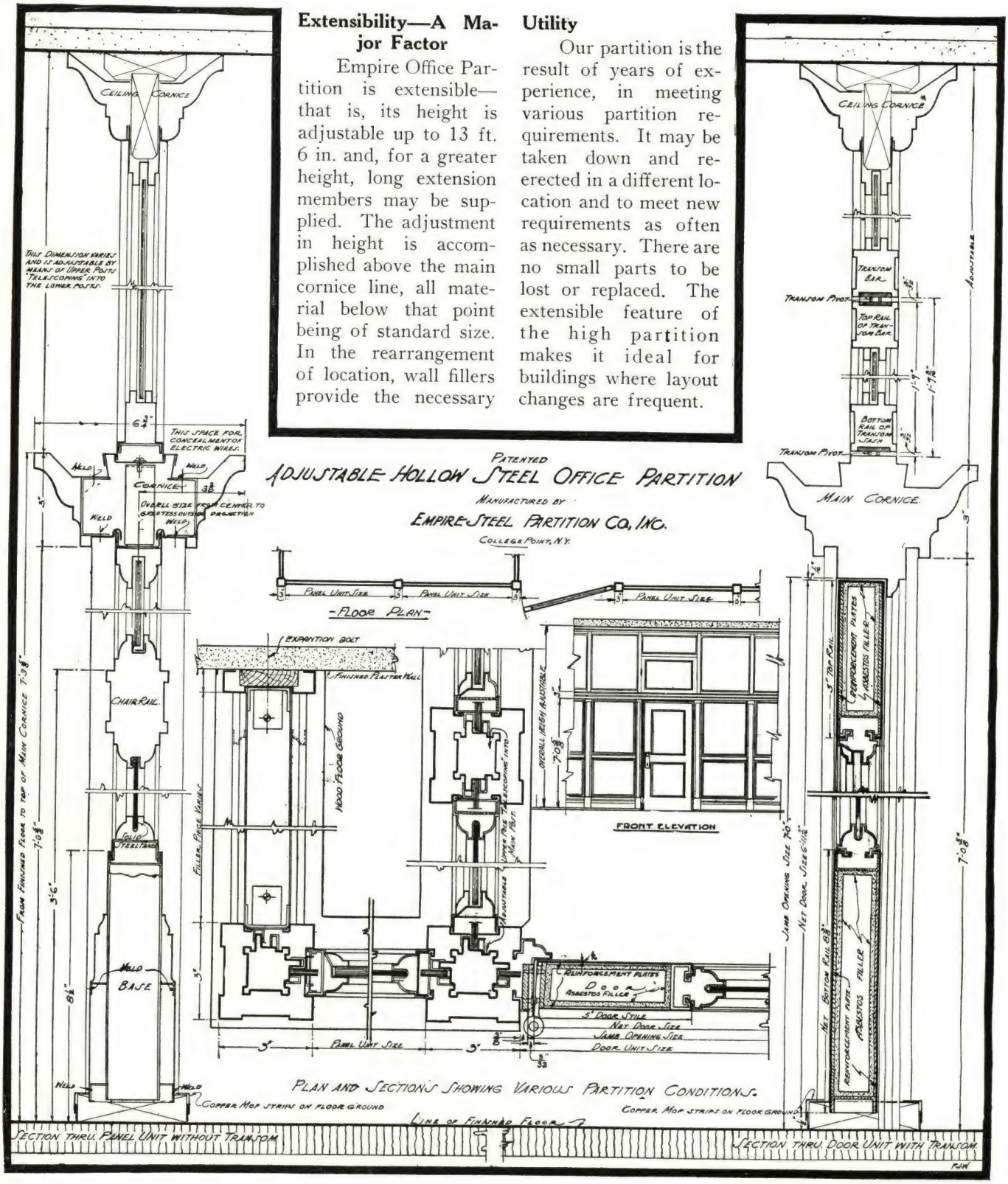
Extensible Steel Partitions.
Steel Office Railings.
Steel Coupon Booths.
Also Toilet Stall Partitions.

Extensibility—A Major Factor

Empire Office Partition is extensible—that is, its height is adjustable up to 13 ft. 6 in. and, for a greater height, long extension members may be supplied. The adjustment in height is accomplished above the main cornice line, all material below that point being of standard size. In the rearrangement of location, wall fillers provide the necessary adjustment. The floor leveling ground, covered with bronze or copper, serves also as a mop strip. This ground, being of a continuous straight line, with no pilaster bases protruding, has no corners or pockets to collect dirt. It thereby makes for a sanitary condition.

Utility

Our partition is the result of years of experience, in meeting various partition requirements. It may be taken down and re-erected in a different location and to meet new requirements as often as necessary. There are no small parts to be lost or replaced. The extensible feature of the high partition makes it ideal for buildings where layout changes are frequent.



Strength

Empire Extensible Partition remains sturdy at any height. Its pilaster members are firmly interlocked, thereby insuring strength and durability. Units are fully reinforced and welded by means of the acetylene and electric spot-weld process. All fastenings are concealed.

Economy

Empire Extensible Partition is designed so that all parts may be fitted together quickly on the job.



City of New York—District Attorney's Offices
Empire Steel Office Railing. We also make paneled office railing of same design as partition units

The extensible feature insures real economy, particularly in rearranging layout. The adjustable upper pole takes care of the varying ceiling heights so common to present day building construction. Purchasing of extra parts is therefore unnecessary.

Sizes

Standard sizes of units run in multiples of 6 in. from 12 to 48 in. but special sizes may be provided if required. Standard size of door is 3x7 ft. Other sizes, however, may be furnished if required. The height of the low partition is 7 ft. 3⅝ in. from floor to top of main cornice. Transoms, wickets, pass windows, etc., are furnished in doors or units if required.

Design and Finish

Empire Partitions are designed to combine beauty with strength and durability.

Finishes are baked-on enamels, in a variety of plain colors, or imitation of the finest grained natural woods. This makes it possible to have the finish of partition harmonize with office furniture or other surroundings. The baked-on enamel combines toughness, hardness and elasticity—a combination of features not possible to attain with air-dried finishes.

Erection

Empire Partition, due to its unique construction, may be taken down and re-erected in a minimum of



Brooklyn Municipal Building, Brooklyn, N. Y.
Empire Steel Partition—cornice height with grille, and ceiling height with glassed-in upper portion

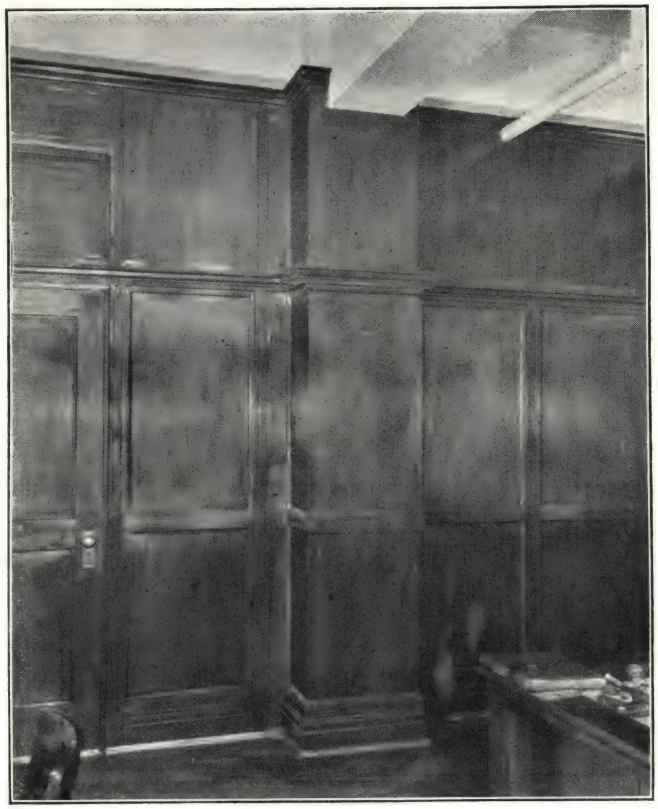
time, and at a minimum of cost, and without loss or damage to material. It therefore may be used over and over again.

Service

We maintain a force of skilled erection mechanics and carry in stock at all times at our factory a large quantity of partitions, ready for finishing. Our engineering staff is available at all times to assist in laying out and detailing partition requirements. The small order receives the same prompt attention as the larger order.

Installations

We shall be glad to furnish, upon request, a partial list of notable installations we have made.



Office of Celluloid Corporation, 38 West 40th Street, New York, N. Y.
Empire Steel Partition—walnut finish, ceiling height, all metal panels

HYDE-MURPHY COMPANY

Manufacturers of Takapart Portable Partitions

RIDGWAY, PA.

DIVISIONAL SALES OFFICES: 114 E. 32nd Street, NEW YORK, N. Y.
BRANCH OFFICES IN ALL PRINCIPAL CITIES

Products

PATENTED TAKAPART OFFICE PARTITIONS and RAILINGS in *Steel* in *Wood*.

For Doors and Woodwork, see Manufacturers' Index.

What Takapart Is

A high grade portable partition consisting of standard interchangeable units to take care of any layout both horizontally and vertically, and designed so that absolute rigidity is obtained irrespective of the length of the partition involved. No long continuous cornices or bracing are required, for each section unit is complete in itself—complete cornice, chair rail, panel, and base. Section units and section door units are of standard widths and are interchangeable with each other.

Complete details and working specifications sent on request.

Recent Installations

Stone & Webster Building Corporation
New York Telephone Company
Southern New England Telephone Company
New Amsterdam Casualty Company
Underwood Typewriter Co.
Mt. Sinai Hospital
New York Curb Exchange

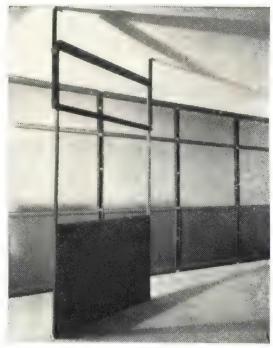


General View of Executive Offices of a Prominent Shipbuilding Corporation

This unusually long installation illustrates that irrespective of the length involved, *Takapart* is always as straight as a die

One or a Thousand Sections Equally Rigid

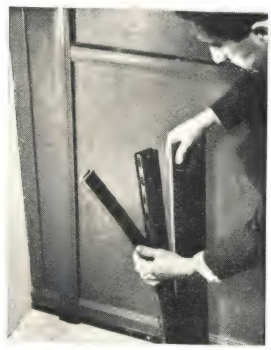
Takapart units are joined together and held in a rigid upright position by a structural steel member provided at every unit. This structural steel member is adjustable to various ceiling or beam heights and serves as an invisible support for the finished ceiling filler above the cornice line





Units Added in Any Direction with No Corners, Right Angles or Splices to Cut or Fit

Reducing or enlarging an office with *Takapart* means just adding or deducting units without cutting of any part whatsoever, as the individual strength members for each unit make continuous longitudinal cornices unnecessary



Soundproof and Lightproof—Adjustable Wall Connection Members

Adjustable to any regular or irregular wall without cutting and fitting. Loose wall connection members are eliminated because the metal tongues force the rubber channel to adapt itself to the contour of the wall. The flexible rubber channel leaves no openings between the wall and partition. This construction eliminates the necessity of taking dead accurate dimensions for partition layouts



Puttyless Glass Moulding

Watch any glazier remove a light of glass that has been puttied in place and you will appreciate what an advantage it is to remove and install glass without putty. Clear glass changed to obscure or vice versa, when desired, is a simple matter when *Takapart* is used

Electric Wires Do Not Interfere with Flexibility of Units

There are three holes in the structural steel members that serve as a runway above the cornice line for electric cables. Here they are carried along to the location for the desired switch or outlet, where they do not interfere with the interchangeability of door and section units. The partition therefore retains its complete flexibility while the electric cables are always accessible. The usual method is to draw the cable through the section rails or base, thus destroying the interchangeability of units



THE GLOBE-WERNICKE COMPANY

PARTITION DIVISION

CINCINNATI, OHIO

FACTORIES: CINCINNATI, OHIO, AVENEL, N. J.

DIRECT FACTORY BRANCHES AND REPRESENTATIVES IN ALL PRINCIPAL CITIES

PRODUCTS

Partitions—Office and industrial types in steel or wood; a design and construction to meet every requirement of division or sub-division of office or industrial space.

Globe-Wernicke partitions in either steel or wood are constructed for ease of erection, removal and re-erection to meet changing conditions without sacrificing rigidity or appearance. They are entirely salvagable and completely interchangeable.

GlobeArt Type 800—A superior steel partition for fine office installations. Built in correct architectural proportions of heavy steel sections, fitted with Globe-Wernicke "Steelpact" insulated panels and "Reversible" doors, an ideal partition for use where appearance and service are of paramount importance. See details on following pages.

GlobeArt Type 500—Similar in construction to Type 800 but employing a continuous basemould.

Unit Steel Type 700—The ideal steel partition for office division or sub-division when low first cost is essential, constructed of heavy interchangeable members securely locked together, substantial and neat in appearance. Details are shown on following pages.

Unit Steel Type 750—A partition for all industrial purposes, general construction of "Type 700" but omitting architectural ornamentation.

Globe Wood Partition—For the sub-division of office space where the beauty of fine cabinet work is desired. Modern design, easily modified to meet particular architectural requirements, sectional construction with custom built appearance, rigid, durable and low in cost. Scale details on following pages.

Wall and Wainscot Panelings in Steel or Wood—Built of partition units to member with sub-dividing partition walls or built special to architects' details.

Bank, Loan and Brokerage Office Equipment—Including screens, counters, storage and filing facilities in either stock or special designs, wood or steel.

Other Products

In addition to the foregoing, THE GLOBE-WERNICKE COMPANY also manufactures special built court room furniture, library equipment, steel furniture, special steel equipment, filing devices and can handle complete installations under one contract. For these products see Manufacturers' Index.

The Company

Fifty years' experience in the construction of metal equipment and the building of fine cabinet work, in plants unexcelled in production facilities, combine to produce a standard of real excellence in Globe-Steel and Globe-Wood Partitions.

At Cincinnati over forty acres of floor space are employed in the making of both steel and wood products; at Avenel, New Jersey, over thirty acres of floor space are used entirely for the manufacture of steel equipment and the warehousing of wood partition.

Large stocks of standard steel and wood partition are carried at both Cincinnati and Avenel for immediate shipment. The location of these plants insure prompt delivery service to all points.

Service

To co-operate with architects and engineers in the planning of office and industrial layouts and the design of special equipment, a staff of designers are maintained. Their services are always available without obligation.

Globe Partitions in either steel or wood are simple to erect, remove or re-erect. Especially skilled or trained labor is not required. With the assistance of the printed instructions furnished, the average house carpenter finds no difficulty in erecting the most complicated layouts.

When required or specified, partitions will be erected by Globe-Wernicke erection specialists. Trained in both factory and field, their service insures prompt and satisfactory installations anywhere.

Information

General descriptions, details and specifications of the several types of Globe-Wernicke Steel and Wood Partitions will be found on the following pages. Additional data in the form of architects' folders and detail sheets including typical and special arrangements of offices, banks and financial institutions will be gladly sent to those interested.





GlobeArt Steel Partition in Offices of Eagle Picher Lead Co.

GLOBEART TYPE 800 STEEL PARTITION

General

GlobeArt steel partitions are the result of many years' experience in the building of steel partitions and fine steel office equipment. Ease of erection, removal and re-erection is made possible by quickly assembled, standardized parts. This is an item of first importance in office planning where changes in arrangement are so frequently required. Built on the unit system, all parts are completely interchangeable and can be used over and over should occasion demand, insuring 100% salvage value.

In appearance GlobeArt steel partition is modern in trend with clean cut lines and well proportioned members. Proper architectural balance and symmetry has been maintained without the sacrifice of strength or rigidity.

Construction—Only the finest grade of cold rolled furniture stock steel is used and all parts are accurately machined and fitted.

Cornice—Rolled from one piece of 18 gauge steel in lengths as long as can be conveniently handled. Abutting ends are ground true to insure a perfect joint and alignment is obtained by means of inside liners and wedges. Adjoining lengths and angles are securely bolted together through heavy angle plates welded inside the cornice frame.

Cornice can be placed at 7 ft. 3½ in., 8 ft. 3½ in., 8 ft. 9½ in., 9 ft. 3½ in., 9 ft. 9½ in. and 10 ft. 3½ in. from floor. Superstructure may be used above cornice with either Steelpact or glass panels or where desired, a continuous top filler of steel or composition board may be used above cornice to form ceiling height partition.

Units—Made in standard widths of 20, 30, 40, 50 and 60 inch and are interchangeable, two 20-in. units filling the space of a 40-in. unit or vice versa. Horizontal members, chair rails, top and bottom rails and transom bars are framed and fitted to verticals at the factory. There are no open joints, cracks or crevices between members. The trussed construction of the verticals tightly locked together with heavy four-point-lock concealed clips form a rigid structural post.

Post Caps—Securely snap into verticals throughout their entire length. They cannot become loosened or unattached through vibration or jarring, yet their construction permits of easy removal for access to wiring.

Any one-way post can be instantly converted into a two, three or four-way post without removing or disturbing previously erected structure. Corners and angles are symmetrical, presenting a neat appearance from any point of view.

Base and Plinths—Adjustable to compensate for variation in floor levels and are quickly detached for access to wiring. No exposed screws are used in attaching base or plinths. Shoe mould and plinths can be of steel finished to match partitions or made of bronze, Alleghany or other metal.

"Steelpact" Panels—Consist of outer sheets of stretcher leveled steel cemented to an inner core of Celotex and are regularly furnished below chair rails. These panels may also be used above chair rails to cornice when desired. Steelpact Panels insure the elimination of metallic noise and vibration so frequently found in steel partition, reduce reverberation and afford a maximum degree of sound insulation.

Glazing—Easily done in Globe Art steel partition. Glass is held in place by one spring clip glazing mould. No unsightly exposed screws are required.

Doors—Made in 30 in. and 40 in. unit widths and are interchangeable with units. Standard GlobeArt doors are reversible. Changing the swing or hand of the door from right to left, in or out, using the same jambs and hardware is quickly accomplished. This feature guarantees 100% flexibility and salvage value. At no time is a door or set of jambs unuseable.

Adjustment of height of door to accommodate variation in floor levels and provide clearance for rugs and carpets is taken care of by means of the adjustable head jamb. GlobeArt doors always fit and hang "Just Right." See detail on page C3300.

Accessories—Transoms, louvres, wickets and grilles are obtainable in standard units. Transoms are horizontally pivoted and operated by concealed adjustors.

Hardware for Doors—Consists of 1½ pair of Stanley ball bearing butts and either bit key or cylinder locks or latches as required. U. S. No. 9 polished bronze or U. S. No. 18 bower barff finishes are standard, other finishes can be furnished when specified.

Wiring—Channels of ample proportion to accommodate conduit and outlet boxes are provided in base, chair rail, posts and cornice. All wiring can be easily concealed and is equally easily accessible.

Finish—GlobeArt steel partitions are furnished in a wide variety of colors and shades, both plain and grained, to match or harmonize with any surroundings. Prime and finish coats of the best quality of rust resisting enamels properly applied and baked on, creating practically indestructible and distinctly beautiful surfaces.

All concealed partition parts are prime coated. Clips and connecting members are copper plated.

Specifications GlobeArt Steel Partition Type 800

Steel partitions to be of standard manufacture similar and equal to GlobeArt Type 800 as manufactured by THE GLOBE-WERNICKE COMPANY.

Steel to be of best grade cold-rolled, full pickeled, furniture stock. Partitions to be made up of vertical sections in 20″, 30″, 40″, 50″ and 60″ center to center post dimensions. Width of sections shall be arranged to form symmetrical layouts where possible.

Cornice height shall be as shown on plans. Cornice to be of one piece 18 gauge metal and to be continuous over posts. Section verticals are to be 18 gauge metal and to have at least twelve formed angles to provide required stiffness. Base, chair rail, top and bottom rails and transom bars are to be formed up of 20 gauge metal. Vertical sections are to be framed and assembled complete at factory.

Panels shall be ⅜″ thick consisting of two sheets of stretcher leveled steel securely cemented to an inner core of sound deadening material. Post caps shall be constructed to securely snap into sections throughout their entire length and be easily removable for access to wiring. Base and plinths are to be adjustable to provide for variation in floor levels and are to be detachable for access to wiring.

Doors shall be one (or two) panel with stiles and rails constructed of 18 gauge metal. Door units to be 30″ or 40″ wide for single doors, 60″ wide for double doors. All doors and door frames shall be completely reversible as to hand and swing without the use of additional parts and without change of hardware. Rails and stiles of all doors to be cork filled to deaden metallic sound. Head and side jambs to be adjustable.

Hardware to be manufacturers standard subject to approval. Each door to be equipped with 1½ pair of 4½x4½ Ball-Bearing steel butts. Locks for all doors to be (specify type). Transoms or vents to be horizontal pivoted, operated by concealed adjustors.

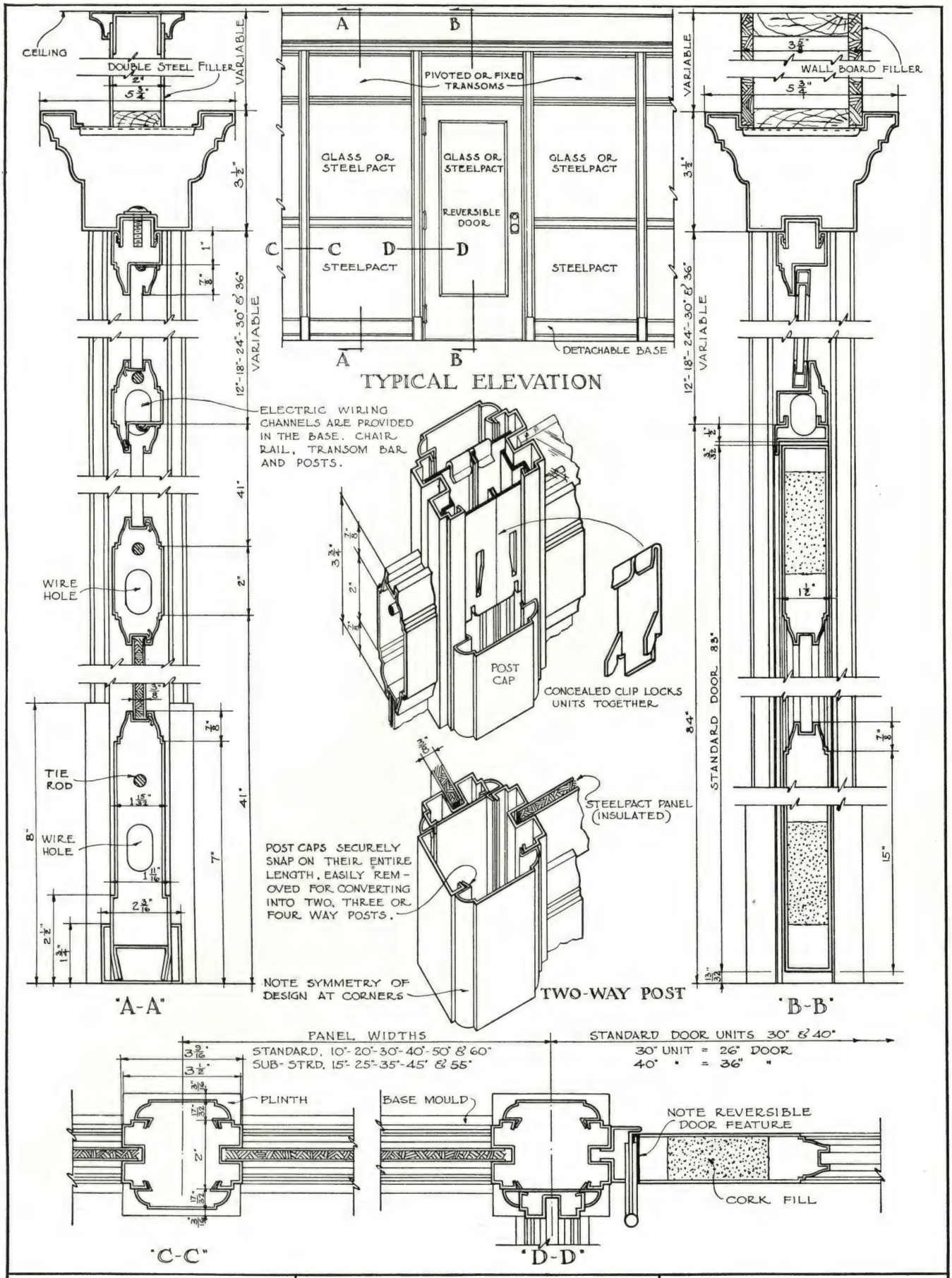
Glass where shown on plans to be of kind and weight indicated. Each light of glass shall be bedded in special steel partition putty colored to match the partitions. Loose glazing strips where used, shall be held in place by concealed clips. No face screws will be permitted.

Top filler above cornice to ceiling to consist of two continuous sheets of steel or composition board scribed to walls, beams and ceiling and painted to match ceiling (or, space above cornice to be filled with a superstructure with an additional cornice placed under lowest beam or pipe and continuous filler above second cornice to ceiling).

All shims, clips and concealed fasteners shall be copper plated to prevent rusting. Partitions are to be prime coated all over, properly baked and finished with color coats to give a finish guaranteed not to chip or crack under severe usage (specify if color or grained effect is desired).



Typical GlobeArt Installation



The Globe-Wernicke Co. CINCINNATI	Globe Art Type 800 STEEL PARTITION	SCALE SECTIONS 3" = 1'-0" ELEVATION $\frac{1}{4}$" = 1'-0"

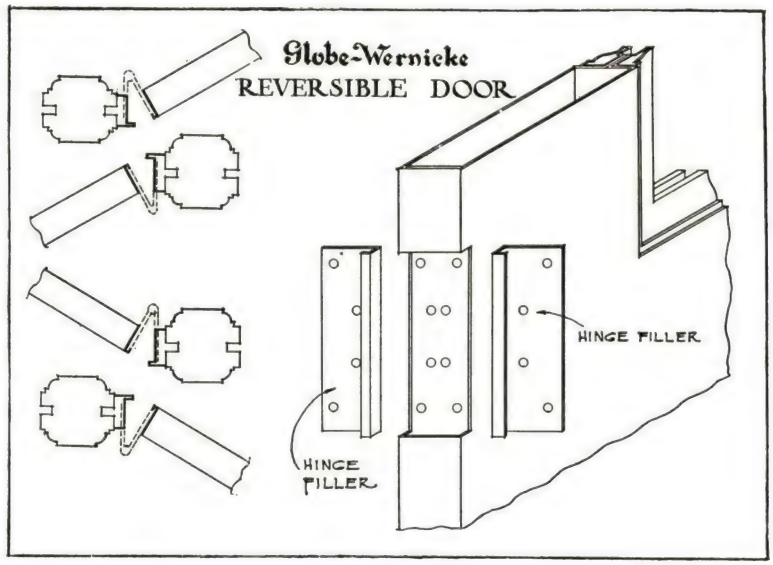
GLOBE-WERNICKE UNIT STEEL PARTITIONS

Types No. 700 and No. 750

General

The many thousands of lineal feet of Unit Steel Partitions in use today in various kinds of offices, institutions, schools, and industrial plants, is the best evidence of its satisfactory service.

The unique construction of the interlocking horizontal and vertical members all standardized units—makes it possible to build partitions of every type and size, to meet any condition or requirement, with stock parts requiring no special fabrication. Railing can be built of 42 in. high units, and quickly changed to 7 ft. or ceiling high partitions, should they be required. A variety of assemblies can be built of the same standard parts. Door and panels are interchangeable.



Single sheet steel panels or double insulated panels can be furnished. For glass panels, steel retainers with heavy felt cushions are supplied. Glazing is easily done without putty. Panel openings are of standard glass sizes. Replacements are easily and quickly made. Wire mesh panels can be used in lieu of glass or steel.

Doors are of one or two panel, single, double, or sliding. Hinged doors are reversible.

Type 700 Unit Type Partition is fitted with a 5⅝ in. high base, plinth blocks and moulded cornice. Type 750—the "Industrial" partition is similar in detail to type 700 but without base, plinths, and cornice.

Complete construction details, plant layouts and photographs of many types of installations are available for architects and engineers.

General Specifications

(1.) Materials—All partitions to be standard Unit Steel (Type 700 or 750) assemblies as manufactured by THE GLOBE-WERNICKE COMPANY, Cincinnati, Ohio, and shall be first class in materials and workmanship.

(2.) Steel—Steel to be furniture stock, stretcher leveled and not lighter than 20-gauge.

(3.) Panel Spacings—To be made up in not more than 48 in. widths, except where this spacing is not practical, then panels will be reduced in units of 6 in. multiples. All steel panels to be single sheet or double insulated and to be mounted in heavy felt strips, and to be secured to horizontal and vertical members.

(4.) Interchangeability—All partition panels to be interchangeable with doors of like dimensions, such changes being made without dismantling the partition.

(5.) Erection—Partitions to be erected as shown on plans, all to be properly plumbed and leveled. Fasten all partitions securely to floor (and ceiling where called for) and ceiling and ends finished with the necessary scribing strips.

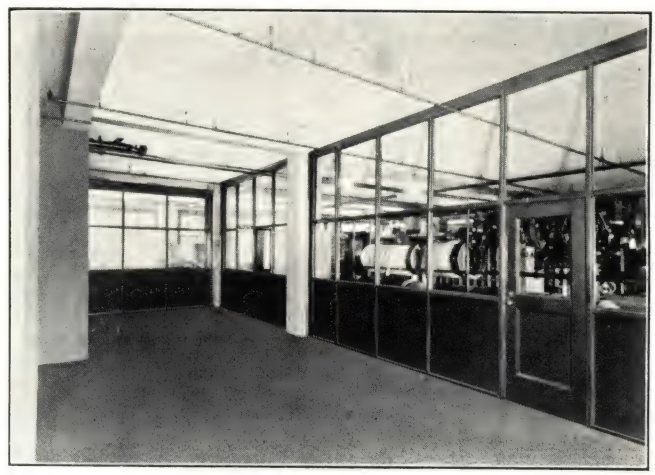
(6.) Finish—All shims, clips and concealed fasteners shall be copper plated to prevent rusting. Partitions are to be prime coated all over, properly baked and finished with color coats to give a finish guaranteed not to chip or crack under severe usage.

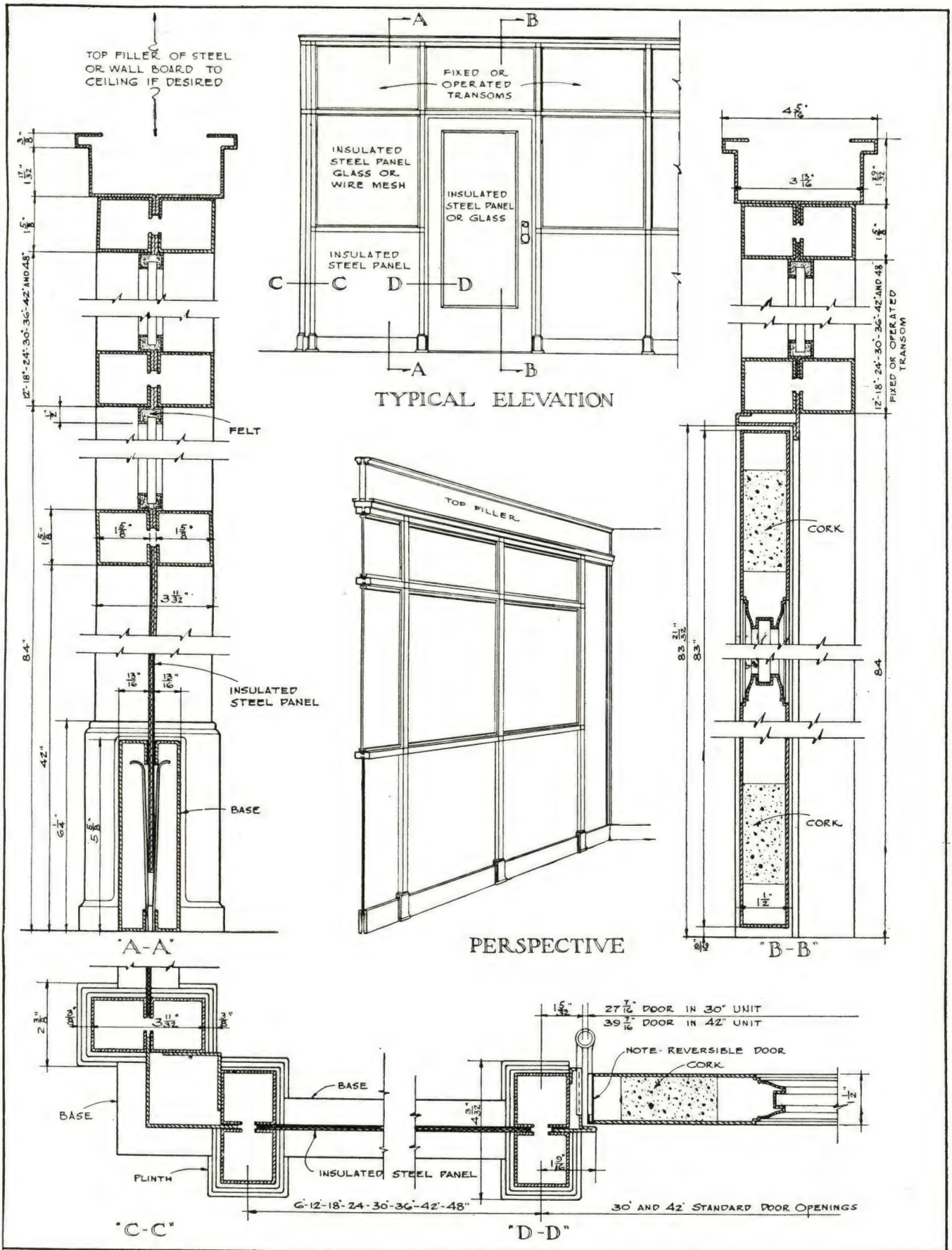
(7.) Glass—All glass to be set in heavy felt cushions mounted in metal retainer strips. No putty to be used.

Glass to be.....furnished by.....
and set by .....

(8.) Doors—To be completely reversible so that they may be hung for right hand, right hand reverse, or left hand reverse.







The Globe-Wernicke Co. CINCINNATI	STEEL PARTITION TYPE 700	SCALE 3" = 1'-0"

GLOBE WOOD PARTITIONS AND CABINET WORK

General

Globe wood partitions offer all the advantages of sectional construction, flexibility, movability and high salvage value with correct architectural proportions and an appearance of permanent "built-in" cabinet work.

Ideal for the sub-division of office space where the natural beauty, life and warmth of fine wood work is desired. Specially suited for financial, loan and brokerage offices, show or display rooms in combination with Globe standard or special counters and cases.

Railings and wall panels to match each of the several designs afford a wide range of styles to meet exacting requirements.

Materials and Construction

Only the finest grades of American walnut, mahogany, quartered white oak or quartered gum enter into the construction of standard Globe partition and accessories. Other fine woods can be used when specified. Facings of posts, cornices and base, and stiles and rails of sections are built of solid lumber securely glued to chestnut cores. Panels are full 9/16" thick, cross banded veneered. Door stiles and rails are constructed with built up cores and heavy face veneers.

Design—Section widths and in multiples of 4" from 1' 2" to 3' 10" center to center of posts. This wide range of sizes permits of a symmetrical arrangement of sections in practically any space. Scribing pieces take up the difference between standard section widths and the space to be filled. Wall plates moulded to match posts fit snugly against walls and form neat appearing panels.

Doors are interchangeable with sections and are standard for 2' 10" and 3' 2" center of post spacing. One or two panel doors are standard either 1 3/8" or 1 3/4" thick as desired. Doors are reversible and hung to three loose pin butts. Transoms are either pivoted or hinged as desired. Standard hardware consists of door butts, bit key or cylinder locks, transom pivots or hinges and transom adjustors. Standard finishes are polished bronze and Bower Barff.

Several styles of cornices to harmonize with any design of interior trim are available, all interchangeable with standard posts and sections.

Globe wood partitions are built in three distinct types, 7' 1 3/4" cornice line, open above to ceiling; 8' 6" cornice line with filler to ceiling; 7' 1 3/4" high cornice line with superstructure to ceiling, or a combination of superstructure and filler to ceiling. Railing is standard in 36" and 42" heights with either open or closed base.

Adjustment to floor is simply and easily made by means of adjustable splines and wedges. No blocking or shimming is required. Base is grooved to conceal nailing and shoe strips take up any irregularities in floor level. Ample wiring channels are provided in base, posts and cornice, completely concealing all wiring.

A wide variety of counters, cases and filing equipment to harmonize with partitions and railings are made in standard units or can be built to meet special requirements.

Finish—Globe wood partitions can be furnished completely finished or "in the white" for finishing on the job. Our unexcelled finishing facilities and years of experience in the finishing of fine cabinet work is a guarantee of "finish satisfaction." Samples of Globe standard colors and shades are available for the use of architects or others interested. Special finishes to architects' specifications are furnished when required.

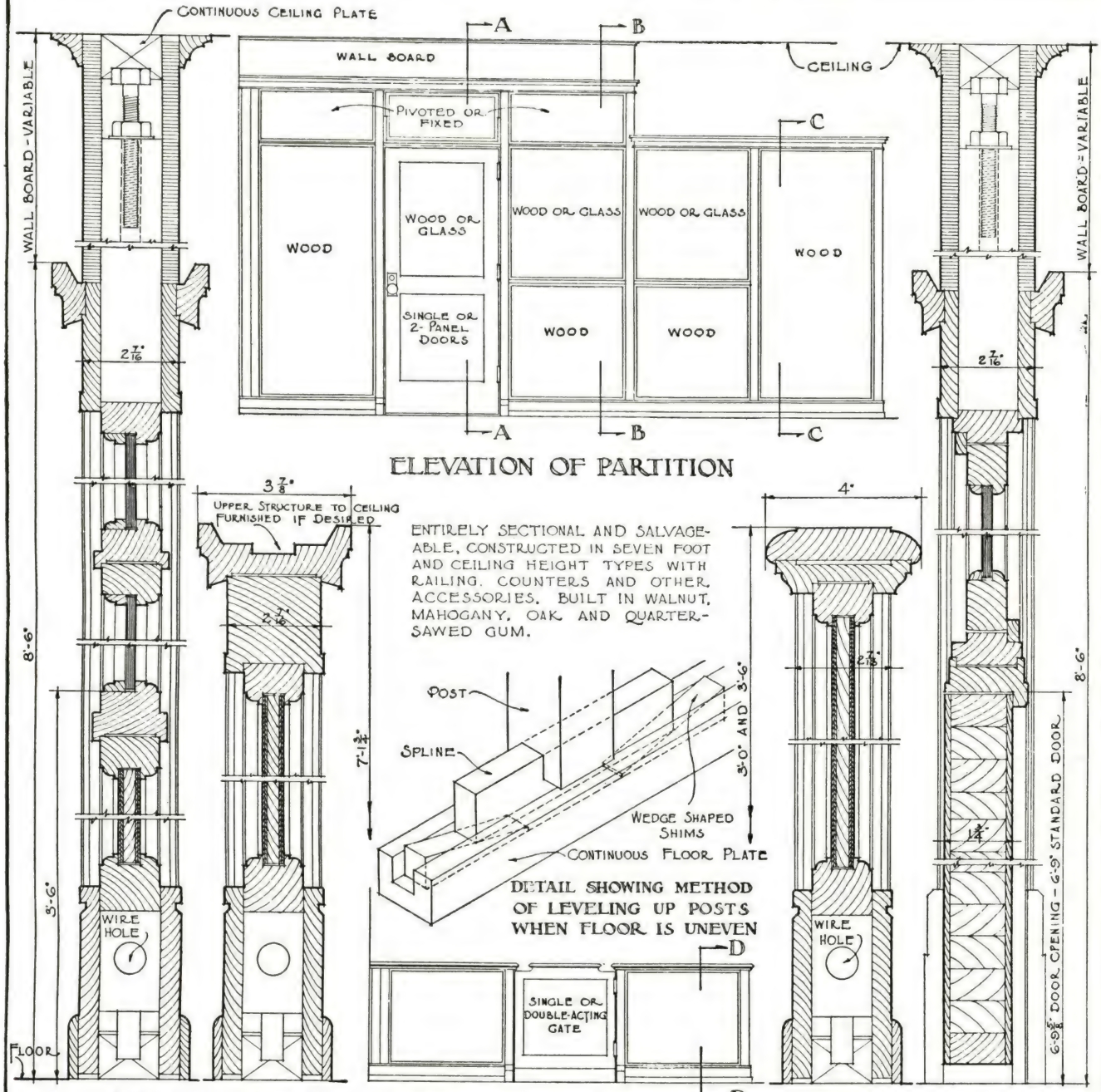
Service

A large stock of Globe wood partition is carried at all times for immediate shipment. Special requirements can be taken care of quickly and prompt deliveries made. Globe wood partitions are easy to erect and especially skilled labor is not required. The average house carpenter can erect the most complicated layout by following the complete erection drawings and instructions furnished. When desired, partitions will be erected by our erection specialists.

Drawings and photographs of various types of installations, details of standard and special financial screens, cases, etc., are gladly furnished.

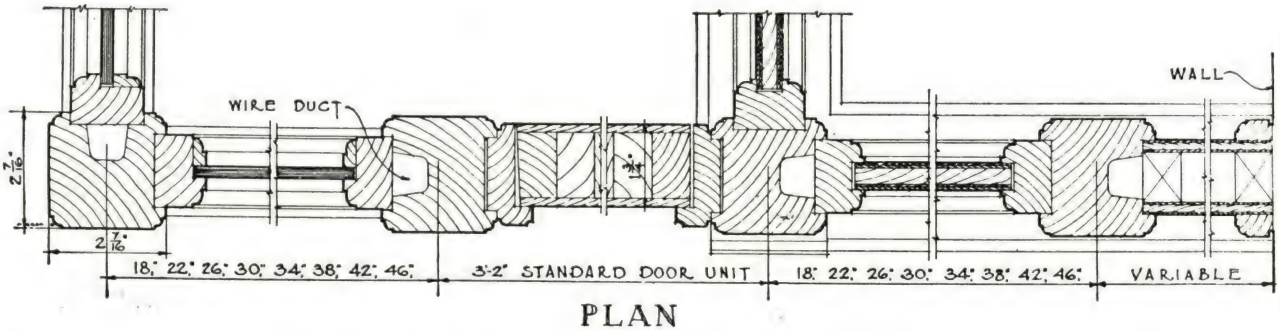






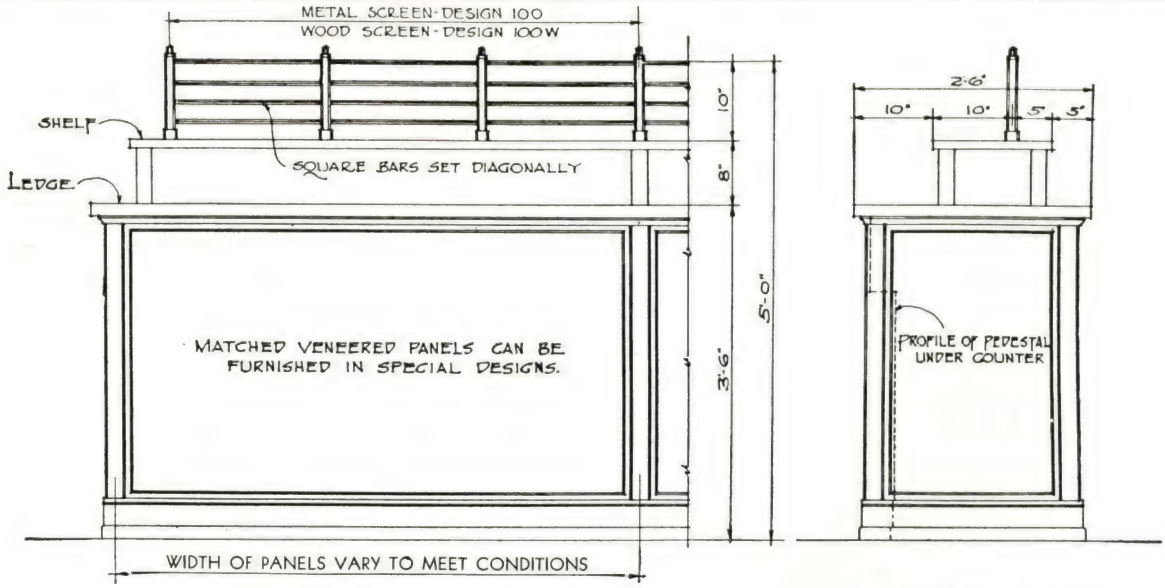
ELEVATION OF PARTITION

"B-B" "C-C" ELEVATION OF RAILING "D-D" "A A"



PLAN

The Globe-Wernicke Co. CINCINNATI	SECTIONAL WOOD PARTITION TYPE 100	SCALE SECTIONS 3" = 1'-0" ELEVATIONS 1/4" = 1'-0"



ELEVATION OF PUBLIC SIDE

EXPOSED END

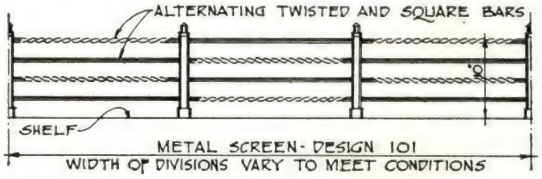
NOTE:-
ALL COUNTERS ARE BUILT SPECIAL TO FIT EACH CONDITION AND ARE DESIGNED TO COMBINE WITH GLOBE-WERNICKE SECTIONAL PARTITIONS, RAILING, FILING AND STORAGE EQUIPMENT.

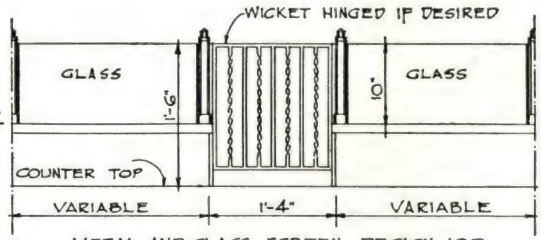
COUNTERS AND EQUIPMENT ARE MANUFACTURED IN WOOD OR STEEL AND COMBINATIONS OF WOOD AND STEEL.

METAL SCREENS:-
CAN BE FURNISHED IN SOLID BRONZE, SOLID WHITE METAL, CROMIUM PLATED AND WROUGHT IRON.

WOODWORK:-
CAN BE FURNISHED IN GENUINE WALNUT, GENUINE MAHOGANY, GUM, BIRCH AND OAK, IN ANY FINISH DESIRED. MATCHED VENEERED PANELS CAN BE PROVIDED IN SPECIAL DESIGNS.

SHELF AND COUNTER TOP:-
CAN BE FURNISHED IN WOOD, MARBLE, LINOLEUM AND RUBBER COVERED, FORMICA OR MICARTA. BLACK GLASS DEAL PLATES COUNTERSUNK INTO TOP WHEN DESIRED.





METAL AND GLASS SCREEN DESIGN 102

GLASS:-
CAN BE CLEAR POLISHED PLATE, OBSCURE OR ETCHED.

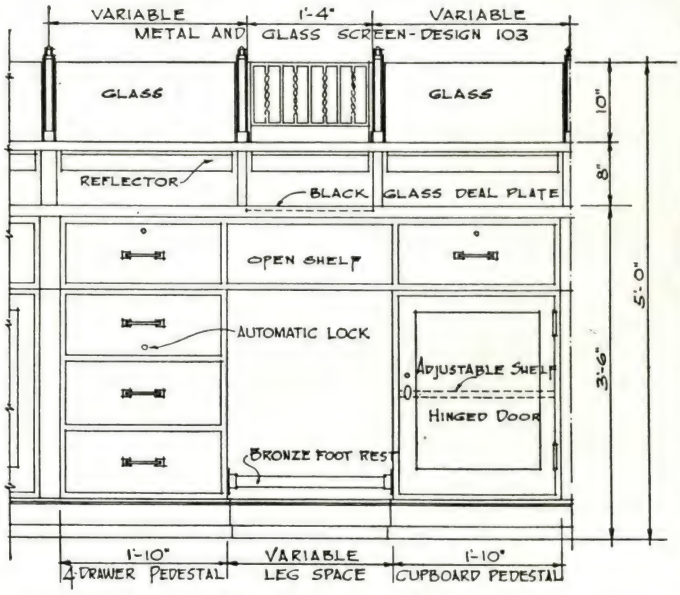
EQUIPMENT:-
EQUIPMENT UNDER COUNTER CAN BE FURNISHED IN EITHER WOOD OR STEEL AND IN ANY COMBINATION OF STANDARD OR SPECIAL FILING AND STORAGE UNITS DESIRED.

DRAWERS:-
CAN BE PROVIDED WITH BALL BEARING EXTENSION SLIDES AND FITTED WITH REMOVABLE MONEY TRAYS AND INSERTS.

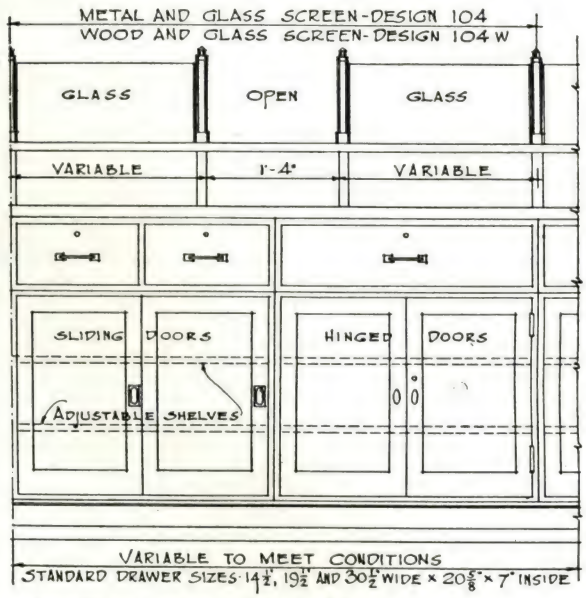
BASE:-
CAN BE FURNISHED IN WOOD, MARBLE, BRONZE, RUBBER, FORMICA AND MICARTA.

HARDWARE:-
CAN BE SOLID BRONZE, SOLID WHITE METAL OR CROMIUM PLATED.

LOCKS:-
LOCKS ARE PROVIDED ON DRAWERS AND CUPBOARDS ONLY WHEN ORDERED



SUGGESTION FOR BANKING COUNTER



SUGGESTION FOR LOAN & BROKERAGE OFFICES

ELEVATIONS OF WORKING SIDE

The Globe-Wernicke Co. CINCINNATI	· WOOD · COUNTERS ·	SCALE ½" = 1'-0"



MODERN MONOLITHS SUBDIVIDE WITH

HAUSERMAN MOVABLE STEEL PARTITIONS

47 POINTS *to check*

WHEN PURCHASING PARTITIONS

Within the last few years, Steel Partitions have come into such universal use that it is essential to have a proper understanding of their mechanical details and advantages which each affords the user. Therefore, we are presenting 47 major points which affect the permanent value of partitions; every one of which is vitally important to the partition user, not only today, but in years to come.

"HAUSERMAN MOVABLE STEEL PARTITIONS ARE PERMANENT ASSETS"

1. *Appearance:* Do the partitions provide a liveable atmosphere with universal appeal?
2. *Workmanship:* Are all parts perfectly fitted and interchangeable?
3. *Panelling and Wainscoting:* Are the partitions suited to form completely panelled rooms?
4. *Embrasures:* Are attractive window treatments provided?
5. *Finish:* Will the finish be long lived?
6. *Colors:* Does the manufacturer offer wide ranges of well chosen background colors?
7. *Beauty of Graining:* Is the graining a faithful reproduction of fine wood paneling?
8. *Railings:* Are railings rigid, straight and well designed?
9. *Method of Levelling:* Is a level foundation provided?
10. *Floor Connections:* Is there a substantial floor anchor?
11. *Harmony in Unit Widths:* Will the unit sizes exactly fit any layout?
12. *Range of Heights:* Do the range of partition heights permit perfect standardization for any installation?
13. *Simple Rigid Assembly:* How are the partition units fastened together?
14. *Design of Door and Frame:* Are doors and transoms factory fitted to frame?
15. *Clearance Under Door:* Do the partitions have a floating door frame?
16. *Floor Contact:* Is adjustable floor trim furnished?
17. *Universal Posts:* Can a cross-run of partition be started from any post at any time without disturbing the original installations?
18. *Design of Transom and Ventilators:* Can transoms and ventilators be installed when and where needed?
19. *Concealed Transom Operators:* Is the transom operated by a well designed concealed mechanism?
20. *Cornice Profile:* Is the cornice a crown mould of distinction?
21. *Cornice Corners:* Can cornice be rearranged in any combination of corners or intersections?
22. *Cornice Joints:* Is the cornice splice of the internal expanding pull together type?
23. *Gauge and Quality of Steel:* Are gauges and quality of steel adequate and best quality?
24. *Rolled Shapes:* Are all members rolled of heavy gauge steel?
25. *Wall Closures:* Do the wall closures provide for ease of scribing, re-use and variation from wide to narrow spaces between the last section and wall?
26. *Ceiling Closures:* Are ceiling irregularities unnoticeable?
27. *Superstructure:* Are standard partitions readily extended to any required height?
28. *Glazing:* Are glazing beads screwed or driven on—or an integral part of the panel unit?
29. *Wickets and Grilles:* Are all accessories developed and readily available?
30. *Rigidity:* Is proper reinforcement provided?
31. *Concealed Wiring Facilities:* Can the partition be completely wired electrically?
32. *Electrical Fittings:* Does the manufacturer furnish a complete line of electrical fittings and facilities for wiring?
33. *Hardware:* Can you use any type of lock set in any door at any time?
34. *Replacement of Damaged Parts:* Can any individual part be removed and replaced at any time?
35. *Picture Hooks:* Can pictures be hung on the partitions?
36. *Ease of Erecting and Rearranging:* Do minor changes of layout necessitate major operations?
37. *Removal of Units:* Can units of different sizes be interchanged without disturbing the cornice?
38. *Steel or Glass Units:* Can glass or steel upper panels be interchanged readily?
39. *Interchangeability of Doors and Units:* Can door units and panel units be interchanged even when they differ in width?
40. *Cut-down Units:* Can a panel unit be cut down in the field to form two smaller units?
41. *Fire:* Will the partition increase or reduce fire hazard?
42. *Shipping:* Can you get immediate shipment of partitions fabricated and finished to your particular requirements?
43. *Orphan Partitions:* What assurance have you that the manufacturer will be able to furnish duplicates of any partition or exactly match any finish if you should decide years later to rearrange or add to your present installation?
44. *National Service:* Is the product backed by a nation-wide force, ready for any emergency requirement?
45. *Steel Partitions:* Will the partitions wear out?
46. *Movable and Steel partitions are a permanent asset:* Will your partitions prove a permanent asset to you?
47. *Helpful Suggestions:* Is the manufacturer qualified to advise you on special problems?

THE E. F. HAUSERMAN COMPANY

PLANNING SERVICE—MANUFACTURING—INSTALLING

6994 Grant Avenue, Cleveland, Ohio

DIRECT FACTORY BRANCHES

NEW YORK, N. Y.
PHILADELPHIA, PA.
CHICAGO, ILL.
KANSAS CITY, MO.
BUFFALO, N. Y.
WASHINGTON, D. C.
DETROIT, MICH.
BOSTON, MASS.
NEWARK, N. J.
CINCINNATI, OHIO
PITTSBURGH, PA.
ST. LOUIS, MO.
ALBANY, N. Y.

PRODUCT: HAUSERMAN MOVABLE STEEL PARTITIONS for dividing and sub-dividing every type of commercial and industrial building—Ceiling high, Cornice high, Screen Partitions, Office Railings, Window and Radiator enclosures, with all accessories including doors, transoms, ventilators, transom operators, grilles, wickets, counters, hardware, etc.

Finished in hundreds of exclusive Hauserman colors or duplications of natural wood grains.

Rattles have been absolutely eliminated in all but lowest priced types, where single sheets instead of packed panels are used. Any type of Hauserman Partition represents maximum (dollar for dollar value.)

THE COMPANY: The E. F. Hauserman Company is the largest manufacturer of partitions. All Hauserman facilities and energy are devoted exclusively to the thorough solution of every kind of partitioning problem. Fifteen years of design study and product development in close cooperation with the Architectural and Engineering profession has placed the Hauserman Company in the recognized dominant first position in the partition field. There are, today, more Hauserman Steel Partitions in use than all other makes combined, **(many times over.)**

The Hauserman principle of "Simplified Design" makes every part render increasingly better service. This keynote of simplification, backed by consistent development engineering, insures the Hauserman lead and makes us the logical organization to solve your partition problems.

NATIONAL SERVICE: The E. F. Hauserman Company maintains FACTORY OWNED service stations NATIONALLY. Branch offices are conveniently located, and manned by competent engineering personnel, available to the architectural and engineering profession. Each Branch Office is a self-contained unit, prepared to install and service partitions. The responsibility of the job rests with the Company, all work is done by Hauserman erection crews, assuring unqualified co-operation with the Architect, Engineer, Contractor and Client.

PERMANENCE: The **only** partition **truly permanent,** that survives the inevitable necessity of changing floor layouts, is the **MOVABLE STEEL PARTITION.** Money invested in partitions built up of perishable materials is often a total loss with the first re-arrangement of the original layout. HAUSERMAN MOVABLE PARTITIONS **actually are Permanent Assets,** because all parts can always be **re-used** and will **outlive** the building. The more they are re-arranged, taken down, added to, and re-erected, the more dollars they reclaim.

GENERAL: The basic design and details of construction are in general the same for Types "T," "W," "R," and "S." Similar parts of different types vary in the gauges of steel used and the contours of their members. Panels are packed of various thicknesses or are single sheets of various gauges.

THE BASIC DESIGN AND EXCLUSIVE FEATURES OF TYPES "T," "W," "R" and "S" PARTITIONS, ARE:

1. Standard panels are stocked in seven heights and eleven widths and in multiples of three inches and five inches respectively.
2. Doors have floating frames which allow for adjustment to clear uneven floors or various thicknesses of floor coverings.
3. Base is either floating itself or provided with a floating floor mould which permits adjustment to uneven floors or floor coverings.
4. Cornice is a one piece rolled section of sharp contours, with internal expanding pull-up splice.
5. Panels have telescopic glazing stops, which are integral parts of the units—(no screws or loose moulds.)
6. Floor connections are concealed and provide for extending partitions in any one or all four directions from any pilaster without disturbing adjoining partitions, cornice, or top filler.
7. Panels and/or doors of various sizes can be interchanged or rearranged to relocate doors or intersecting partitions without disturbing other panel units, cornice, or top filler.
8. Removable wedge clips lock partition units rigidly end to end in perfect alignment.
9. Post caps, plinths, base and corner moulds snap on securely concealing all methods of assembly.
10. Partition members carry and conceal electric and telephone wires and cables. Two methods are used. Wires can be "fished" in less expensive types, but are much more easily "layed in" the better types of partitions, which have hinged bases. "Hinged Bases" are easily opened for "laying-in" wiring, and "layed-in" wires are as easily removed as installed.
11. The Tie rod assembly of partition units makes it practical to "cut down" a unit in height or width at any time as may be required to meet unexpected conditions, and thereby saves the time and expense required for shop fabrication of special units.
12. Panel Plates are "patent leveled" furniture steel. All other members are full cold rolled, full finished strip steel.
13. Units are either all steel, steel and glass or steel and wire mesh.
14. Either single or double doors are furnished, any swing. Doors may be of a single or two panel type, either all steel, glass, or steel and glass. They are all mortised for standard hardware, and all Hauserman standard lock sets are interchangeable at any time.
15. Grilles, Wickets, Ventilators, Transoms or Blackboards may be installed in any partition unit. Transoms and ventilators may be controlled mechanically or Manually. Mechanically—with the concealed self locking operator, (Hauserman perfected and built.) When Manually operated they are held in a given position with a concealed adjustable friction brake.
16. Slots are provided in the soffit of the transom and top rails, in which inconspicuous picture hooks may be inserted for hanging heavy maps, charts and pictures.

DETAILS OF EACH TYPE FOLLOWS

TYPE "T" MOVABLE STEEL PARTITIONS

AND WAINSCOTING, FOR WINDOW AND RADIATOR ENCLOSURES, DIRECTORS ROOMS, EXECUTIVE OFFICES, BANKS, CORRIDORS AND MONUMENTAL BUILDINGS

BASE: 16 gauge, 7⅝" high. Both faces are "hinged" for easy opening for "lay-in" wiring, and are independently adjustable for varying floor levels or floor coverings on both or opposite sides of any panel. The mopping area may be finished black or any other dark serviceable color, and may be either 2" or 6" high.

PLINTHS: 16 gauge, 6" high. Rounded corners. Snap-on type. Vertically adjustable to floor or floor covering level. Fits tight to partition pilaster cap and base. Finished to match base.

PANELS: 20 gauge, "patented leveled" steel. Double sheets cemented to opposite sides of sound deadening filler, making a panel ⅜" thick.

CHAIR RAIL: 18 gauge, 2⅞" wide. Moulded design.

TRANSOM RAIL: 16 gauge, 2⅛" wide. Same contour as chair rail. Bottom member telescopes into upper member, permitting insertion of glass without use of removable stops.

TOP RAIL: 16 gauge, 1-5/16" wide. Detail of mould same as chair rail. Has same integral telescopic glazing feature as transom rail.

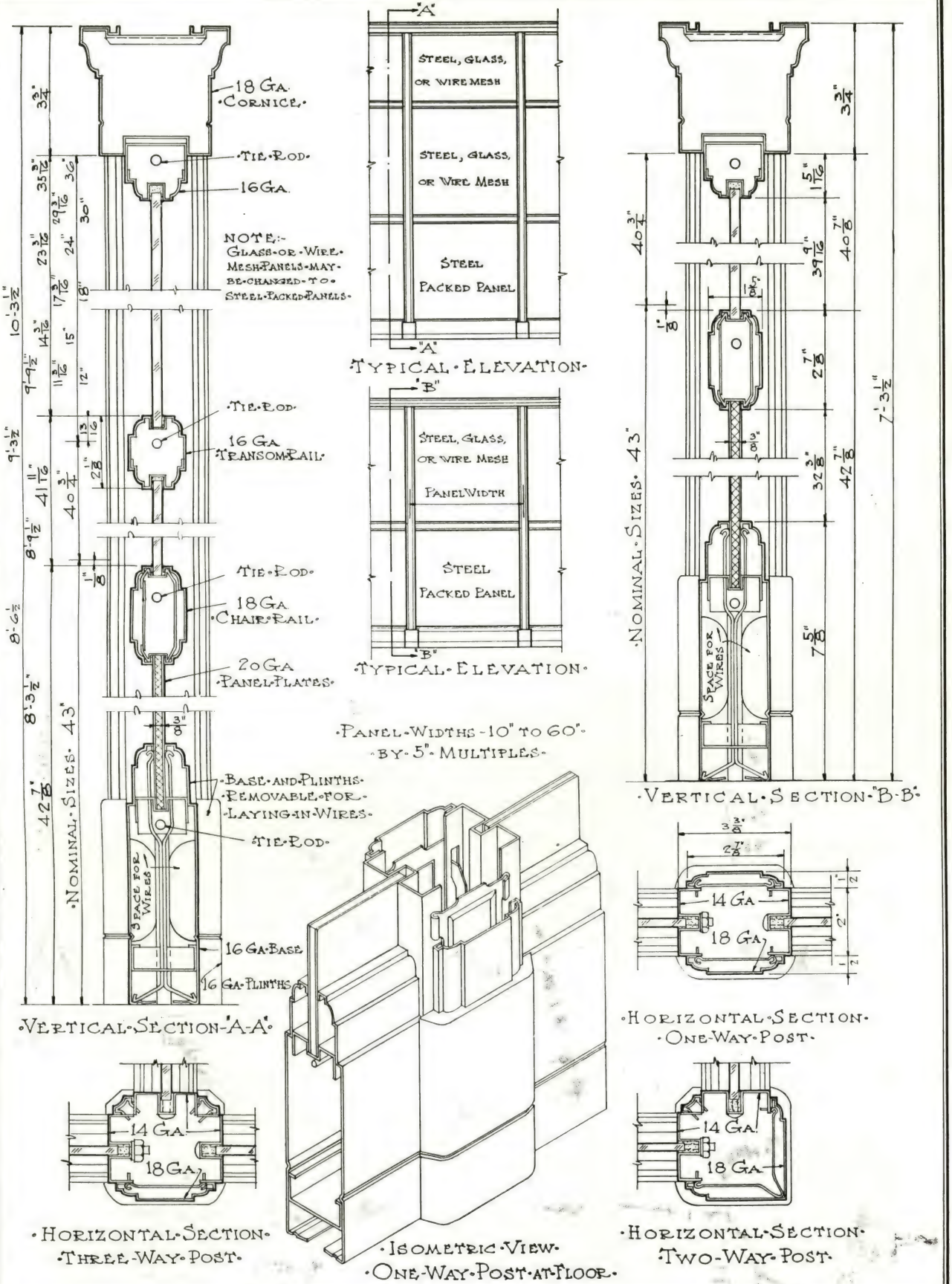
VERTICALS: 14 gauge, 2" wide. Perforated to receive wiring and notched at base for "lay-in" wiring or telephone cable.

CORNICE: 18 gauge, 3¾" high. Has fine sharp contour. HAUSERMAN standard tubular construction with internal expanding pull-up splice.

PILASTERS: 18 gauge, 2⅞" wide. Snap-on type, removable for dissembly and wiring. Character of moulding same as chair, top and transom rails. (See details on opposite page.)



Type "T" Partitions and Wainscoting, Walnut Grained, with Window Embrasures. Installation in the Electrical League, Cleveland, Ohio



THE E. F. HAUSERMAN COMPANY CLEVELAND, OHIO.	TYPE "T" STANDARD CONSTRUCTION HAUSERMAN MOVABLE PARTITIONS	TYPE T SHEET 209

FULL SIZE DETAILS ON REQUEST

TYPE "W" MOVABLE STEEL PARTITIONS

FOR PRIVATE OFFICES, SALES OFFICES, SCHOOLS, TENANT OFFICE BUILDINGS, TELEPHONE AND INFORMATION BOOTHS, LOBBIES AND WAITING ROOMS

BASE: 16 gauge, 7′5⅝″ high. Both faces are "hinged" for easy opening for "lay-in" wiring, and are independently adjustable for varying floor levels or floor coverings on both or opposite sides of any panel. The mopping area may be finished black or any other dark serviceable color, and may be either 2″ or 6″ high.

PLINTHS: 16 gauge, 6″ high. Rounded corners. Snap on type. Vertically adjustable to floor or floor covering level. Fits tight to partition pilaster cap and base. Finished to match base.

PANELS: 20 gauge "patented level" steel. Double sheets cemented to sound deadening filler making panel ⅜″ thick.

CHAIR RAIL: 18 gauge, 2¼″ wide. Special profile. (See sectional drawing on opposite page.)

TRANSOM RAIL: 16 gauge, 2⅛″ wide. Detail of mould differs from chair rail. (See opposite page.) Bottom member telescopes into upper member, permitting insertion of glass without use of removable stops.

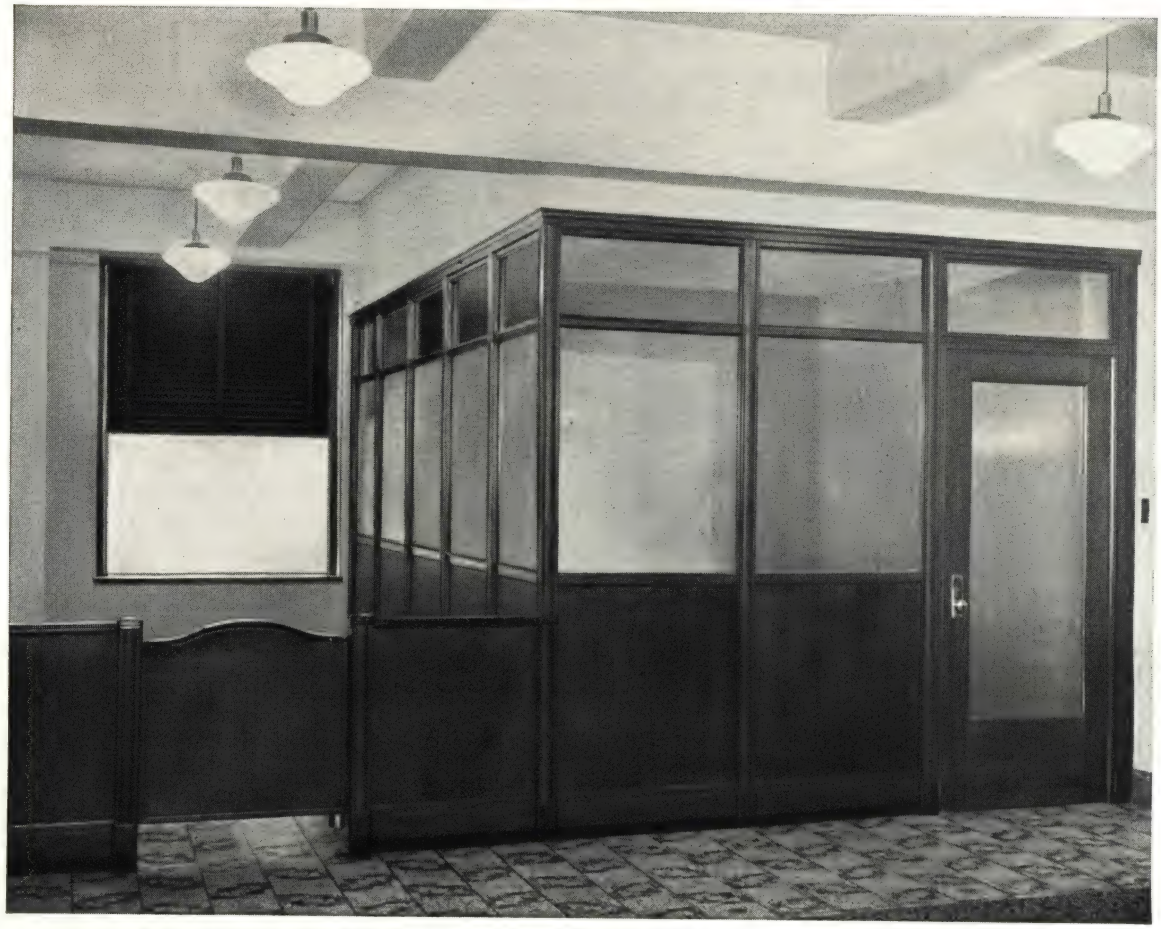
TOP RAIL: 16 gauge, 2¼″ wide. Has same integral glazing feature as transom rail.

VERTICALS: 14 gauge, 2″ wide. Perforated to receive wiring and notched at base for lay-in wiring and telephone cable.

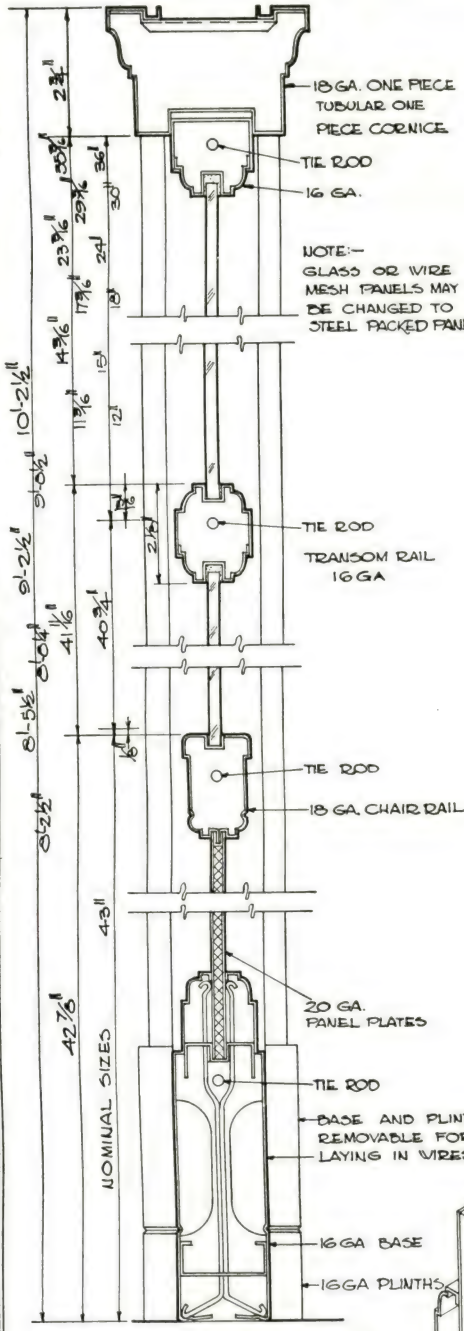
CORNICE: 18 gauge, 2¾″ high. Hauserman standard tubular construction with internal expanding pull-up splice.

PILASTERS: 20 gauge, 2⅞″ wide. Snap on type, removable for dissembly and wiring. Conventional square pilasters with recessed portion arched. (See details on opposite page.)

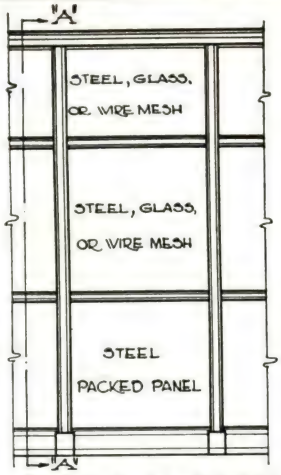
SELECTED FOR THE WORLD'S TALLEST—THE EMPIRE STATE BUILDING



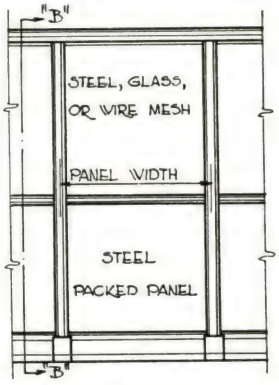
An Installation of Type "W" Partitions and Railing in the New York Life Insurance Company, Empire Building, New York City



·VERTICAL · SECTION "A-A"·

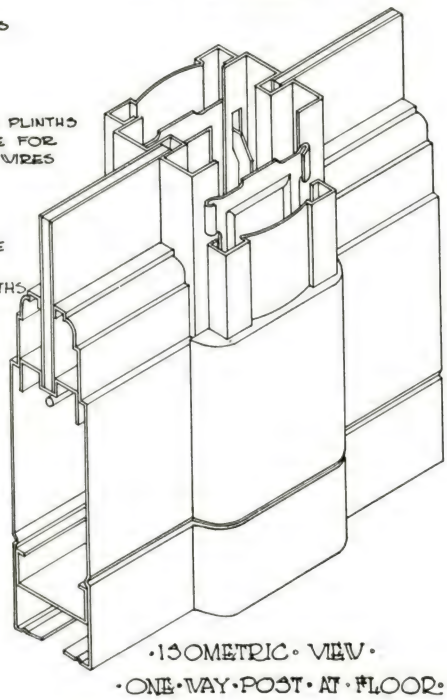


·TYPICAL · ELEVATION·

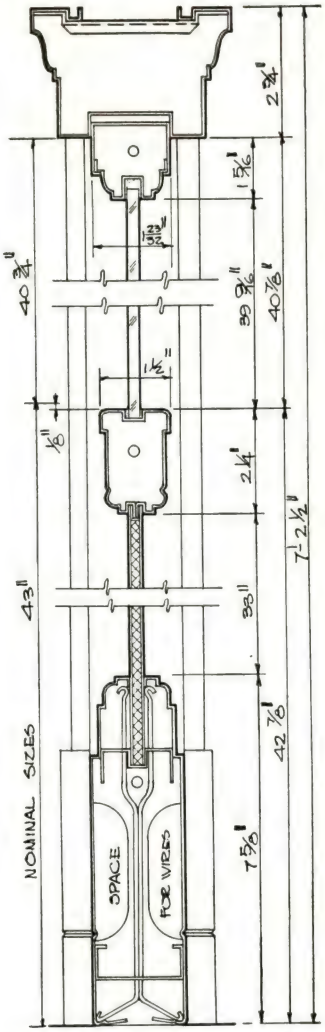


·TYPICAL · ELEVATION·

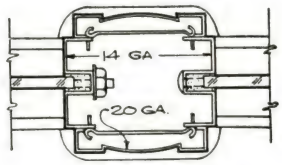
·PANEL · WIDTHS · - 10" TO 60"
·BY · 5' · MULTIPLES·



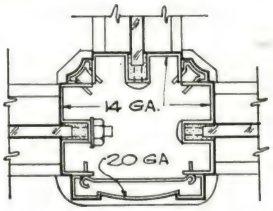
·ISOMETRIC · VIEW·
·ONE · WAY · POST · AT · FLOOR·



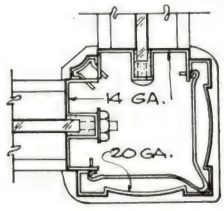
·VERTICAL · SECTION · "B-B"·



·HORIZONTAL · SECTION·
·ONE · WAY · POST·



·HORIZONTAL · SECTION·
·THREE · WAY · POST·



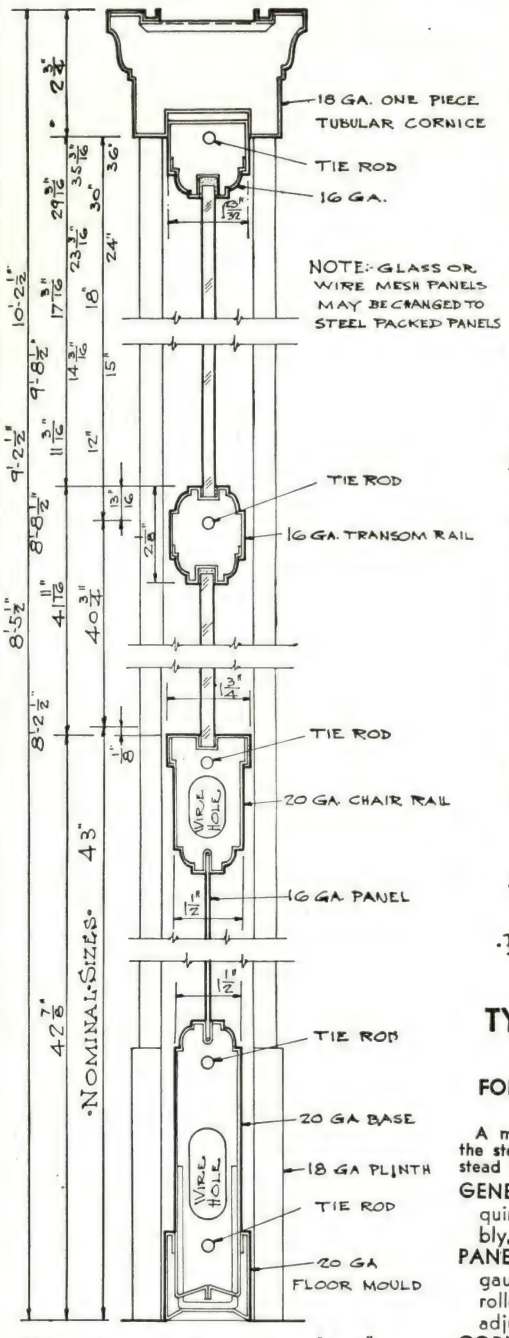
·HORIZONTAL · SECTION·
·TWO · WAY · POST·

THE E. F. HAUSERMAN COMPANY
CLEVELAND, OHIO.

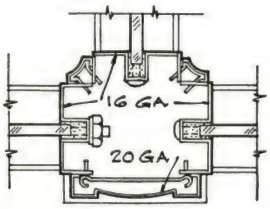
·TYPE · "W" · STANDARD · CONSTRUCTION·
·HAUSERMAN · MOVABLE · PARTITIONS·

TYPE W SHEET 208

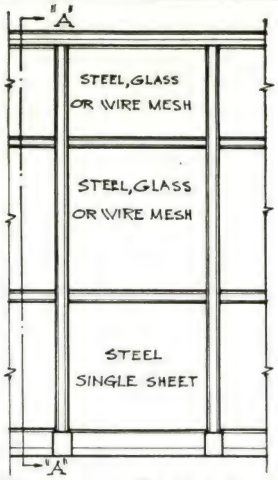
FULL SIZE DETAILS ON REQUEST



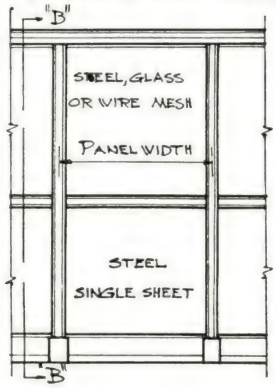
·VERTICAL·SECTION·"A-A"·



·HORIZONTAL·SECTION·
·THREE-WAY·POST·



·TYPICAL·ELEVATION·



·TYPICAL·ELEVATION·

·PANEL·WIDTHS·10"·TO·60"·
·BY·5"·MULTIPLES·

TYPE "S" MOVABLE STEEL PARTITIONS

FOR WORK ROOMS, OFFICES, AND GENERAL SUBDIVIDING

A modification of Type "R" Partitions in that the steel panel is furnished as a single sheet instead of the packed panel.

GENERAL: Standard panel units of required height—eleven widths; clip assembly, post caps square design 20-gauge.

PANEL UNITS: Single sheet steel, 16-gauge. Chair rail is a square design rolled from 20-gauge steel; floor mould adjustable 20-gauge steel.

CORNICE: In 2¾" high rolled sections 18-gauge steel—internal expanding pull-up splice. Telephone and electric wiring carried thru cornice.

GLASS: Held firmly in place with telescopic glazing stops.

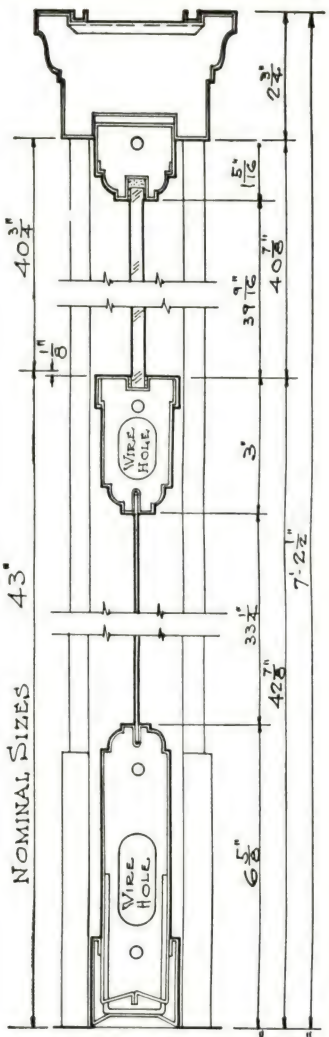
DOORS: Are of the floating type. Doors are 35" wide, one and two-panel type with ball-bearing butts and any type of lockset.

PLINTH: Are square covered design 18-gauge steel and adjustable.

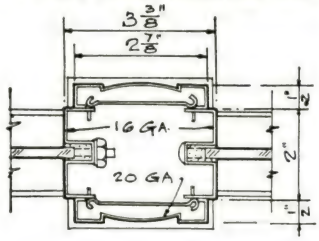
END FILLERS: Are adjustable and provide for electric wiring.

VENTILATORS: Concealed operator type.

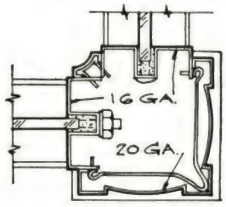
FINISH: Choice of hundreds of colors and reproductions of choice grains.



·VERTICAL·SECTION·B-B·



·HORIZONTAL·SECTION·
·ONE-WAY·POST·



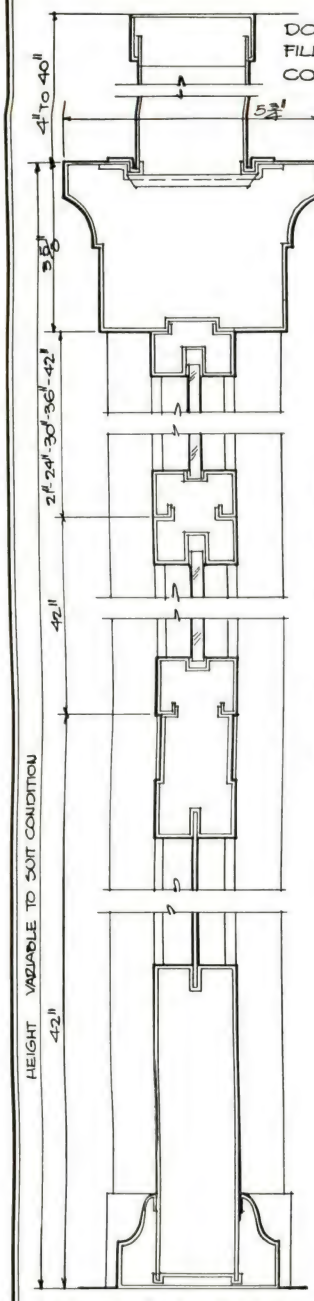
·HORIZONTAL·SECTION·
·TWO-WAY·POST·

THE E. F. HAUSERMAN COMPANY
CLEVELAND, OHIO.

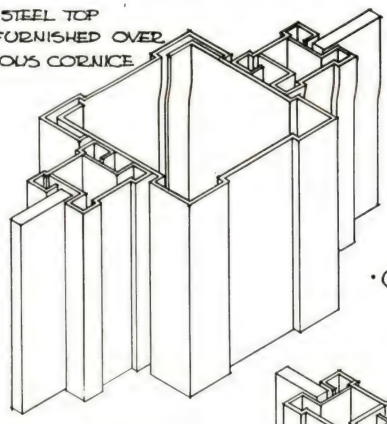
·TYPE·"S"·STANDARD·CONSTRUCTION·
·HAUSERMAN·MOVABLE·PARTITIONS·

TYPE S SHEET 205

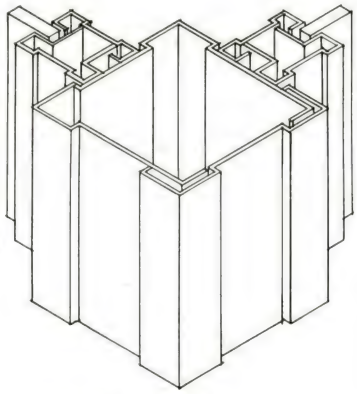
FULL SIZE DETAILS ON REQUEST



VERTICAL SECTION
TYPE "K"



·ONE·WAY·



·TWO·WAY·

ELEVATION - POSTS MAY EXTEND TO STRUCTURAL CORNICE WITH FILLER OVER OR MAY BE EXTENDED DIRECTLY TO CEILING UNITS ARE MADE IN STEEL OR GLASS AND MAY BE ASSEMBLED IN ANY COMBINATION

DOORS ARE MADE IN ONE OR TWO PANELS PAIR DOUBLE ACTING & SLIDE DOORS CAN BE FURNISHED

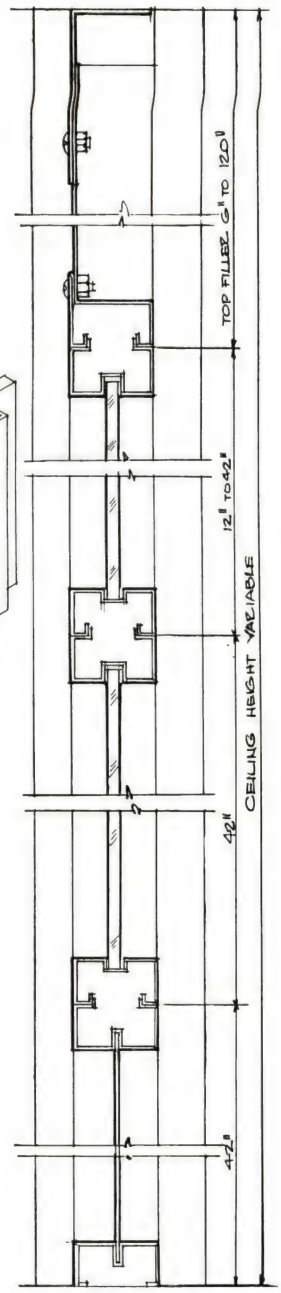
ALL MEMBERS ARE READILY ACCESSABLE FOR ELECTRIC WIRING.

TYPES "H" AND "HK" PARTITIONS

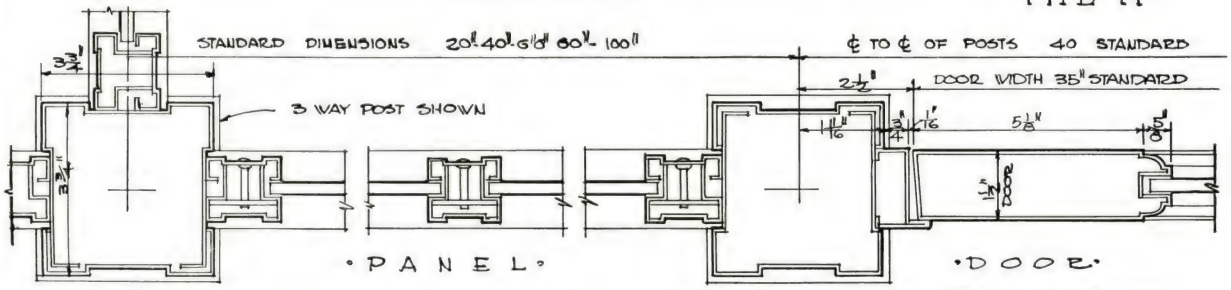
FOR GENERAL PLANT SUBDIVISIONS

In addition to type "S," we offer types "H" and "HK," which are basically different, as they are assembled vertically and horizontally. Type "H" has small lights and "HK" have intermediate size lights.

GENERAL: Partition assembled vertical and horizontal—all units interlocking and securely bolted together.
UNITS: Steel and glass, in widths 20-40-60-80-100 inches—center to center of posts and 30-36 and 42" in height.
DOORS: One and two panel glass or steel, either single, swing, double-acting or sliding.
TOP CONDITION: Steel or mineral board.
CORNICE: Moulded.
BASE: 6" high and provides for carrying electric wiring.
POSTS: Standard four-way—removable cap for wiring and bolting panels.
GLASS: D. S. A. recommended for Clear Glass. Syenite for obscure—1/8" thick.
HARDWARE: Anti-friction ball-bearing butts; locksets are interchangeable. Door checks are furnished as required.
VENTILATORS: Vertical pivoted type.
FINISH: As selected from hundreds of exclusive Hauserman colors, either lacquer or enamel.



·VERTICAL·SECTION·
·TYPE·"H"·



·HORIZONTAL·SECTION·OF "H" OR "K"·

DOOR ALSO FURNISHED 25" WIDE 30" ¢ TO ¢ OF POST

THE E. F. HAUSERMAN COMPANY CLEVELAND, OHIO.	·STANDARD·DETAILS· ·HAUSERMAN·MOVABLE·PARTITIONS·	TYPE H & K	DRWG A

FULL SIZE DETAILS ON REQUEST

RECENT ADDITIONS TO AMERICA'S SKYLINE

PARTITIONED BY

HAUSERMAN

•

Empire State Building, (World's Tallest) New York

The Chrysler Building (World's Second Tallest) New York

Dominion Sq. Bldg., (Largest in British Empire) Montreal

Northwestern Bell Telephone Building, Minneapolis

Norfolk & Western R. R. Company, Roanoke, Va.

Chesapeake & Potomac Tel. Co., Washington

City Bank Farmers Trust Company, New York

U. S. Internal Revenue Building, Washington

Cincinnati & Suburban Bell Tel., Cincinnati

Pennsylvania R. R. Building, Philadelphia

Kansas City Light & Power, Kansas City

Central National Bank, Richmond, Va.

Dallas Power & Light Co., Dallas

Continental Building, New York

Westchester Co. Court House

A. O. Smith Co., Milwaukee

State Office Bldg., Buffalo

500 Fifth Ave., New York

75 Federal Street
Boston

19 Rector Street
New York

201 Wells Street
Chicago

21 West Street
New York

•

Hauserman Movable Steel Partitions have contributed notably to the beauty, efficiency, and rentability of the modern skyscraper.

These advantages, however, are not limited to *new buildings*. Older buildings, whose rental appeal has been dimmed by deterioration and new building competition, have permanently recovered their rentability thru the Hauserman Modernization Program.

The versatility and re-arrangeability of Hauserman Partitions makes them adaptable to any interior condition. Their wide range of colors and finishes makes practical any desired effect.

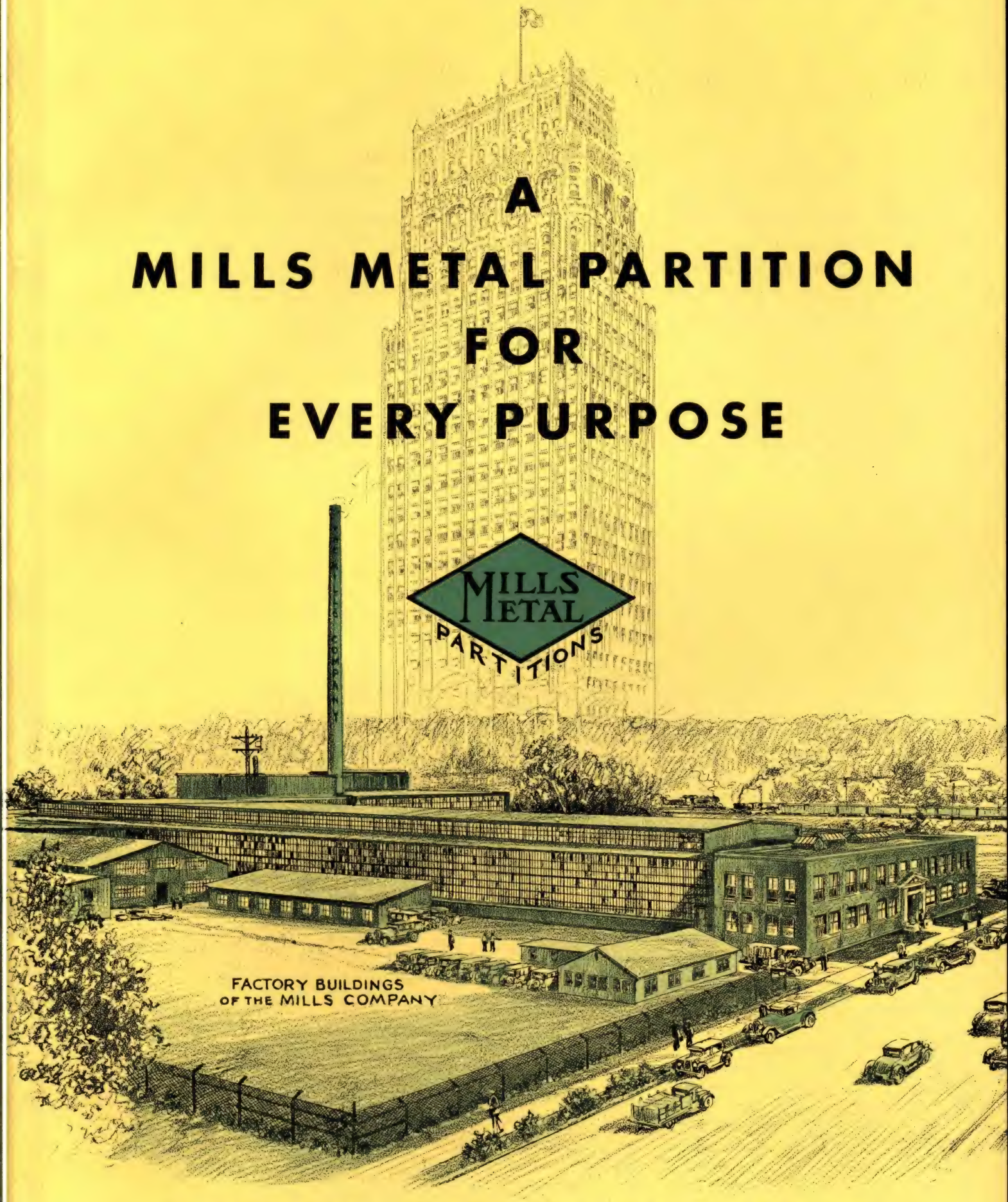
The E. F. Hauserman Company offers the co-operation of its engineering and decorative departments to architects whose commercial building clients are interested in interior modernization.

•

The E. F. Hauserman Company, "Organized for Service Nationally." 6994 Grant Avenue, Cleveland, Ohio. Factory directed planning and erection service from these 14 factory branches: Albany, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Kansas City, New York, Newark, Philadelphia, Pittsburgh, St. Louis, Washington, D. C.

HAUSERMAN MOVABLE STEEL PARTITIONS

A MILLS METAL PARTITION FOR EVERY PURPOSE



THE MILLS CO., CLEVELAND, O.

MILLS METAL PARTITIONS

for every purpose

Executive Office Partitions
General Office Partitions
Commercial Partitions
Standard Toilet Partitions

Marblmetal Toilet Partitions
Beauty Parlor Partitions
Cubicles and Screens
Shower and Dressing Room Partitions

Unit Showers

EXPERIENCE AND AIMS OF MILLS ORGANIZATION

The Mills Organization is engaged exclusively in the design and manufacture of metal partitions as listed above. Truly "A Mills Metal Partition for every Purpose".

Many of the men at Mills were among the pioneers of this industry which has earned a prominent and permanent place in the building industry.

Many of the important advances in design and construction originated with this Organization.

Now Mills is constantly alert to find still better ways of insuring beauty and permanence in partitions of their manufacture. New colorings, perfect imitations of wood graining, as well as improvements of a mechanical nature are constantly being made.

A large manufacturing plant, a skilled engineering force, plus years of experience, and the will to strive for constant betterment are here at your command.

On the following pages we illustrate many of the advanced features of the Mills metal line.

A PARTIAL LIST OF FINE BUILDINGS AND LARGE INDUSTIAL PLANTS THAT HAVE MILLS INSTALLATIONS

Waldorf Astoria
Cleveland Stadium
Bell Telephone Buildings
Cleveland Terminal Building
General Motors Corporation
N. Y. World Telegram Bldg.
Madison Square Garden

McGraw Hill Building
Guardian Building
Johns Hopkins Hospital
General Electric Co.
Pennsylvania R. R.
R. C. A. Radiotron Co., Inc.
Eastman Kodak Co.

Proctor & Gamble
Black & Decker Co.
United Shoe Machinery Co.
Goodyear Tire & Rubber Co.
National Carbon Co.
Aluminum Co. of America
Westinghouse Electric Co.
A. O. Smith Corporation

In addition to these and a great many others we have supplied partitions for schools, hospitals and public buildings from coast to coast.

MILLS METAL EXECUTIVE OFFICE PARTITIONS

These partitions are beautiful and entirely modern in design. Lower panel consists of two steel sheets *insulated* with a sound-deadening material, making this partition practically soundproof.

Made in standard units from 20 to 60 inches wide, in multiples of five inches so that wall fillers never have to exceed five inches. Units are entirely interchangeable, a 40-inch unit is interchangeable with a standard 40-inch door. Designed to accommodate any type or ordinary thickness of glass. The glass is inserted without the use of loose mouldings or screws. A corner is turned with standard units without any increase in post dimension.

Where exceedingly long runs of partition are required without intersecting partitions, a standard ceiling post inside regular post provides the necessary reinforcements without changing the outside appearance.

The cornice is of double strength. Instead of one piece, we have provided two members, the outside

ornamental member being reinforced by an inside structural member both rigidly anchored down to the post by a specially designed clip.

All transoms are center pivoted and operated by positive-action concealed type operator. Floor channel is anchored absolutely tight to the floor so that regardless of how uneven the floor may be (and nearly all floors are uneven) the partition base adheres tightly to floor.

All vertical as well as horizontal sections are moulded and each has fourteen right angle bends giving greater strength, solidity and rigidity.

Both executive and general office partitions are shipped from factory in four standard cornice heights—7 ft. 4 in.; 8 ft. 8 in.; 9 ft. 2 in.; and 10 ft. 4 in.; which will accommodate any ordinary ceiling heights with small filler above the cornice.

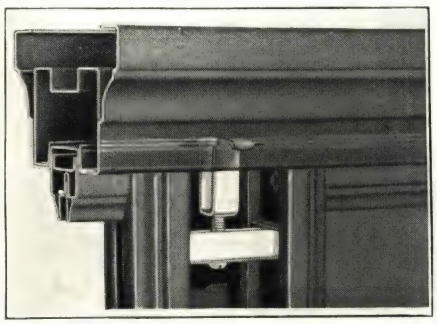


An Executive Office—Radiator Covers, Wainscoting and Partitions Furnished by The Mills Company

Finishes—All Mills metal office partitions are finished in any plain color, two tone effects or grained in perfect imitation of wood.

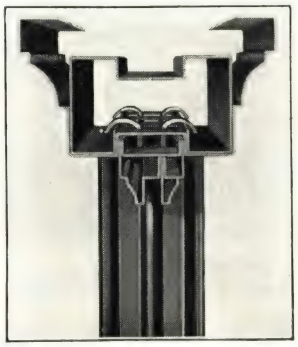
MILLS METAL GENERAL OFFICE PARTITIONS

These partitions are identical in construction to our executive office partitions, except that the lower panel is not insulated.



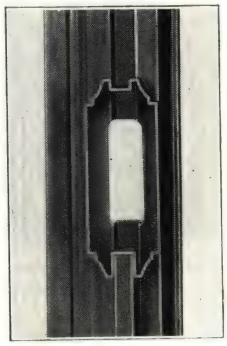
Showing How Ornamental and Structural Cornice Members Are Rigidly Anchored to the Panel Uprights

Only one screw, and it is concealed. Openings on each side of bolt provide for dropping wires down through the post



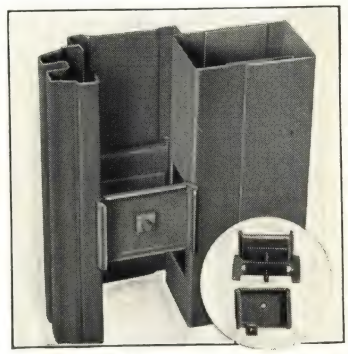
End View of Ornamental and Structural Cornice and Another View of Cornice Hook Bolt

Construction that is strong and rigid



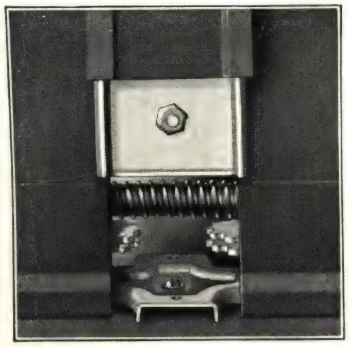
End View of One-piece Chair Rail

Note insulated panel below; groove for inserting glass above; opening in post for running of conduit



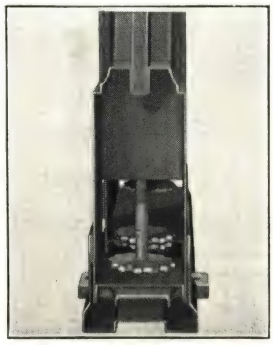
Telescopic Adjustable Double Wall Filler

Note how standard panel is anchored to the wall filler by through-bolted clip. Lower view shows how spacer forms four-point truss



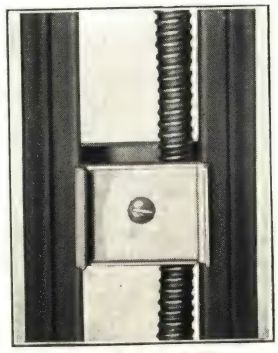
Plinth Block Removed to Show Adjustable Floor Fastening

Note how floor channel is anchored to floor. Above the leveling device is conduit; above conduit is friction clip for snapping plinth block into place



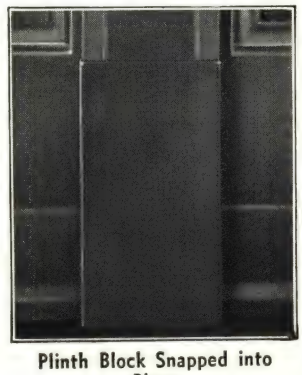
End View of Base and Floor Channel

Note how floor clamp holds floor channel to the floor and brings all floor channels into perfect alignment



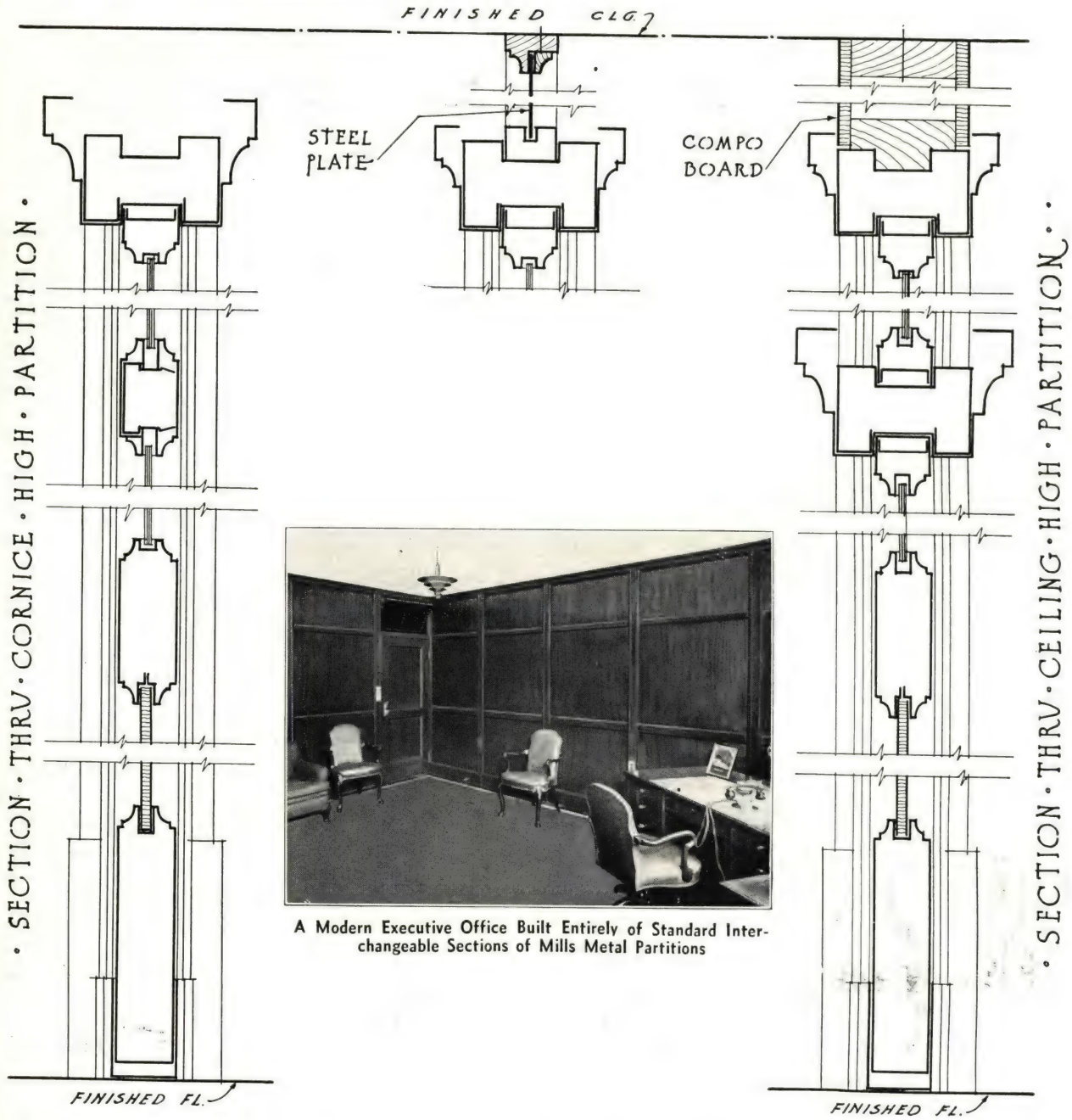
Through-bolted Clip

Spacer holds post at four points and when clip is drawn tight the four points of spacer form a four-way truss giving great strength and extreme rigidity

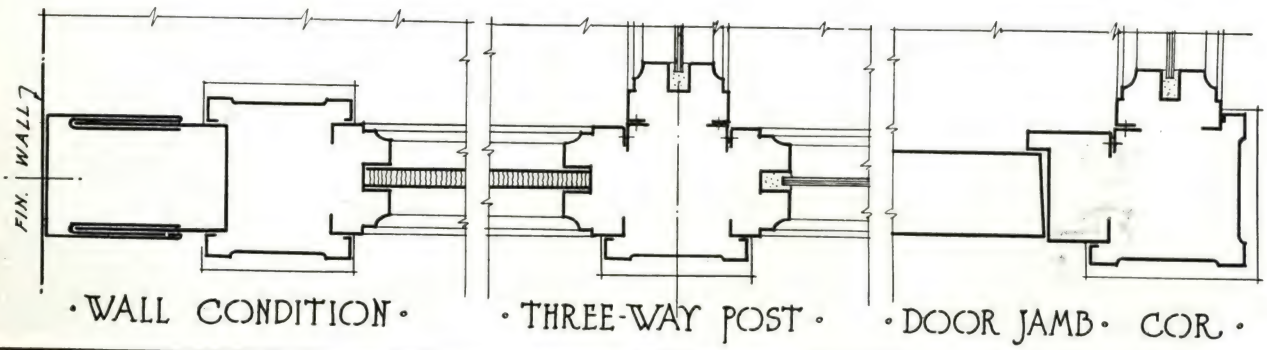


Plinth Block Snapped into Place

(Note cut at left margin.) Note how tight and neat the plinth block fits. No screws or bolts exposed



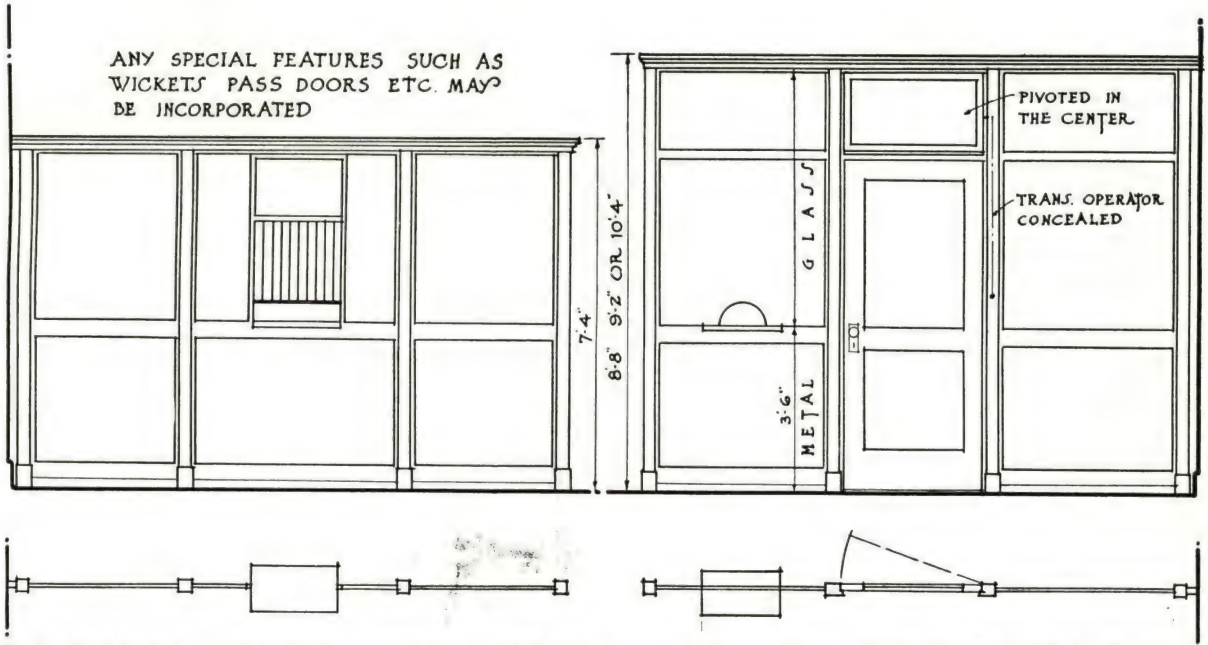
A Modern Executive Office Built Entirely of Standard Interchangeable Sections of Mills Metal Partitions



• DETAILS • OF • EXECUTIVE • OFFICE • PARTITIONS •

SCALE 3" = 1-0"

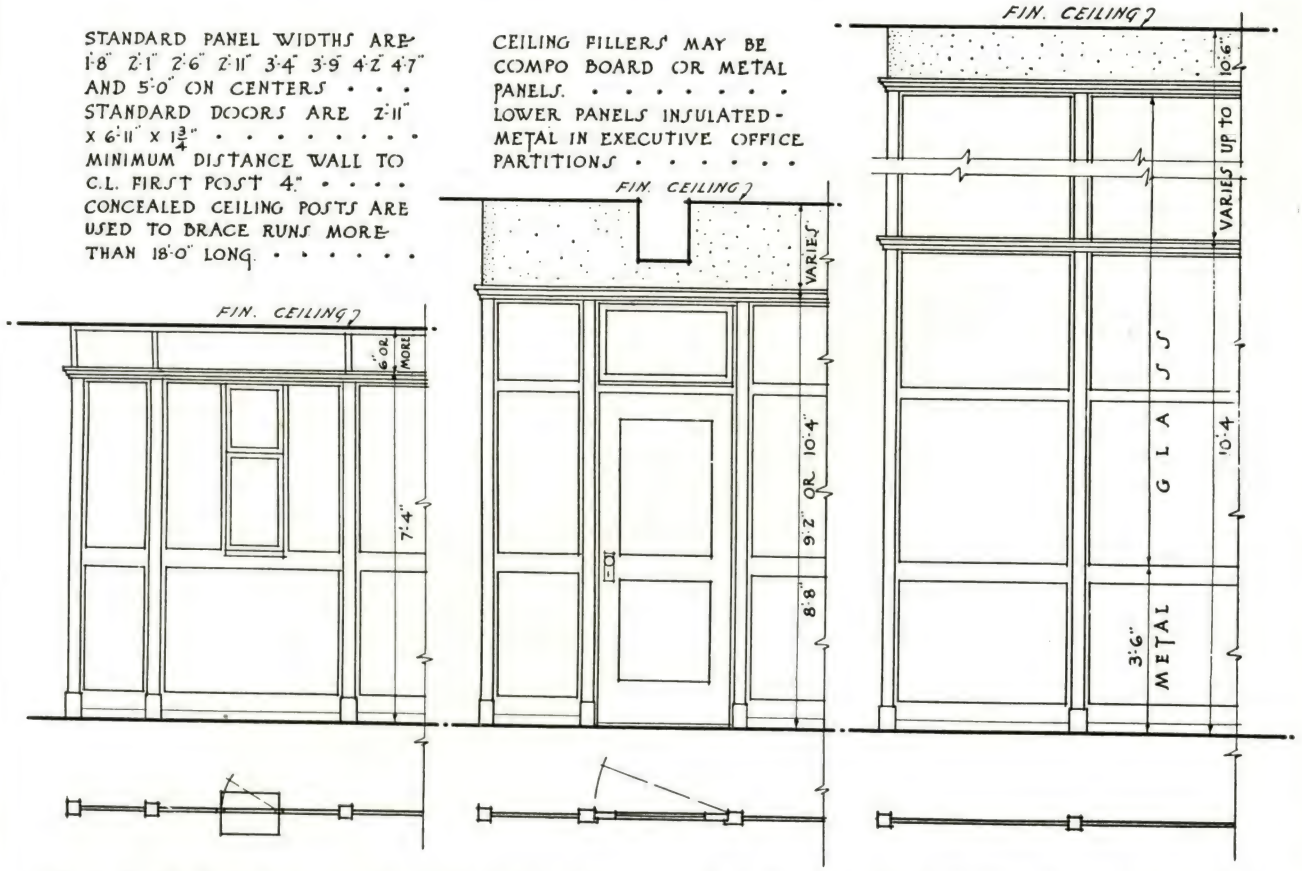
ANY SPECIAL FEATURES SUCH AS WICKETS PASS DOORS ETC. MAY BE INCORPORATED



· ELEVATIONS · CORNICE · HIGH · PARTITIONS ·

STANDARD PANEL WIDTHS ARE 1'-8" 2'-1" 2'-6" 2'-11" 3'-4" 3'-9" 4'-2" 4'-7" AND 5'-0" ON CENTERS . . .
STANDARD DOORS ARE 2'-11" X 6'-11" X 1¾" . . . . . .
MINIMUM DISTANCE WALL TO C.L. FIRST POST 4" . . . .
CONCEALED CEILING POSTS ARE USED TO BRACE RUNS MORE THAN 18'-0" LONG . . . . . .

CEILING FILLERS MAY BE COMPO BOARD OR METAL PANELS. . . . . .
LOWER PANELS INSULATED - METAL IN EXECUTIVE OFFICE PARTITIONS . . . . . .



· ELEVATIONS · CEILING · HIGH · PARTITIONS ·

ELEVATIONS · OF · EXECUTIVE · & · GENERAL · OFFICE · PARTITIONS ·

SCALE ¼" = 1'-0"

MILLS METAL COMMERCIAL PARTITIONS

Made in standard size interchangeable units of 20, 30, 40, 50, 60, 80 and 100 in. wide and 42 and 21 in. high. Vertical connections between units are made by means of a 3-in. post to which all units are bolted, the units being joined horizontally by a substantial interlocking I-section. A standard door is interchangeable with any 40-in. unit.

Commercial partitions are adaptable for any factory use. Glass, wire mesh, grilles and ventilators are interchangeable in any standard unit. Panels interchangeable by means of intermediate rail connection.

Telescoping floor channels provide adjustment up to 2½ in. so that the partition adheres tightly to uneven floors. Permits room for electric wires. The posts are punched so that wires may run across entire run of partition if desired. Because of its extreme durability, flexibility and attractive price our Commercial Partition is one of the most widely used partitions.

Finishes

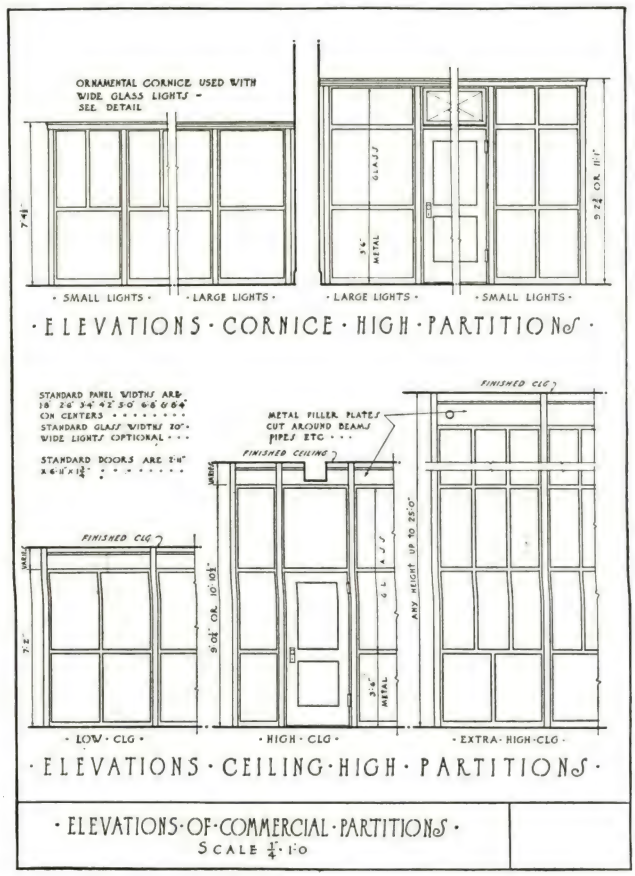
Standard olive green. Any other color specified at small extra cost.

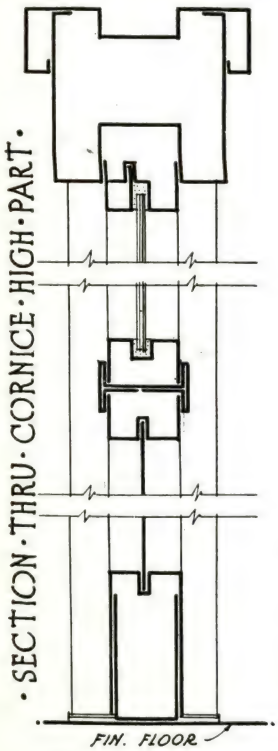
For Office Use

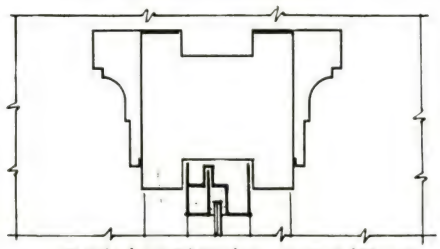
Narrow lights of glass may be replaced with wide lights, and box cornice replaced by an ornamental cornice, transforming the Commercial Partition into a neat and trim appearing office partition which is entirely suitable for many types of office.



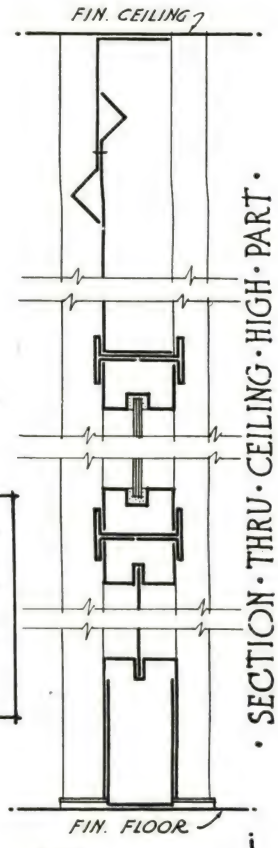
Mills Metal Commercial Partitions
Steel and glass—note exceptional height

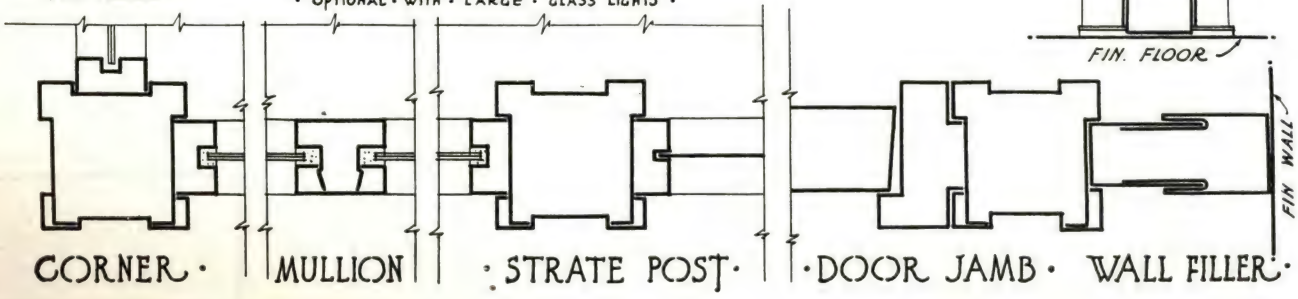






· DETAILS · OF · COMMERCIAL · PARTITIONS ·
SCALE 3" = 1'-0"





MARBLMETAL TOILET PARTITIONS

Marblmetal

To insure the permanent freshness of toilet rooms THE MILLS CO. engineers developed Marblmetal. A metal slab partition with all the advantages and none of the disadvantages of marble. The cost is about one-half that of marble. The absolutely flush surface with no corners, or crevices to gather dust, dirt or germs, makes thorough cleansing a simple matter.

Construction (patented)

The panels and doors are constructed of two sheets of steel interlocked on all four sides, welded at all corners forming a solid slab ¾ in. thick and holding a ⅝-in. fibre filler between. This filler is applied to the sheets with a special binder, under pressure, making the panels flat, strong and rigid. These panels are nonporous, absorb no odors and can be finished to harmonize with your color scheme. They can be inexpensively refinished as the years go by.



Battery Installation with Fronts and Inswinging Doors

Fittings

All fittings are cadmium plated by the Udylite process, up to the strict requirements of the United States Navy. (Chromium plated hardware can be furnished at a slight increase in price.) The entire assembly is completely rustproofed, permanence is built in.

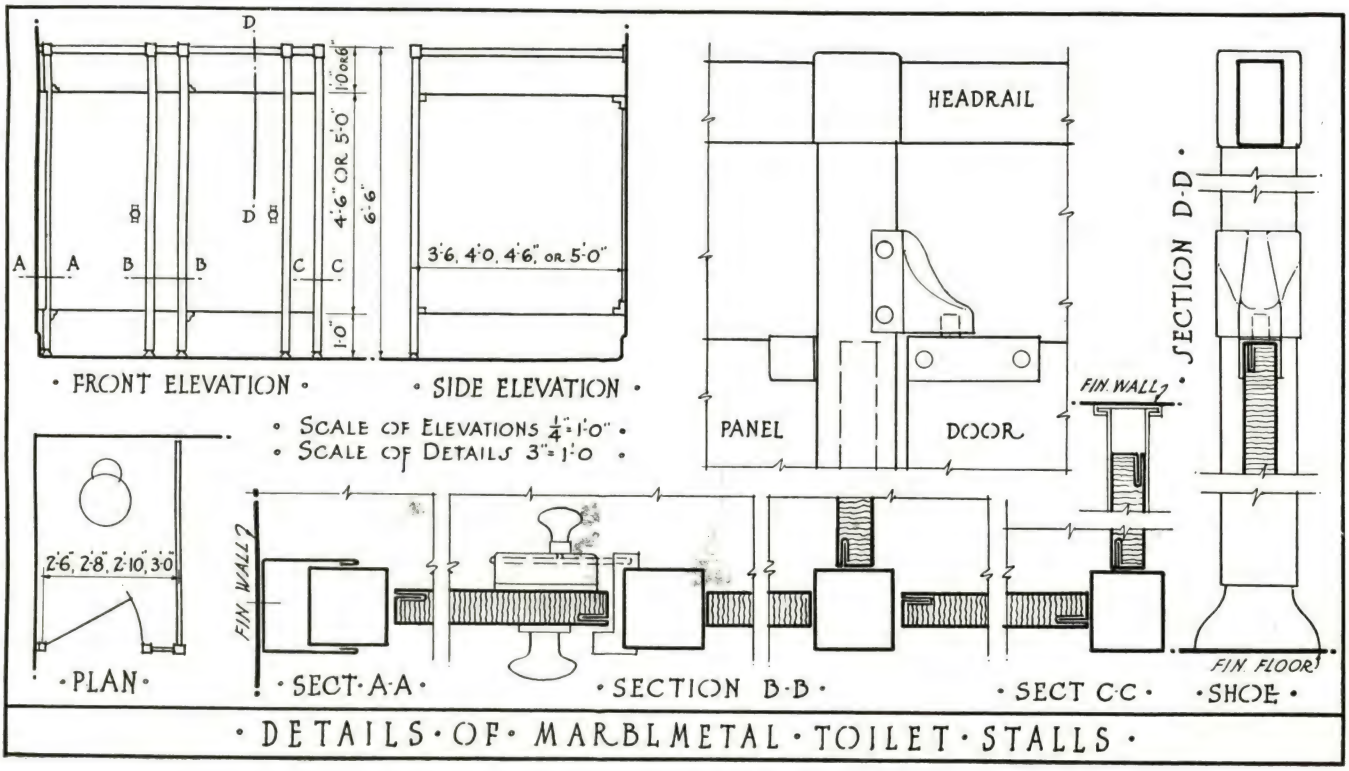
These enclosures meet the requirements of the most exacting sanitary engineers.



Installation Showing Adjustable Wall Brackets, Hinges, Sturdy Fittings and the Flatness of the Panels and Doors

Thru-bolted hardware and strong wall attachments are features of these enclosures.

Complete description of hardware will be found on following pages.



MILLS METAL STANDARD PARTITIONS

Description

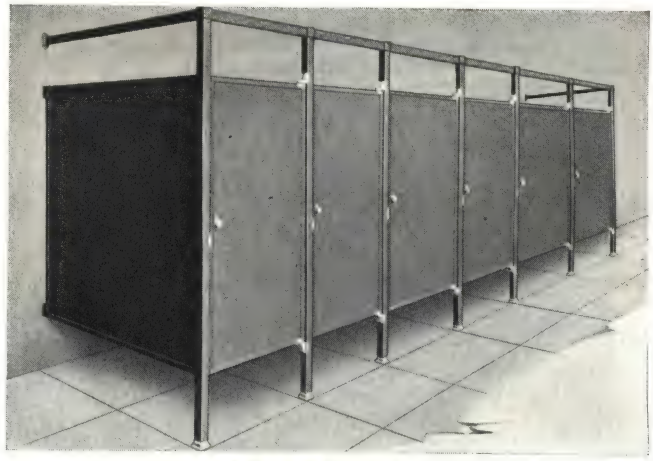
The standard post is 78 in. in height (in accordance with recommendation of The Division of Simplified Practice, Department of Commerce). The standard panels are 54 or 60 in. high, set 12 in. off the floors, allowing 12 and 6 in., respectively, to the headrail.

Built in units to permit any desired arrangement. Legs fit over rather than into shoes, eliminating all lodging places for dirt and not a single opening to admit water or hold moisture.

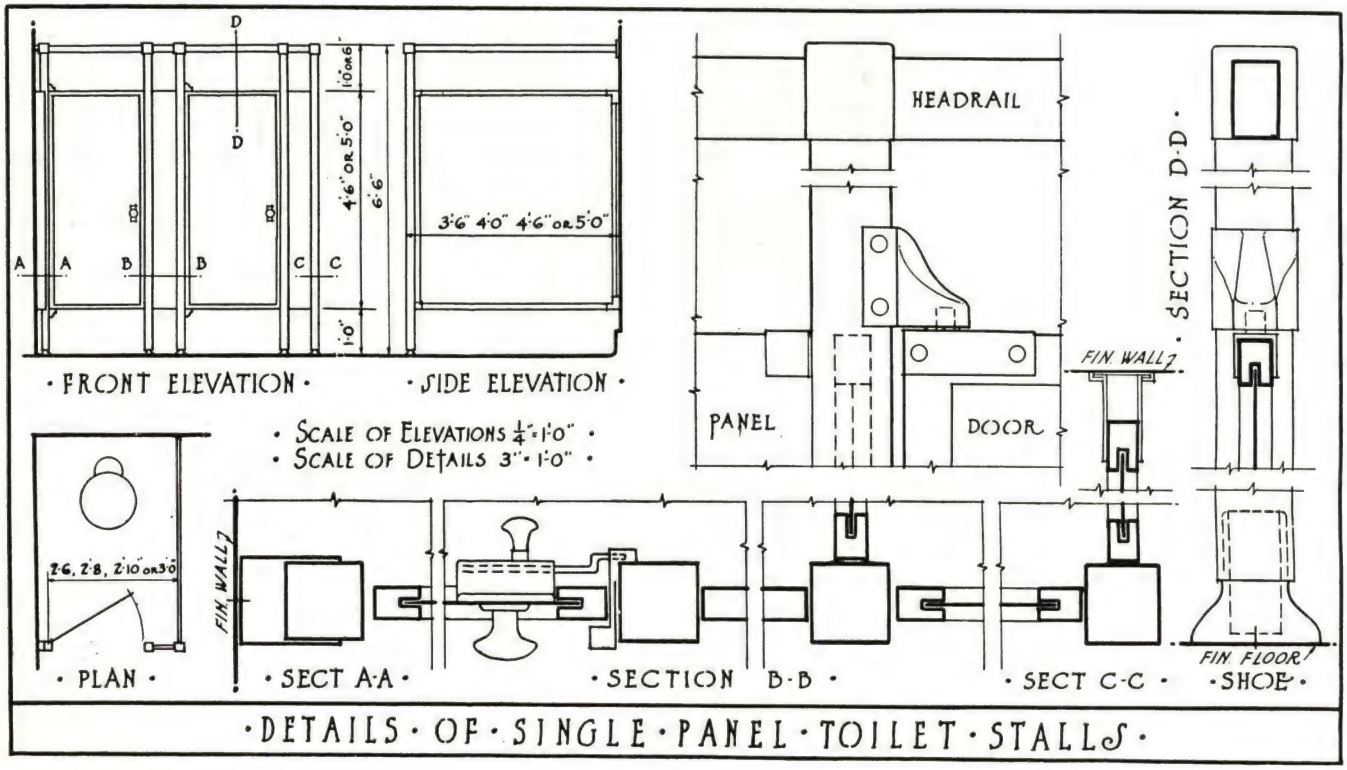
Finish

Finished standard in olive green or gray. Special colors can be furnished at a small extra cost.

Hardware—See next page following.

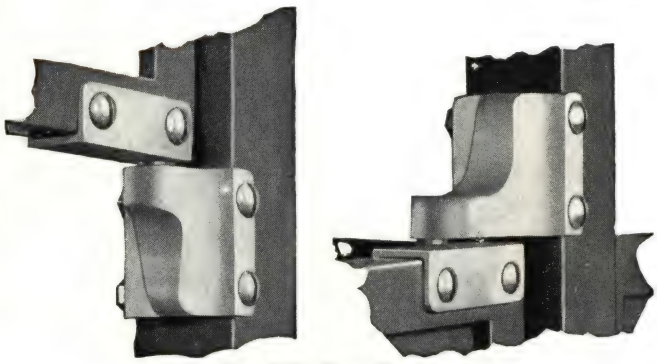


A Typical Installation



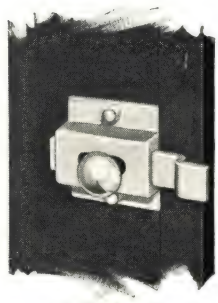
·DETAILS·OF·SINGLE·PANEL·TOILET·STALLS·

HARDWARE



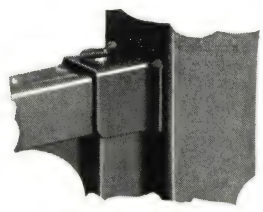
New Mills Type Hinges

An entirely new conception of toilet partition hinges. Only two parts and these are through-bolted to both door and post. No cams, set-screws, rollers, lock-nuts or other parts—*nothing to get out of order.* Easy to keep clean, simple to adjust to allow door to come to rest at any desired position. Made of white metal satin finish



Mills Latch

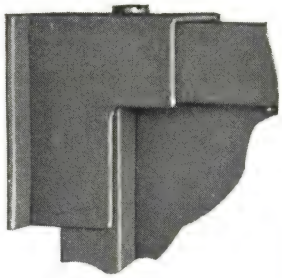
Slide bolt type connected to the stile of the door with through-bo'ts as an integral part of the knob. Special interior spring to prevent rattle. Design and finish in harmony with the other hardware



New Panel Clip

Absolutely new. Solid U-clip grips panel and holds it tightly to the post with two heavy prongs. Prevents rocking or sagging and gives completely finished appearance at every corner. Cuts production cost and helps make lower selling prices. No other toilet partition has this feature

SUPERIOR HARDWARE A MILLS FEATURE

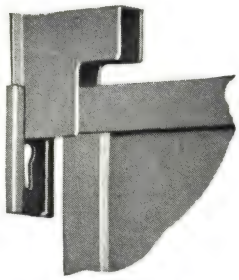




Mills Famous Internal Shoe

A valuable feature. Shoe *inside* the post so that moisture positively cannot lodge and cause failure. Shoe attached to the floor by means of an expansion bolt inside the shoe. Perfectly smooth surface to the floor and provides a 2-in. adjustment for uneven floors. No other toilet partition has a shoe like this

We invite comparison of our strong, sturdy rustproof hardware and fittings. The Mills Engineers recognize the fact that no toilet partition could long give satisfactory service unless the hardware and fittings were built to stand the stress and strain of years of use. We have builded to that end. All hardware is cadmium plated by the Udylite process. Chromium plated trim can be furnished at a slight increase in cost.

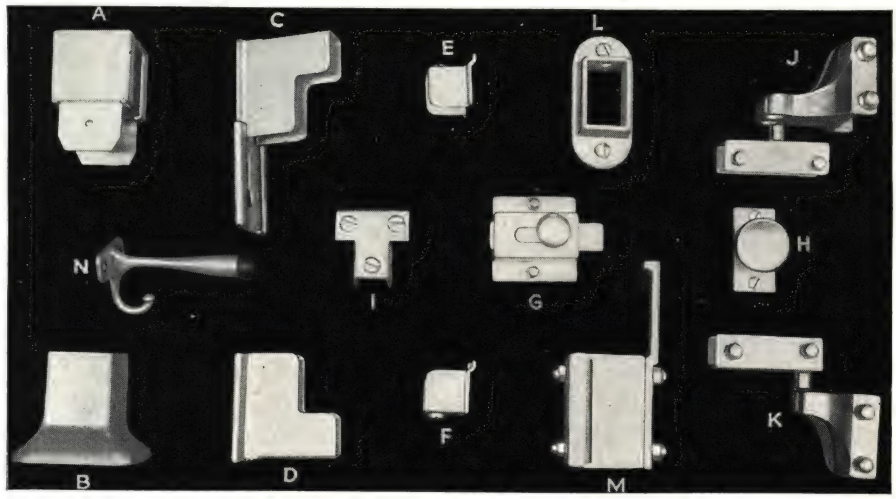


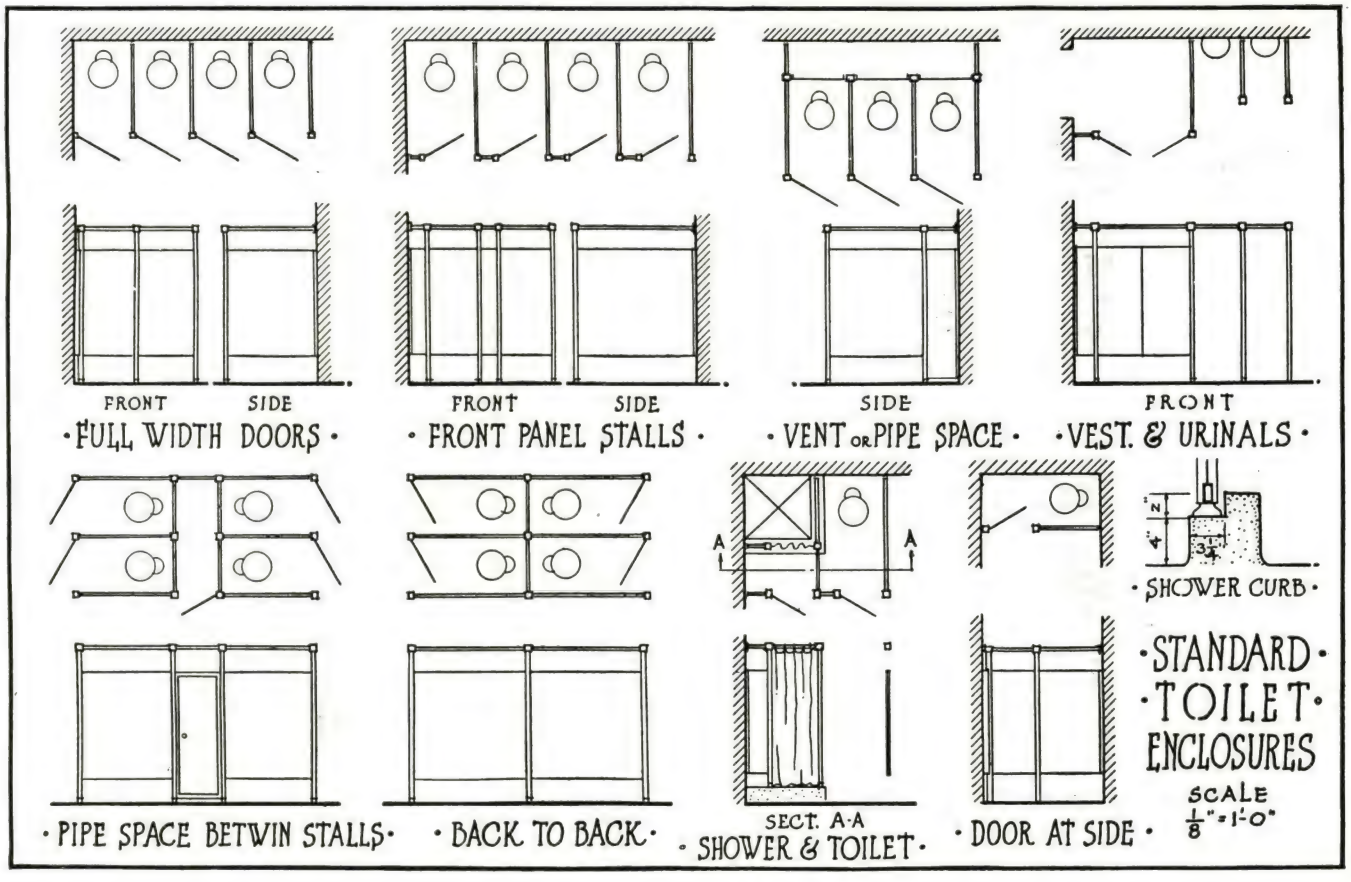
New Wall Bracket

Bracket and plate. The plate is adjustable and is attached to the wall before panel is put in position and is wide enough to cover screwhole and the unsightliness of plaster breaks around the hole.

After panel is in place the bracket is inserted by one simple, easy and quick operation and avoids any possibility of loosening wall connections in erecting the panel

Standard Hardware and Fittings





MILLS MARBLMETAL DOORS ON MARBLE

Marblmetal doors on marble have beauty, strength, and permanence. In illustration at top notice that hardware in circle has been enlarged to give you a closeup. Notice the perfect imitation of wood graining. These doors can be finished to harmonize with any color scheme. The low cost is a feature.

Fittings

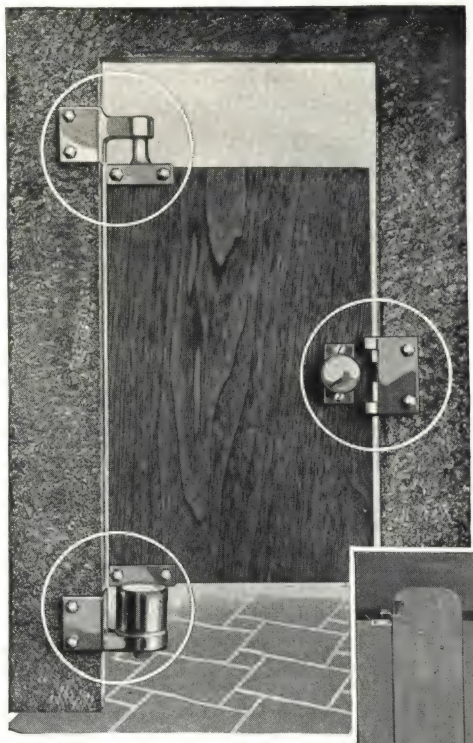
The hardware can be furnished for any thickness of marble. The hinges can be adjusted to bring doors to rest at any desired position.

Special hardware has been designed to care for any new type of marble installation.

Construction

These doors are constructed of two sheets of steel interlocked on all four sides, welded at all four corners into a solid slab ¾-in. thick and holding a ⅝-in. fibre filler between. Panels are flat, strong and rigid. Metals other than steel may be supplied at an increased cost.

Mills standard toilet partitions can be adapted to any condition which may arise. The standard compartments, single or in batteries, are economical, strong and will stand extraordinary abuse.



Mills Marblmetal partitions and doors are used in the finest buildings. Marblmetal doors on marble in their wide range of colorings and grainings provide quality with economy. (On preceding pages will be found more complete description of Mills hardware and trim.)

Left:
Hardware in Circle Has Been Enlarged to Give Closeup. Note Doors Grained in Perfect Imitation of Wood

Below:
Partial View of Recent Installation





Mills Metal Unit Shower

MILLS METAL UNIT SHOWER

The Mills *All Metal* unit shower is easy to keep clean and is absolutely watertight and leakproof. It is a self contained unit, and it is not necessary to use any specially prepared floors or curb, such as marble, terrazzo, concrete or tile, with special waterproofing or lead pans. The natural floor without waterproofing is sufficient. This shower has its own waterproof, rustproof base and curb.

Construction

The walls of the compartment are built of interlocking watertight construction and extend to a height of 84 in. which is above the height of the average shower head. The shower head can be brought over the top or through the back or side.

Being of steel construction with watertight joints which are completely finished before assembly, they will last indefinitely with a renewal of paint every two or three years.

Features

This unit will not chip, sag or crack, due to vibration or settling of the building. It will not absorb odors. It is absolutely sanitary with well proportioned flush surfaces.

Finish

Can be finished in a variety of colors and is an attractive part of any surroundings.

MILLS METAL HOSPITAL CUBICLES





Right hand view shows Marblmetal cubicle and at the left is illustration of the single panel cubicle.

Our cubicles are manufactured either in Marblmetal or single panel construction.

Either style is built in multiple widths of 6 inches ranging in depth from 30 inches to 120 inches. Where the depth of the cubicle is more than 60 inches, an intermediate post is used in the center of the total dimension. Glass may be either clear, reinforced or translucent, either single strength or ¼ inch thickness.

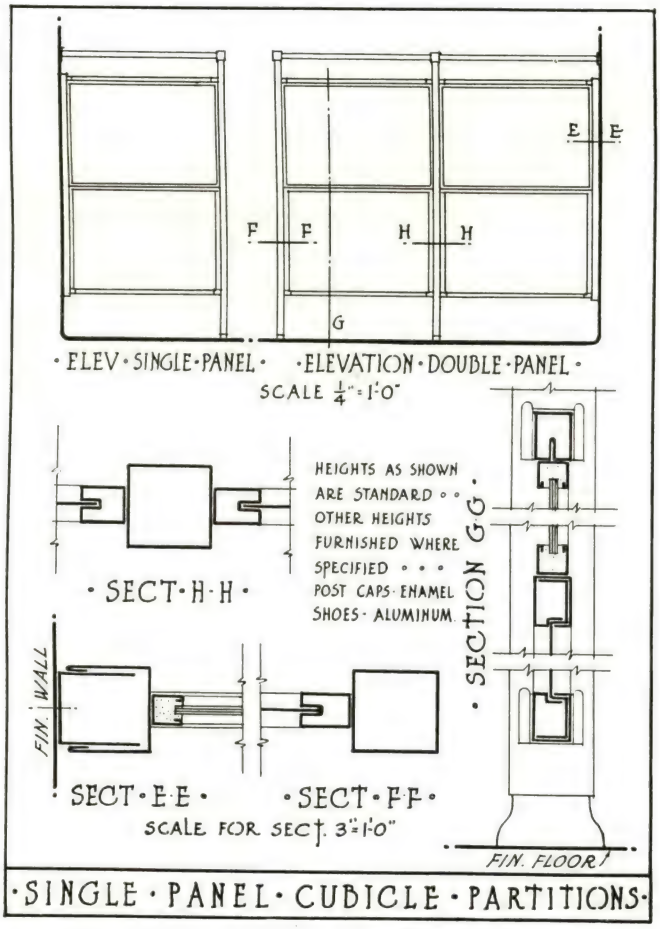
Overall height is 78 inches off the finished floor with lower panel starting 12 inches off the finished floor and with the glass line started 42 inches off the finished floor. Thus the top of the glass line finished 6 inches below the headrail or 72 inches off the finished floor.

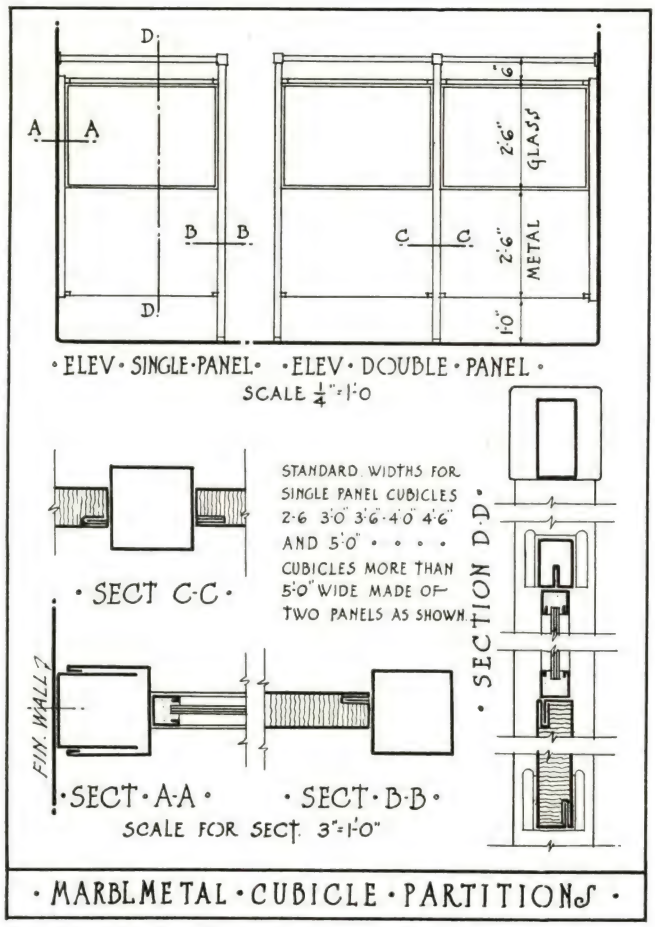
Fittings

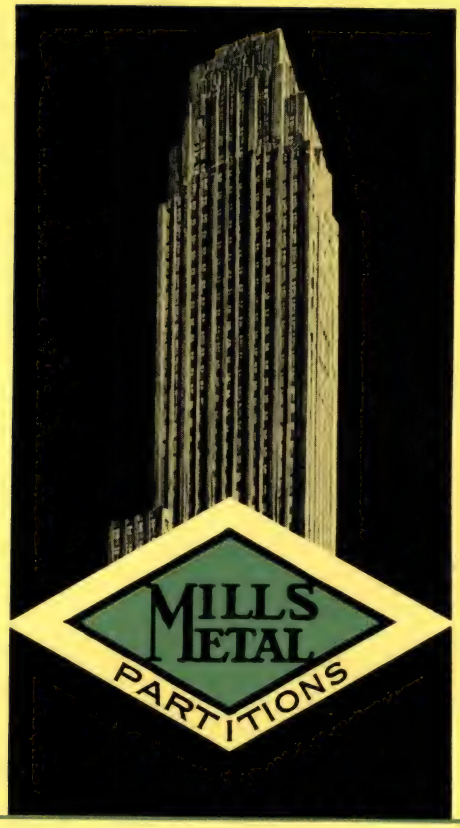
Shoes are Udylited to prevent rust. Post Caps and Wall Fittings are Udylited steel stampings. All fittings may be Chromium plated at a slight increase in cost.

Finish

Standard baked enamel in colors to harmonize with the hospital scheme.







THE MILLS CO.

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Branch Offices

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Detroit, Michigan
Phone, CHerry 3100

11 West 42nd Street
New York City
Phone, LOngacre 5-4496

160 North LaSalle Street
409 Burnham Bldg.
Chicago, Ill.
Phone, STate 3639

Representatives in all principal cities

Printed in U. S. A.

HENRY KLEIN & COMPANY, INC.

WITH WHICH ARE CONSOLIDATED
THE IMPROVED OFFICE PARTITION CO., AND DRIWOOD CORPORATION (EST. 1909)

Manufacturers of Flaimpruf Wood, Office Partition and Architectural Cabinet Work

GENERAL SALES OFFICE AND DISPLAY STORE
40-46 West 23rd Street
NEW YORK, N. Y.

PLANT: ELMHURST, NEW YORK

BRANCHES OR REPRESENTATIVES IN PRINCIPAL CITIES

FLAIMPRUF
TRADE MARK REG. U.S. PAT. OFF
WOOD

FLAIMPRUF Wood represents many years of intensive engineering and scientific research work, the object of which has been to make wood safe against fire and still retain the beauty, flexibility, insulating and soundproof qualities that only wood can give.

Architects who prefer the rich character and beauty of wood, and have hitherto been compelled, for reasons of fire safety, to accept a substitute, may now use FLAIMPRUF Wood as approved by the Building Departments, whose code and regulations are most comprehensive.

Properties

FLAIMPRUF Wood will not carry or spread a flame, nor support combustion. It is passive to fire and a non-conductor of heat. FLAIMPRUF is a natural wood to which permanent fire retardants have been added; therefore, it can be finished like any other wood.

Nothing is taken away from the beauty or quality of the wood used, but its usefulness is increased and a new quality added—Fire Safety.

The treatment is permanent and FLAIMPRUF Wood will last as long as untreated wood. It can be used wherever wood is used today and in many places where ordinary wood is highly desirable except for its combustibility.

Many different kinds of wood can be made Flaimpruf — including walnut, birch, red oak, maple, whitewood, basswood, pine, spruce and fir.

Typical Uses

FLAIMPRUF Wood has been in use over six years in homes, offices, hospitals and public buildings. Doors built of FLAIMPRUF Wood have been tested for one full hour without passage of smoke or flame, and without transmitting heat above 200° F.

Our Research Laboratory at Elmhurst, L. I., will be glad to furnish information on doors, furniture, railroad equipment, ship bulkheads, school equipment, and all such products in which fire and heat resisting qualities are demanded.



Fire Test

In the fire test illustrated, a door made of FLAIMPRUF Wood 2 in. thick was subjected to an actual fire at 1700° F. in comparison with a metal door of the approved type.

After five minutes the metal door permitted the passage of smoke. After ten minutes the temperature of the exterior surface of the door rose above 800° F. A few minutes later flames broke through.

The FLAIMPRUF Door *after 60 minutes* was still giving protection. No smoke or flame had passed, and the transmission of heat was very low.

This test and many others have been conducted under the direction of Professor Albin H. Beyer, Director of Testing Laboratories, Columbia University

Users

Among the many users of FLAIMPRUF Wood Products are the following:

Architects

McKim, Mead & White
Voorhees, Gmelin & Walker
Cass Gilbert
James Gamble Rogers
William Van Alen
Halsey, McCormack & Helmer, Inc.
Morris & O'Connor
Delano & Aldrich

Contractors and Builders

Starrett Bros. & Eken
Wm. Kennedy Construction Co.
Fred T. Ley & Company, Inc.
Marc Eidlitz & Son, Inc.
Cauldwell-Wingate Co.

Companies

Standard Oil Company
Electric Bond & Share Co.
Harrisburg Power Company
New Orleans Public Service Co.
Standard Accident & Insurance Co.

Buildings

Irving Trust Company
Chrysler Building
Bank of New York & Trust Co.
Columbia Presbyterian Medical Center
Williamsburgh Savings Bank Bldg.
New York Life Insurance Co. Bldg.

TELESCO PARTITION
IT TELESCOPES
REG. U. S. PAT. OFF.

MOVABLE OFFICE PARTITIONS AND RAILINGS, PANELED ROOMS, BANK SCREEN, CABINET WORK, ETC.

Features and Advantages of Standard Telesco Unit Partition (Design No. 6)

Design—In appearance, Telesco is simple, beautiful and modern. The posts are flush, and all mouldings are rounded to avoid dust-catching corners. The design may be modified or an entirely different design employed, according to the architect's requirements. There are no exposed metal fasteners.

Wood—Telesco partition is carried in stock for immediate delivery in genuine American Black Walnut, African Rope Striped Mahogany and Quarter Sawed Oak. Special woods are available upon architect's specifications.

Panel—5-ply laminated ¾-in. panel is used. This sturdy panel resists the hardest blows and knocks, and brings an unusual degree of soundproofness.

Telescoping Post—The telescoping post, exclusive with Telesco Partition, can be raised or lowered to varying ceiling heights, making the partition flexible vertically as well as horizontally; thus Telesco can be taken down and re-erected with a maximum salvage value, without regard to the various ceiling heights encountered.

Simple Assembly—The assembly of Telesco is entirely sectional, all parts being fastened together with screws. It can be taken down and re-erected quickly and easily by any local carpenter or handy-man, guided by our erection booklet, which shows photographically the progressive steps of erection. This feature is an important factor in economy of time and money, especially when emergency tenant changes are required.

Base—Water and mopproof. This avoids refinishing expense. Its slate-like color harmonizes with the Bower Barff finish of the Yale & Towne hardware.

Rigidity—Telesco partition, erected 22 years ago—in 1909—is still in use, proving that, even after many years of service, Telesco will still be in good condition. This is particularly true today, due to the special lacquer finish, the telescoping posts and the easy erection features which make it possible to erect and re-erect Telesco indefinitely without loss or damage.

Full Wood Panels Available—Where the architect desires to form a paneled room, full length wood panels are available. If desired, Telesco partition can also be furnished with wood panels above chair-rail, allowing glass to be substituted later.

Transoms—It is standard practice to have one transom over each door. However, extra transoms over section units are available, if required for extra ventilation.

Doors—The standard type of partition door is a full-light, low-glass type. Doors can also be supplied with wood panels.

Specifications for Telesco Unit Office Partitions

Manufacture—The contractors shall furnish and erect adjustable office partitions having hollow built-up posts. Partitions shall be Telesco partitions as manufactured by HENRY KLEIN & COMPANY, INC. (formerly Improved Office Partition Co.), 40 West 23rd St., New York, N. Y.

Locations—Partitions shall be installed where indicated on drawings or in the following locations (describe locations).

Material—Material shall be genuine American Black Walnut (African Rope Striped Mahogany or Quarter Sawed Oak).

Finish—All exposed surfaces shall be finished in a special processed durable lacquer at the factory, and shall be cleaned and wiped down after erection with approved finishing material supplied by the manufacturer.

Type—Partitions where indicated on the drawings (or mention locations) shall extend from the floor to ceiling; partitions where indicated on the drawings (or mention locations) shall be 7 ft. 1½ in. high.

Panels—Panels shall be 42 in. high, built up and veneered, 5-ply laminated, ¾ in. thick.

Posts—Posts shall be built-up, hollow, housing telescoping extension posts.

Doors—Doors shall be 34 in. wide by 6 ft. 8 in. high by 1⅜ in. thick, built up and veneered, single full light type, with transom over doors where they occur in ceiling height partition.

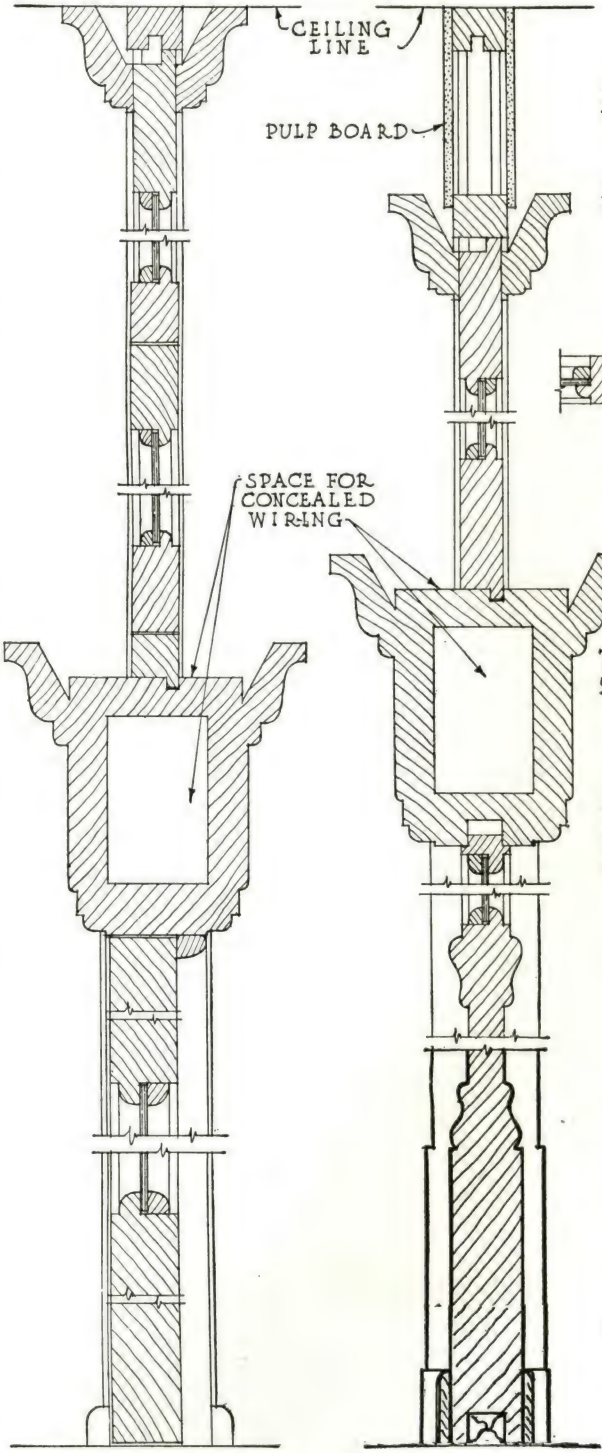
Base—Base shall have a special water and mopproof treatment, slate colored to match hardware.

Hardware—Hardware shall be Yale & Towne manufacture, Bower Barff finish, with bit key mortise locks. Transoms shall be provided with friction pivots, top and bottom.

Glazing—Glass lights below the 7-ft. high cornice shall be glazed with (....). Doors shall be glazed with (....). Transoms of superstructure shall be glazed with (....).

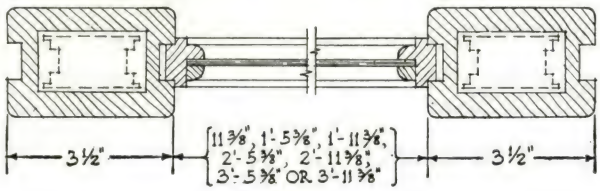
Erection—Partition shall be erected in strict accordance with the manufacturer's instructions and erection manual.

Top Filler—Where ceiling height partition crosses under beams, the space between the top cornice and the floor slab—represented by the beam drop—shall have double face wallboard filler to be finished the same color as the ceiling.

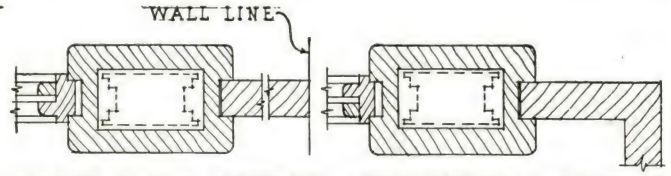


VERTICAL SECTION A-A

VERTICAL SECTION B-B

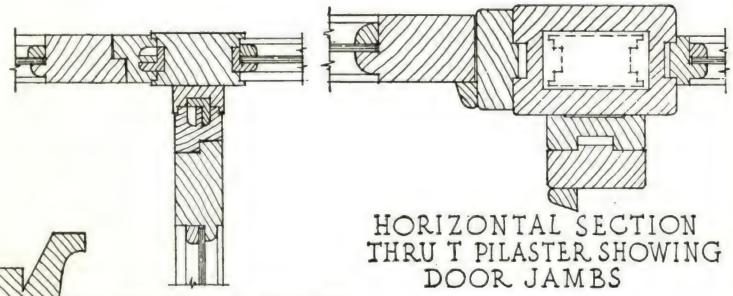


HORIZONTAL SECTION C-C



HORIZONTAL SECTION THRU PILASTER SHOWING SCRIBING BOARD

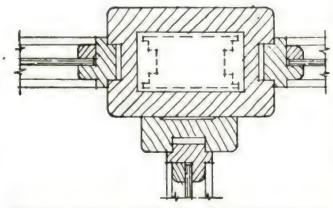
HORIZONTAL SECTION THRU PILASTER SHOWING CORNER CONSTRUCTION



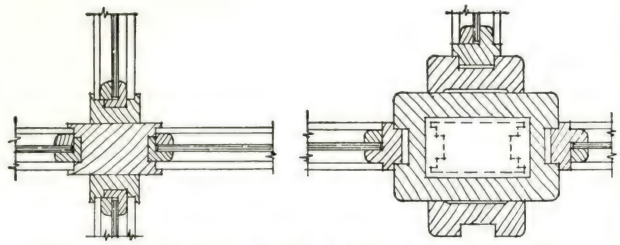
HORIZONTAL SECTION THRU T PILASTER SHOWING DOOR JAMBS

HORIZONTAL SECTION THRU SUPERSTRUCTURE SHOWING T EXTENSION POSTS & TRANSOM

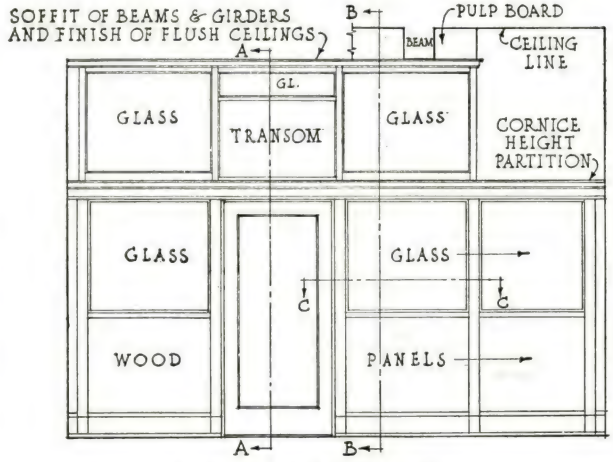
EACH POST IS BUILT UP HOLLOW 6'-11" HIGH AND ENCLOSES THE EXTENSION POST, WHICH IS 6'-0" HIGH AND CAN BE RAISED TO ACCOMODATE CEILINGS UP TO 12'-3" HIGH



HORIZONTAL SECTION THRU T PILASTER



CONSTRUCTION OF 4 WAY PARTITION



ELEVATION

HENRY KLEIN & CO., INC.

Nº6 TELESCO UNIT PARTITION

SCALE 3"-1'-0"

New Nos. 14 and 15 Design Telesco Partitions

For conditions requiring greater economy in first cost, there has been developed our new No. 14 and No. 15 Designs of Telesco Partition with the added interlocking features, making for rapid assembly and erection in the field. These designs are manufactured in our standard woods, birch, walnut, mahogany and oak, both plain and quarter sawn. See details on following page. Further information furnished upon application.

Stock

Telesco is carried in stock in large quantities for immediate shipment, in birch, walnut, mahogany, or quartered oak. Daily this stock is renewed in our 12½-acre plant at Elmhurst, N. Y.

Service

Although any carpenter or handy-man can assemble Telesco, we are equipped to handle complete installations.

Telesco Sanitary Style Railing

Harmonizes with Telesco Partition in appearance, design, construction and flexibility. Furnished in American Black Walnut, Striped African Mahogany and Quartered Oak; with 5-ply laminated ¾-in. panels that prevent bulging or warping regardless of length of section. Ample space is left between panels and floor for mop or vacuum cleaning.

Paneled Rooms

Paneling is made to order in any architectural period or special design desired. Our cabinet makers are craftsmen of many years' experience, faithfully executing every architectural detail and specification, combined with a highly organized and well-trained executive organization to see that the requirements are carried out.

Telesco Bank Screen and Bank Equipment

The Telesco line of modern bank fixtures is complete in every detail, including banking screens, bronze wickets, check desks, coupon booths, counters, benches, and board of directors' and managerial special furniture.

Flaimpruf Wood

All products of HENRY KLEIN & COMPANY, INC., including partition, railings, panelled rooms, banking screen, etc., are also obtainable in FLAIMPRUF Wood.

Display Store and Exhibits

For the convenience of architects, builders and owners, there is maintained a large store level display room at 40-46 West 23rd Street, New York City. Here may be found full size exhibits of fine architectural woodwork and cabinet interiors covering paneling, banking screens, Telesco partition, and the things generally encountered in fine interior woodwork.

SOME PROMINENT USERS OF TELESCO PARTITIONS

American Radiator Company
Burroughs Adding Machine Company
Colgate & Company
E. I. duPont de Nemours & Company
General Electric Company
International Silver Company
Lorillard Tobacco Company
New York Stock Exchange
New York Telephone Company
Remington Cash Register Company
Travelers Insurance Company
United States Chamber of Commerce
United States Rubber Company
Westinghouse Electric & Manufacturing Company
Western Electric Company

OFFICE BUILDINGS EQUIPPED THROUGHOUT WITH TELESCO PARTITION

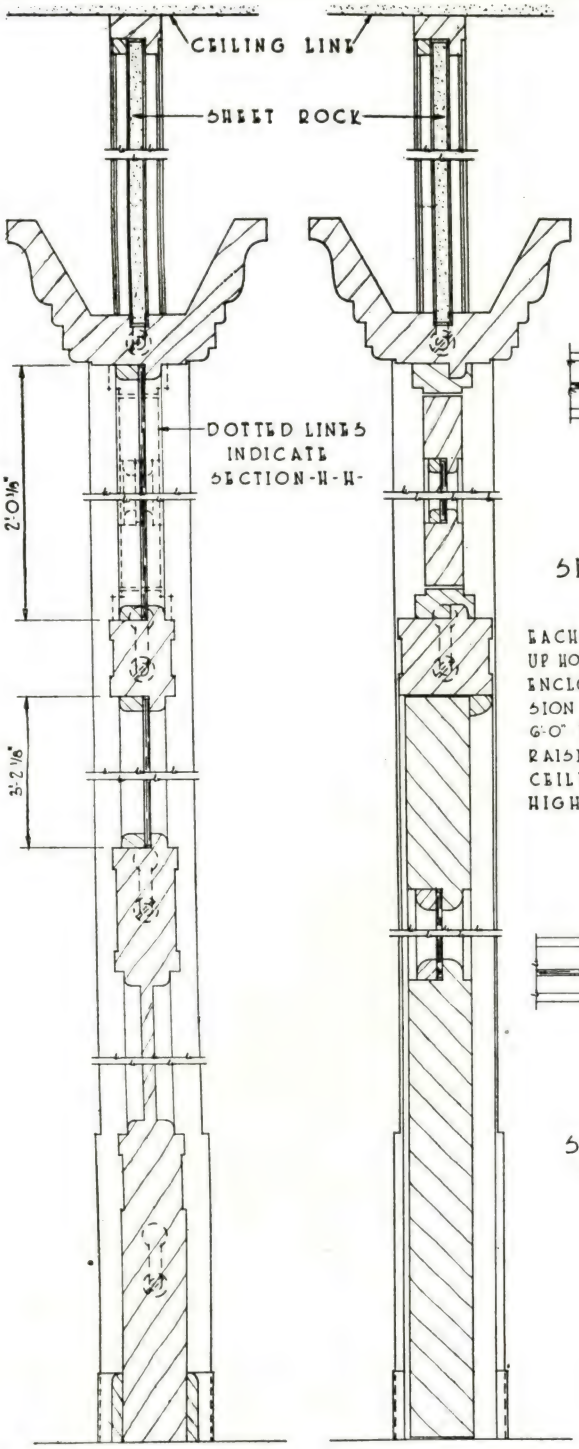
BUILDING	ARCHITECT	GENERAL CONTRACTOR
Irving Trust Co., 1 Wall St., New York, N. Y.	Voorhees, Gmelin & Walker	Marc Eidlitz & Son, Inc.
Bank of New York & Trust Co., New York, N. Y.	Benjamin W. Morris	Marc Eidlitz & Son, Inc.
Baltimore Trust Co., Baltimore, Md.	Taylor & Fisher, Smith & May	J. Henry Miller Inc.
Ohio Savings Bank Bldg., Toledo, Ohio	Mills, Rhines, Bellman & Nordhoff	C. A. Bentley & Sons
National Savings Bank Bldg., Albany, N. Y.	Halsey, McCormack & Helmer, Inc.	Wm. G. Sheehan Construction Co.
New York Life Bldg., New York, N. Y.	Cass Gilbert	Starrett Bros. & Eken, Inc.
Genesee Valley Trust Bldg., Rochester, N. Y.	Voorhees, Gmelin & Walker	A. Frederichs & Sons
Title Guarantee & Trust Bldg., New York, N. Y.	John Mead Howells	Thompson Starrett Co.
Reynolds Tobacco Bldg., Winstom-Salem, N. C.	Shreve, Lamb and Harmon	Jas. Baird Co., Inc.
Oaklahoma City First Natl. Bank, Oklahoma City, Okla.	Weary & Alford	Manhattan Construction Co.



Telesco Partition as a Corridor
Installation in the Nottingham Lace Works, New York, N. Y. Note the effective privacy without the loss of light

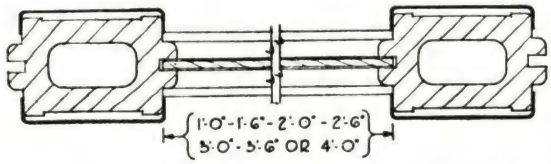


Paneled Room in Yuba Wood
Installation in Executive Suite of Irving Trust Company, Number One Wall Street

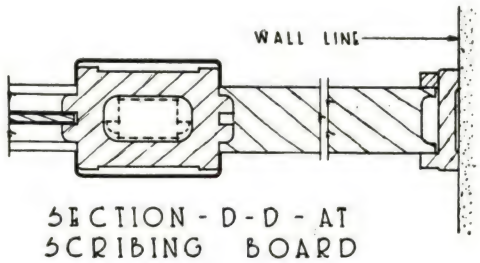


VERTICAL SECTION -A-A-

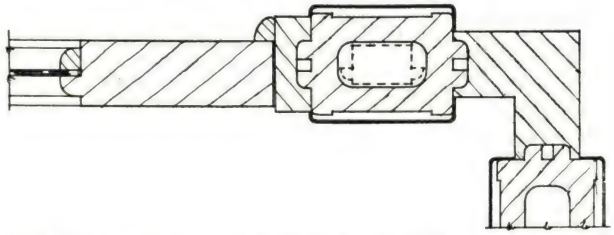
VERTICAL SECTION -B-B-



HORIZONTAL SECTION - C - C -

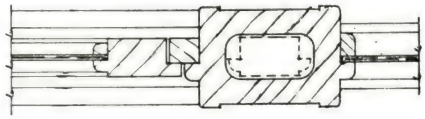


SECTION - D - D - AT SCRIBING BOARD

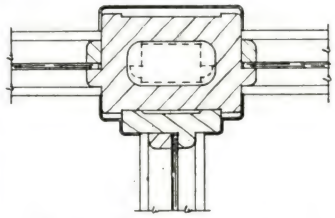


SECTION - E - E - SHOWING DOOR JAMBS

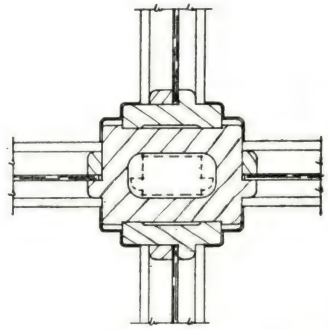
EACH POST IS BUILT UP HOLLOW 8'-11" HIGH AND ENCLOSES THE EXTENSION POST, WHICH IS 6'-0" HIGH AND CAN BE RAISED TO ACCOMODATE CEILINGS UP TO 14'-0" HIGH



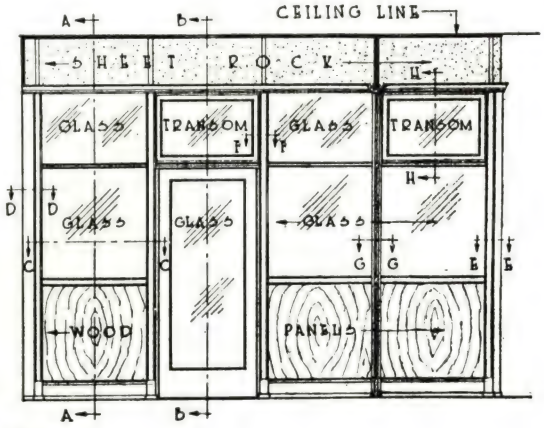
SECTION - F - F -



SECTION - G - G - AT -T- PARTITION



CONSTRUCTION OF 4 WAY PARTITION



DESIGN-No. 15

-ELEVATION-

HENRY KLEIN & CO., INC.	NO. 15 TELESCO UNIT PARTITION	SCALE 3"-1'-0"

NORWOOD WHITE COMPANY

Manufacturers of Sectional Movable Wood Office Partitions, Railings and Counters

GENERAL OFFICES

80 Broad Street, BOSTON, MASS.

REPRESENTATIVES

ATLANTA, GA., Applewhite & Lawler Co., Citizens & Southern Bank Building
BUFFALO, N. Y., Kenmore Builders Supply Co., Hinman Avenue
CLEVELAND, OHIO, Carver & Behan, 509 Insurance Center Building
NEWARK, N. J., Building Specialties Inc., Lefcourt Newark Building
NEW YORK, N. Y., Building Specialties Inc., 11 East 38th Street
PITTSBURGH, PA., Kirk-Grier Co., 434 Diamond Street

Products

NORWOOD WHITE MOVABLE WOOD PARTITIONS, RAILINGS and COUNTERS.

Features

Norwood White Partitions are entirely assembled with concealed wood screws and may be taken down and relocated any number of times without loss of material or damage to premises. The partitions have ample provision for both horizontal and vertical concealed wiring. Factory fitted parts and simplicity of construction assure a low erection cost even with unskilled mechanics.

Designs

Norwood White Partitions are carried in three types, the Executive, the Commercial and the Economy, covering ample price range and purpose. These partitions are available in American walnut, mahogany, quartered oak, plain oak and clear pine. Excepting the Economy type pine all partitions are *factory finished* in lacquer.

The Executive Type—Directors' rooms, executive offices, private offices, main corridors, brokerage offices, bank interiors, etc.

The Commercial Type—General office divisions, bank coupon booths, cashiers' cages, public utility offices, industrial offices, department stores.

The Economy Type—Garage offices, shop offices, storage rooms, warehouse offices and shipping rooms.

Stocked

Eleven standard unit widths make Norwood White Partitions adaptable to any conceivable layout. Partitions can be furnished either 7 ft. high or to the ceiling with an adjustable superstructure to accommodate any ceiling height. All types are furnished with a black *mop proof* baseboard impervious to floor washing compounds.

The $\frac{13}{16}$ in. 5-ply die panel is also a Norwood White feature on all types.



Aetna Building, Hartford, Conn.
Equipped with Norwood White "Executive" Partitions

Specifications, etc.

Further specification, catalogues and prices on request to Boston Office or nearest representative.

References

Norwood White Partitions are standard in such buildings as:

Atlantic National Bank Bldg., Boston
Charles Chauncy Bldg., Boston
Insurance Exch. Bldg., Boston
North Station Industrial Bldg., Boston
Public Service Bldg., Boston.
Central Bldg., Worcester
R. I. State Office Bldg., Providence
Washington Bldg., Washington, D. C.



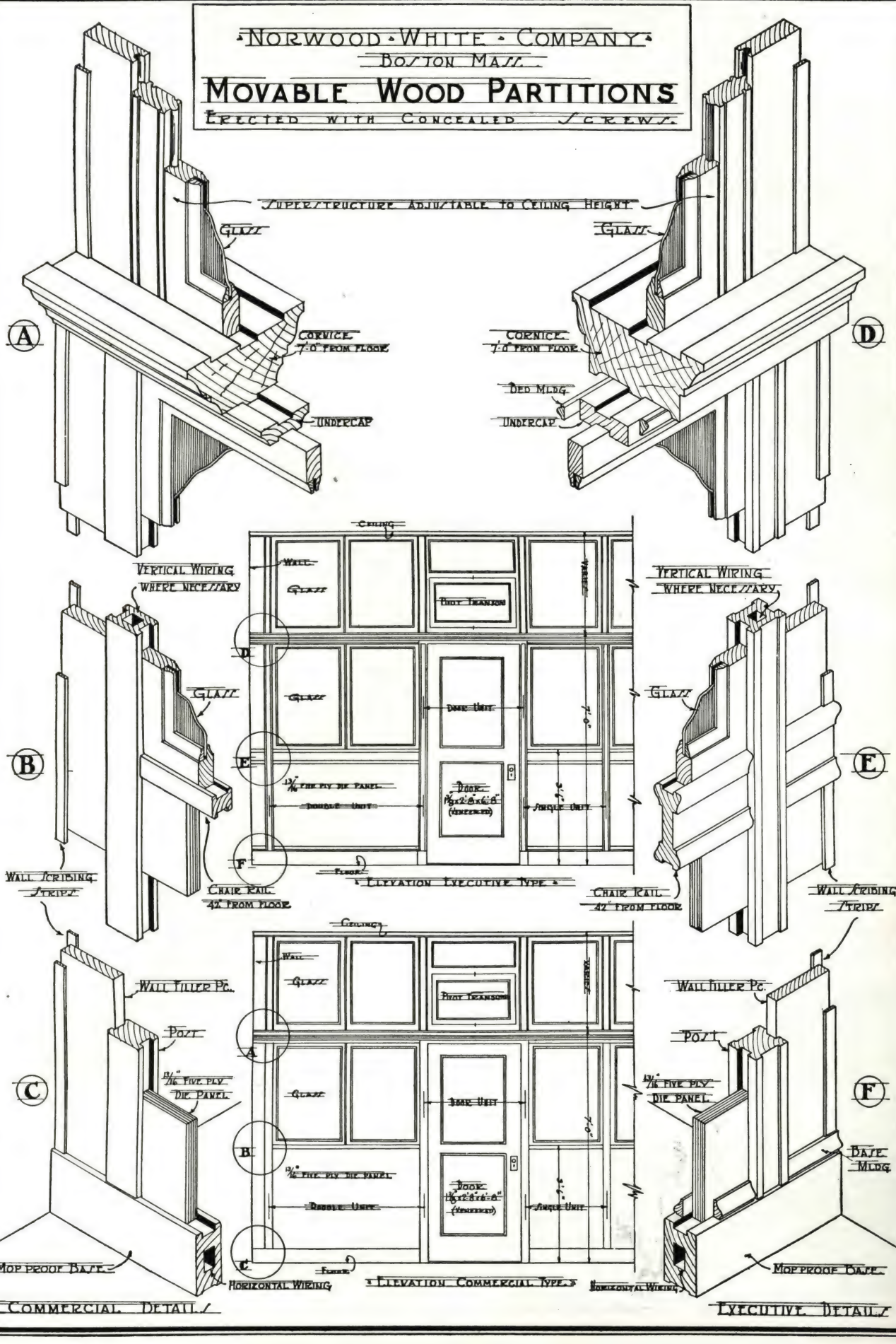
Typical Commercial Mahogany Installation to Ceiling Height



Commercial Mahogany Type Utilized as Wall Dado

NORWOOD-WHITE COMPANY
BOSTON MASS.

MOVABLE WOOD PARTITIONS
ERECTED WITH CONCEALED SCREWS.



COMMERCIAL DETAIL

EXECUTIVE DETAIL

THE SANYMETAL PRODUCTS COMPANY

Metal Partitions for Offices and Toilets

1690 Urbana Road, CLEVELAND, OHIO

NEW YORK OFFICE: 536 East 133rd Street

AGENCIES IN PRINCIPAL CITIES

PRODUCTS

SANYMETAL PARTITIONS for offices, factories, hospitals, churches, schools, hotels, etc.

SANYMETAL TOILET ROOM, DRESSING ROOM, SHOWER BATH and URINAL PARTITIONS, SCREENS and WAINSCOTS; SANYMETAL GRAVITY ROLLER HINGES for all toilet and part-length swinging doors and SANYMETAL TOILET ROOM HARDWARE.

Sanymetal

TRADE MARK U S REG

SANYMETAL STEEL OFFICE PARTITIONS

Easy Re-arrangement—These latest Sanymetal partitions have special features permitting easy dismembering and relocation with 100% salvage, and without dust, dirt, or annoyance.

Flexible Construction—Door and panel sections are interchangeable. Cornice height partitions may be converted into ceiling height. The unique "4-way" post allows panels to be run in any direction from the same post.

Fit Any Space—Sanymetal construction is exceptionally substantial, yet the standard units are adaptable to any floor space or height.

Genuine Craftsmanship—The hollow steel sections are of high grade construction, drawn, not pressed. Every detail of trim and finish is faultlessly executed.

Choice of Finishes—Interior wall finishes and office color schemes can be matched or harmonized with the wide range of Sanymetal baked enamel finishes.

High Quality Doors—Unusually substantial hollow metal doors with lined stiles and rails, and fitted with very durable hardware.

Sound-deadening—Standard Sanymetal construction is highly sound-deadening. Partitions can be insulated if desired.

Readily Wired—Full provision is made for electric conduit to run through base, chair rail, cornice, and posts.

A Product of Long Experience—Nearly 20 years in manufacturing steel partitions, and a record of over 20,000 successful installations, qualify this company to give expert service in plan, manufacture, and erection.

Write for the address of your nearest Sanymetal Representative.

"RF" Type Specifications

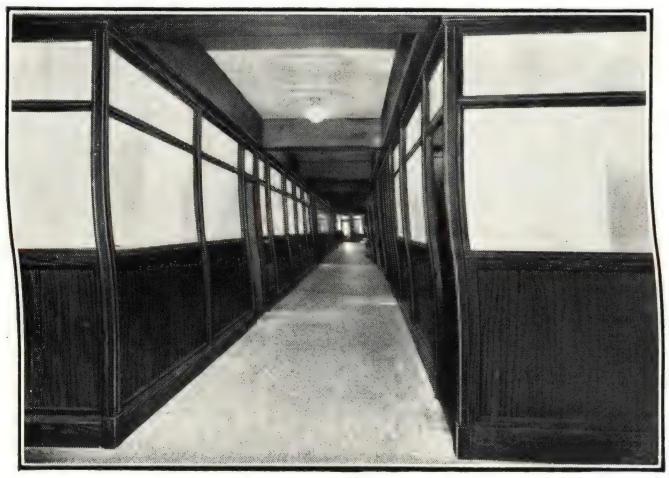
Metal partitions are to be "Sanymetal" as made by THE SANYMETAL PRODUCTS COMPANY of Cleveland, Ohio, and known as "RF" Type. They shall be of unit type assembled from drawn steel shapes and steel sheets of the best of the respective kinds. Each unit shall consist of a floor channel, base, lower steel panel, chair rail, upper glass or steel section to the height as is shown in the elevations, cornice to be continuous of rolled steel shapes. All posts to be 3 ins. square and capped with removable pilasters clipped on.

Bottom panels shall be formed of No. 18 gauge moulded stiles and rails, welded into a solid frame into which No. 18 gauge steel sheet shall be interlocked. Moulded glass frame shall be provided for upper panel with removable glass bead clipped on without the use of screws. Glass frames and connecting mouldings shall be No. 20 gauge. Chair rail to be a drawn shape No. 18 gauge moulded top and bottom to match moulding on steel panels and glass frames. Where lower panels are specified as "packed panels," they shall be ¼ in. thick, of two parallel sheets of No. 20 gauge with fibre board between.

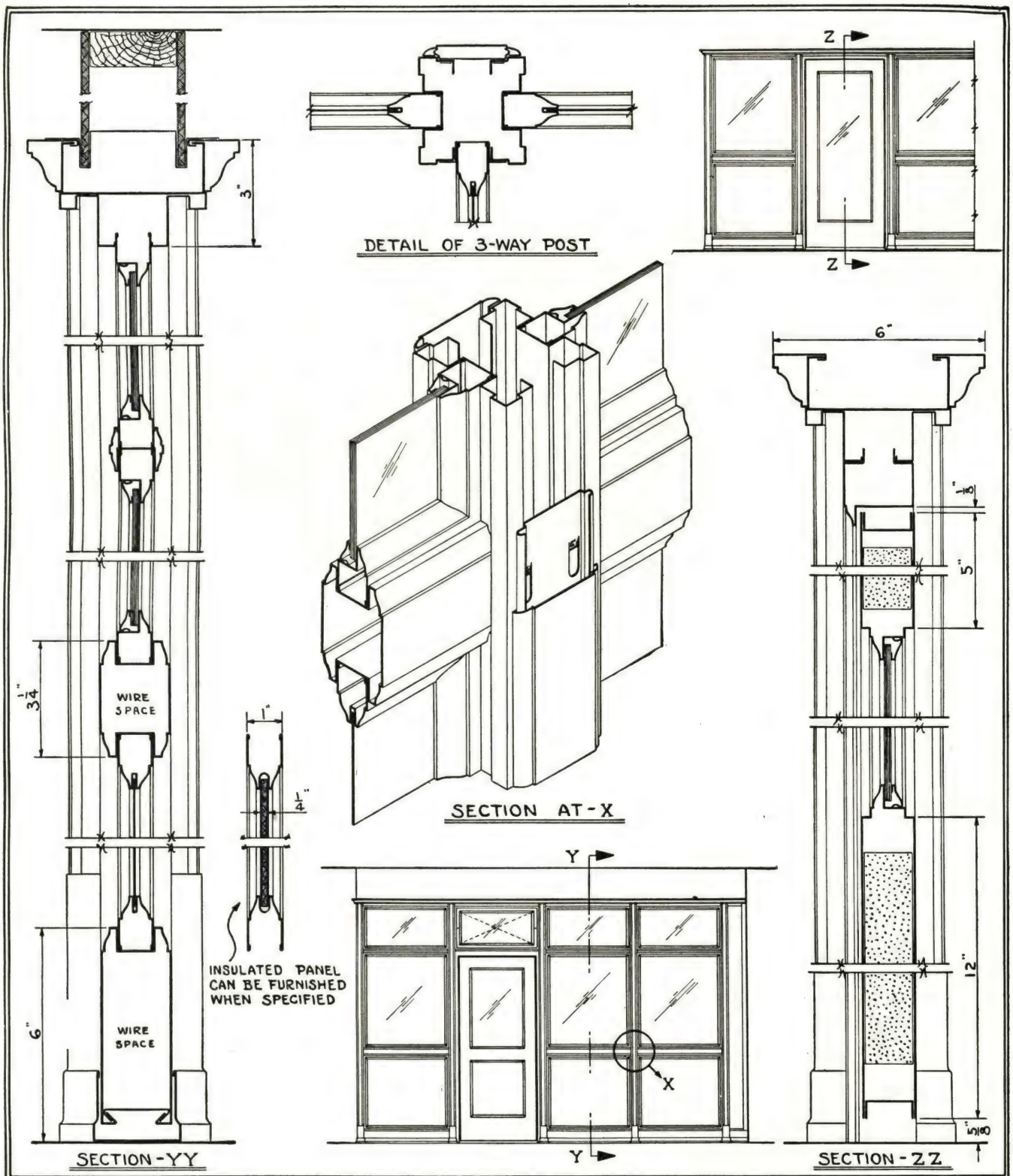
Where ceiling high partitions are furnished, the space between cornice and ceiling shall be formed from asbestos mill board.

Doors are to be 1½ in. thick with 5-in. stiles and rails and glazed by means of removable glass moulding. Each door equipped with three 4x4 butts and hardware of standard manufacture.

All partitions to be thoroughly cleaned in benzine and to be finished in two coats of enamel of color selected.







THE SANYMETAL PROD. CO. CLEVELAND OHIO	-PATENTED- MAR-5-1927 Nº1,621,060	OTHER PATENTS PENDING STANDARD DETAILS TYPE ~ RF ~ PARTITION	-PATENTED- NOV.-22-1927 Nº1,649,886	PLATE NO. 40 DATE - MAY - 15 - 1931

Sanymetal

TRADE MARK U S REG

SANYMETAL STEEL TOILET PARTITIONS

Experience and Facilities

Partition builders since 1915. Over 20,000 installations throughout the United States. Over 40,000 sq. ft. factory space.

Architects and Engineers, in laying out toilet rooms, can use the following standard size compartments:

Width, 30, 32, 33, 34 and 36 ins.

Depth, 36, 42, 48, 54 and 60 ins.

Stock sizes of parts can be used with height of partitions above floor, 12 ins.

Height of head rail above panel, 12 ins.

Panel height, 54 or 60 ins., making over-all height floor to head rail, 78 or 84 ins.

Suggested Specifications for Toilet Partitions
Unit Panel Type

All toilet partitions and doors [entrance screens] [shower enclosures] [dressing rooms], are to be built of *Sanymetal Unit Panel Type* as manufactured by THE SANYMETAL PRODUCTS COMPANY, Urbana Road, Cleveland, Ohio.

Partitions are to be made with drawn hollow metal interlocking rails, *with all raw edges concealed,* having stretcher leveled, full pickeled, full cold rolled panel sheets (of gauge as recommended by U. S. Bureau of Standards, Simplified Practice Recommendation R101-29), securely interlocked into mouldings, forming a partition without spot welds. Front post of partition shall be drawn hollow metal, forming sunken panels on four sides, into which front flange of partition is set and securely welded. Partitions are to fasten to the wall by means of adjustable wall channel. Install 1¼-in. drawn hollow metal tubing for head rail brace. Furnish polished brass nickelplated self-drained shoe for setting front post of partition to floor; also head cap for holding head rail.

Doors are to be made with 1-in. thick by 3¼-in. wide reinforced drawn metal stiles fitted with panel sheet. Doors are to be equipped with encased, full floating gravity ball bearing roller hinges with adjustment to make doors [outswinging] [inswinging] [self-closing] [self-opening], and with combination latch, pull and rubber tipped stop. All door hardware to be polished aluminum composition or brass nickelplated applied with bolts with cap nuts.

All metal is to be thoroughly sanded, washed with benzine, filled and primed with sublimed blue lead, baked on. If enamel finish, spray and bake on separately two additional coats of Olive Green or Battleship Gray color. Shrivel finish if desired.

Write for Bulletin 47 on Unit Panel Toilets.

Flush Type

All partitions and doors are to be *flush type* as made by THE SANYMETAL PRODUCTS COMPANY of Cleveland, Ohio, and are to be made of 22 gauge sheet steel, full cold rolled and patent leveled, interlocked at top and sides by special drawn locking strip. These to be at least 1 in. thick and insulated with a sound-deadening, verminproof and fireproof filler between the sheets of steel, glued on the sheets with a waterproof cement and allowed to dry thoroughly in a press so as to keep the parts in true alignment. Corners of panels and doors to be welded and ground smooth and buffed.

The front post of partition to be drawn hollow metal, forming sunken panels on four sides, into which front edge of partition is set and securely fastened. Partitions are to fasten to wall by means of an O. G. drawn adjustable channel with at least three concealed screws or toggle bolts as required. Back edge of partition to be inserted in this channel and fastened by screws top and bottom.

Headrail to be 1¼-in. drawn hollow metal tubing. Furnish bronze alloy, self-draining shoe on each post, and also cap for each post.

Doors to be equipped with encased full floating gravity ball bearing roller hinges and with adjustment to make doors [inswinging] [outswinging] [self-opening] [self-closing] and with combination latch, pull and rubber tipped stops. All door hardware to be aluminum or brass nickelplated, polished and applied with nickelplated bolts and cap nuts.

All metal is to be thoroughly sanded, washed with benzine, filled and primed with sublimed blue lead baked on. If enamel finish, spray and bake on separately two additional coats of Olive Green or Battleship Gray baking enamel.

Erection is simple. Adjustable base casting fastened to floor by screws; a bracket or U-channel (adjustable to any unevenness) is fastened to the walls; partitions securely fastened to the U-channel; caps inserted in tops of posts; head rail brace is installed and fastened to walls; doors are then hung on partition posts. No drilling necessary on job. Quotations furnished erected or f.o.b. factory.

Write for Bulletin 32 on Flush Panel Partitions.

Gravity Roller Hinges

For all doors of wood or steel, made to fit Sanymetal, slate, marble or wood partitions. The new encased type Sanymetal gravity ball bearing roller hinge, made of brass nickelplated is now adaptable to self-closing or self-opening doors of any type. A perfected development of the original Sanymetal springless hinge. Doors operate silently, and do not bang.

Write for Bulletin 51.

Aluminum Partitions and Doors

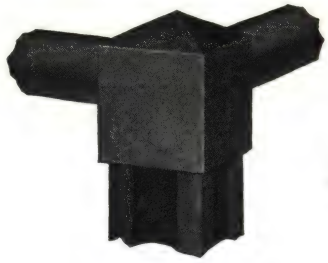
Where an especially high grade, extra durable installation is required, standard Sanymetal designs as above described are furnished of aluminum construction throughout.

Shower and Urinal Partitions

Write for Bulletin 56 on individual showers of steel or aluminum—each compartment a self-contained unit easily carried through any door opening.

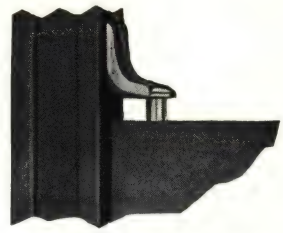


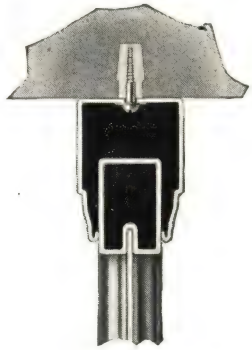
Unit Panel Type Toilet Partition



At Right: Top Hinge

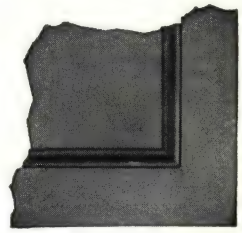
At Left: Post Cap

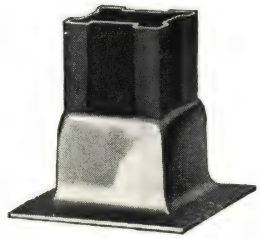




At Right: Door Trim

At Left: Wall Channel

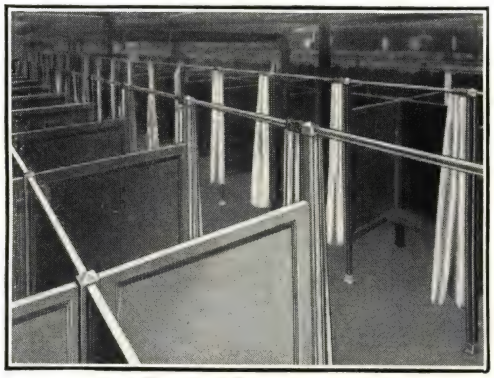




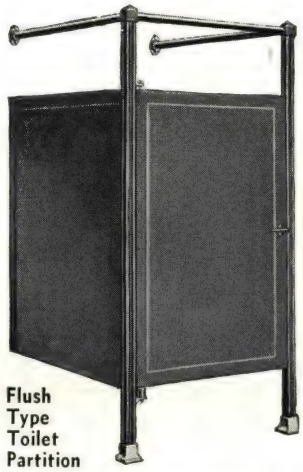
At Right: Bottom Hinge

At Left: Post Shoe

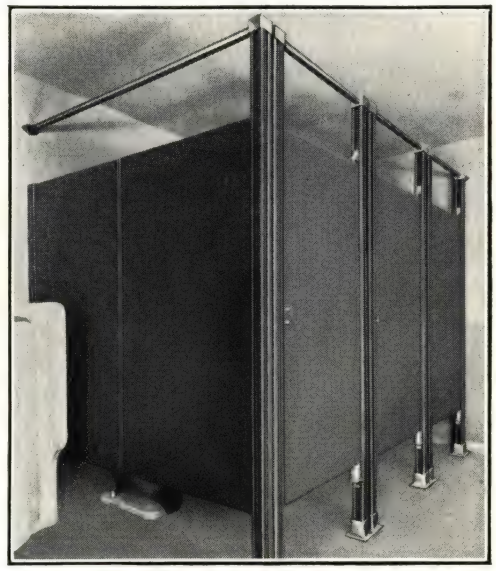




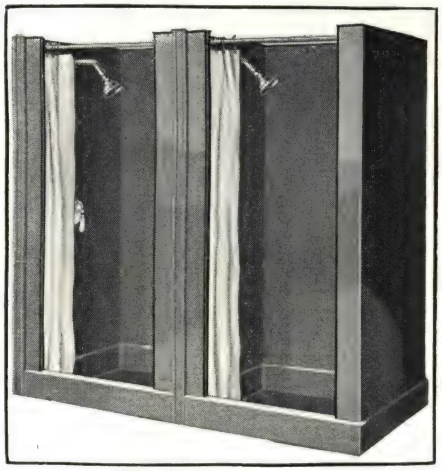
Dressing Compartments



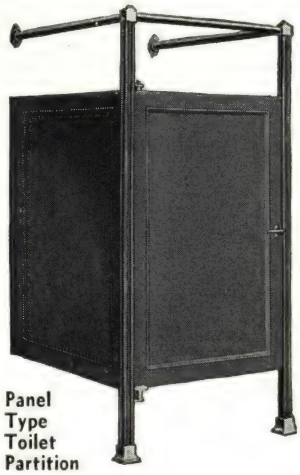
Flush Type Toilet Partition



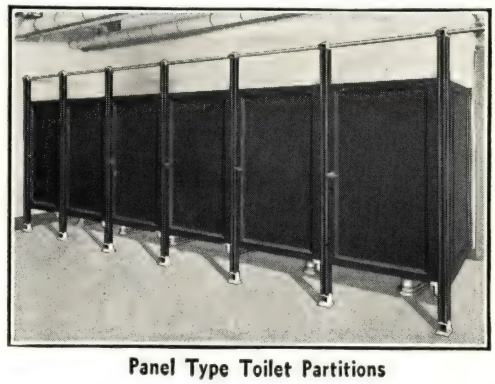
Flush Type Toilet Partitions



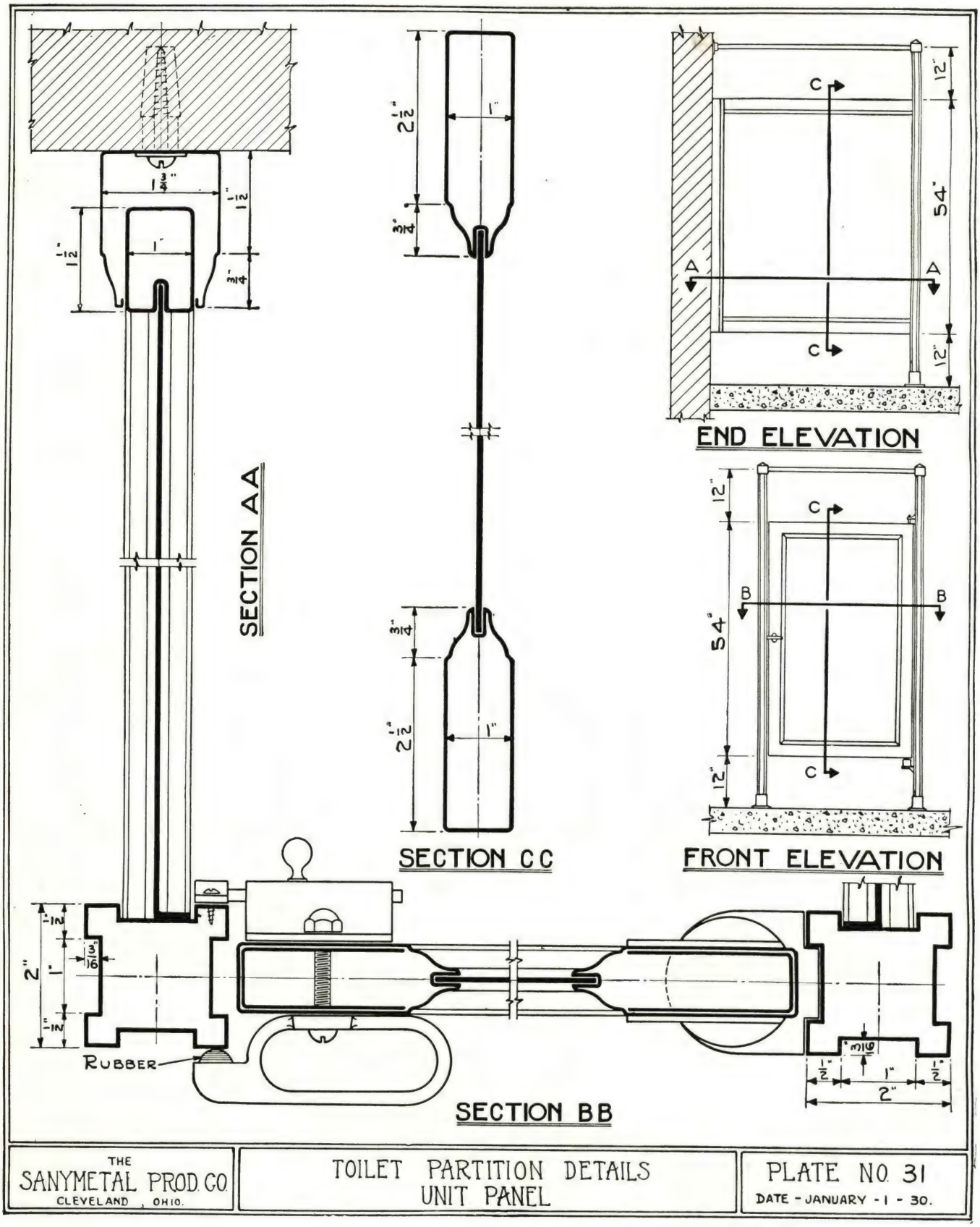
Shower Compartments



Panel Type Toilet Partition



Panel Type Toilet Partitions



THE SANYMETAL PROD. CO. CLEVELAND, OHIO.	TOILET PARTITION DETAILS UNIT PANEL	PLATE NO. 31 DATE - JANUARY - 1 - 30.

SPECIFICATIONS FOR HOSPITAL CUBICLES AND SCREENS

Cubicle or Screen Partitions to be of steel and glass as made by THE SANYMETAL PRODUCTS COMPANY of Cleveland, Ohio, as detailed and shown on plans (or specify sizes).

Upright Posts—Upright posts to be of hollow drawn steel 2 ins. square. Gauge .040 with self-locking, concealed joint and sunken panel on each side, forming a recess into which the panel must be fastened. Each post to have brass N. P. shoe fastened to floor with nickelplated wood screws. Each post to be capped with a top casting.

Bottom Panel—Bottom panel to be flush type without mouldings, constructed of two sheets of 20 gauge filled between with corrugated fibre 1 in. thick.

All steel to be full cold rolled, full finished, patent leveled, open hearth sheets, free from scale and buckle.

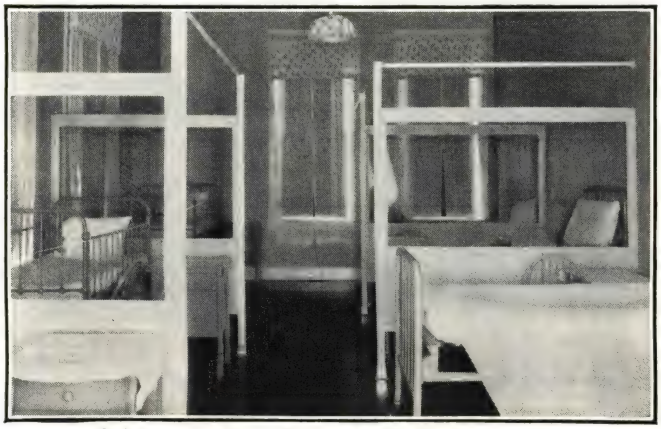
Top Panel—Top panel to be of glass, either D.S.A., Polished Plate, Polished Plate Wire, or Rough Wire, as selected. Glass frame both sides to be of drawn steel mouldings, welded into one continuous piece and put in by spring clips without bolts or screws.

Top Rail—Top rail over glass panel to be formed of two drawn channels 1x1½ in., fastened between posts.

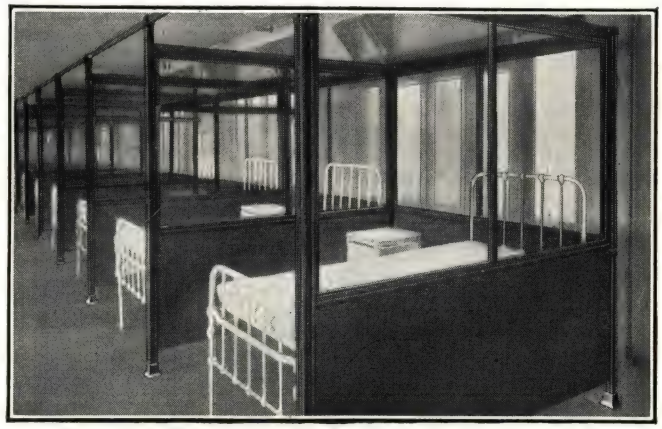
Head Rail—Head rail bracing shall be furnished between adjacent cubicles 1¼-in. outside diameter tubing, fastened to top of posts by means of castings. Where curtains are used, head rail bracing acts as a curtain rod.

Finish—All work to be thoroughly cleaned at factory with sandpaper and benzine and a prime coat of lead base, rust-resisting primer applied and baked on. Two finish coats to be applied of the best baking enamel and baked to at least 300° F. Standard finishes Gray, Olive Green or Battleship Gray.

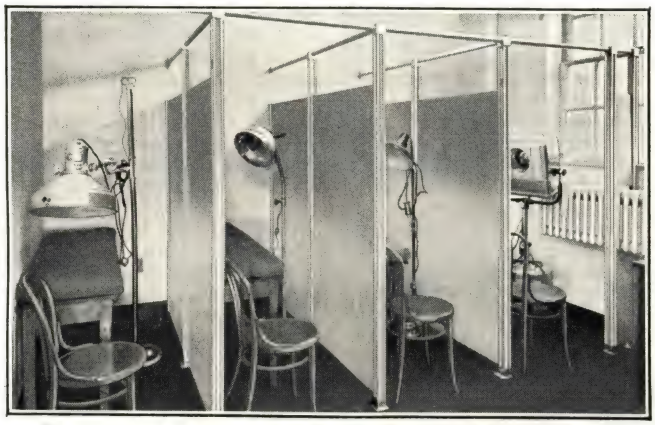
Where white finish is specified, all work is to be cleaned and primed as above. Then finished in one coat of flat white enamel, baked on, and finished in two coats of Duco or Wiborite, or other approved lacquer finish, sprayed on.



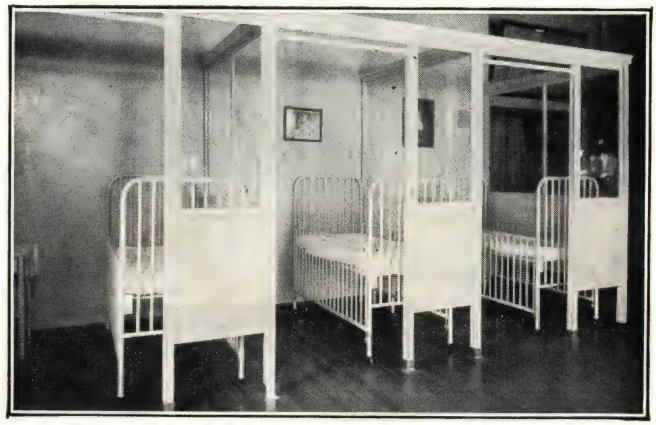
Aultman Hospital (Children's Ward), Canton, Ohio



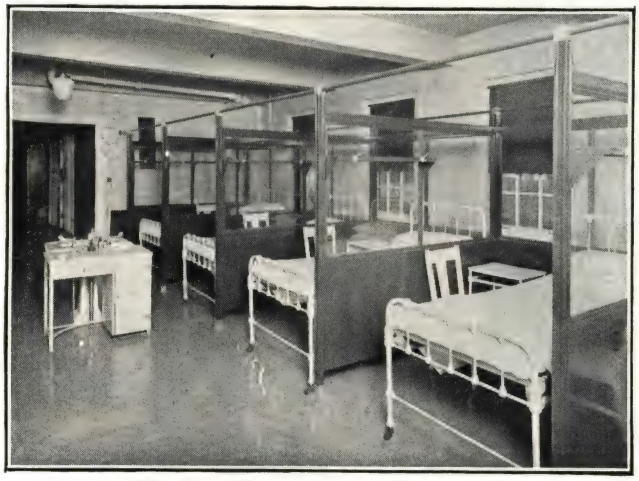
Contagious Ward, Willard Parker Hospital, New York, N. Y.



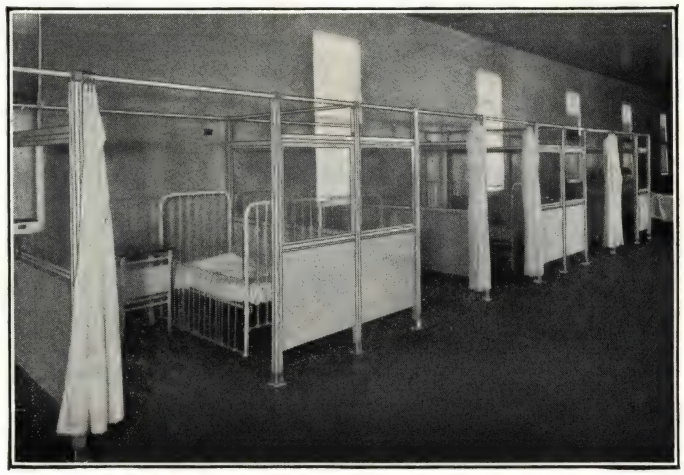
Physiotherapy Department, Lakeside Hospital, Cleveland, Ohio



Children's Ward, Lincoln General Hospital, Lincoln, Neb.



Municipal Colony Hospital, Trenton, N. J.



Children's Ward, Freedman Hospital, Washington, D. C.

SNEAD & COMPANY

FOUNDED IN 1849

Manufacturers of Steel and Glass Office Partitions

FACTORY, MAIN OFFICE AND WAREHOUSE
100 Pine Street, JERSEY CITY, N. J.

TELEPHONE
MOntgomery 5-6200

CABLE ADDRESS
"Sneadco, Jersey City"

BRANCH OFFICES AND AGENCIES

NEW YORK, N. Y., 55 W. 42nd Street—Telephone, PEnnsylvania 6-0147
ALBANY, N. Y., Haefner & Harding, 1 Columbia Place
NEW HAVEN, CONN., A. R. Kirschner Company, 30 Whitney Avenue
BOSTON, MASS., Alvin B. Cash, 77 Summer Street
CINCINNATI, OHIO, George Mencke, 704 Race Street
PHILADELPHIA, PA., G. T. Voorhis, 1700 Walnut Street

For pages on Floor Armor-Grids and Metal Bookstacks for Libraries, see Manufacturers' Index

Advantages of Snead Partitions

The design of Snead Partitions is based on over 82 years' experience manufacturing metal products for the building industry, and offers these advantages:

Sound design. Rigid construction. Low maintenance cost.
Non-combustible material. Cemented packed panels.
Adaptability to space requirements.
Extreme ease in moving and rearranging.
Concealed chases for wiring. Harmonious finishes.
Minimum dust collecting surfaces.
Competent engineering service.
Immediate delivery by truck from large stock at factory to New York metropolitan area.



Privacy, Light and Ventilation

Ceiling-high partition with obscure glass in middle panel and clear glass in upper panel. Continuous top filler readily lends itself to fit around all irregularities encountered



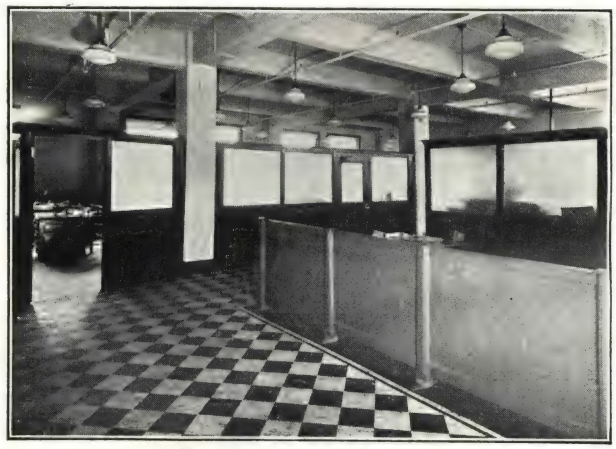
An Interesting Treatment of a Private Office

Standard sections form interior walls. Paneling of solid steel is carried around outer wall and window. Radiators enclosed by decorative grilles integral with partitions and wainscoting enclosing columns



Close Up View of Office

Showing door detail and proportion of horizontal and vertical shapes. No bulky rails or heavy projecting lines mar rich beauty and symmetry of assembly



Low Partitions and Railings

Rigid railing harmonizing with Type "M" partitions. Railing controls traffic within office, increasing efficiency of available area

Specifications Snead Type "M" Standard Partitions

Steel—Best grade open hearth full cold rolled commercial furniture stock.

Flexibility—Sectional type partitions, completely flexible, allowing changes without disturbing units other than those to be rearranged. Double steel panels with sound-deadening cemented filler.

Dimensions—Standard panels range in width from 20 in. minimum, center to center of pilasters, and increase by units of 5 in. up to 60 in., to secure most economical and balanced layout. Adjustable plinth at pilasters and adjustable mop strip at base insure snug fit at floor.

Cornice height of free standing partition is 7 ft. 6 in. Designed to receive superstructure without disturbing existing sections if extension to ceiling is desired at later date.

Ceiling height partitions have cornice carried to (a) 8 ft. 8½ in., (b) 9 ft. 2½ in., (c) 9 ft. 8½ in., (d) 10 ft. 2½ in., with double filler of Sheetrock extending from top of cornice to ceiling, neatly pointed up and painted to match ceiling.

Doors—Units are 40 in. wide for single doors and 60 in. for double doors. Doors are one (or two) panel, 1¾ in. thick.

Wiring—All horizontal and vertical members permit carrying wire, and also receive outlets and switches.

Glass—Bedded in putty to match partition finish. Held in place by removable strip without visible screw heads.

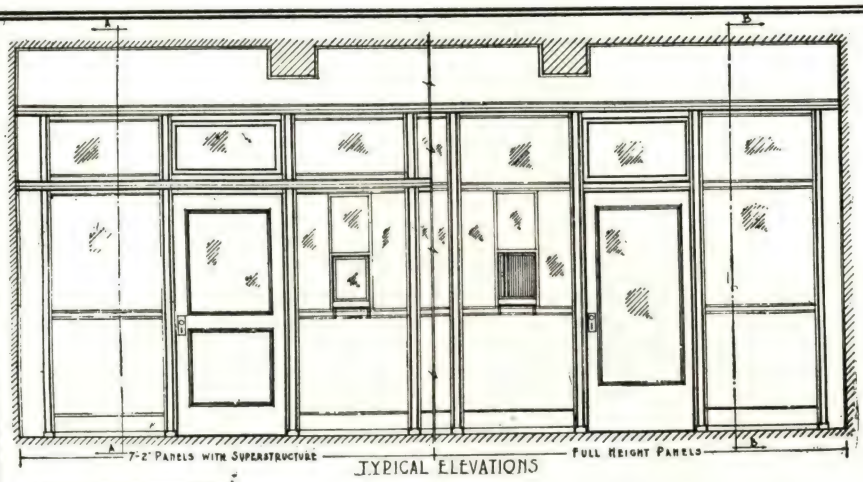
Hardware—Yale & Towne or equal. All locks, whether cylinder, bit key or communicating set, interchangeable. Natural bronze finish. Norton door checks or equal. One pair of butts to each door, 4½x4½-in. ball bearing, Stanley or equal.

Finish—All work thoroughly cleaned with varnolene and given two coats of enamel of color selected. Grained or stippled finishes applied at factory.

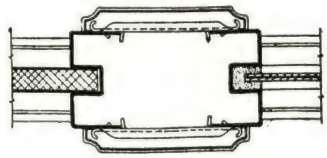
Installations

Snead Partitions are found in representative buildings throughout the United States and Canada, wherever engineering skill, architectural proportion and symmetry, beauty of finish, flexibility, and permanence are desired. Typical installations are:

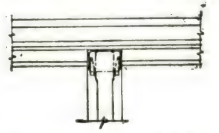
American Can Co.; Bakelite Corp.; Bell Telephone Laboratories; Bradstreet Co.; Thomas A. Edison, Inc.; Graybar Electric Co.; Intertype Corp.; R. H. Macy & Co.; New York Telephone Co.; Postal Telegraph Co.; Rex Cole, Inc.; Southern Railway Co.; Standard Statistics, Inc.; Universal Pictures Corp.; Sears Roebuck Co.; U. S. Rubber Co.; Western Electric Co.; Western Union Telegraph Co.; Yale University.



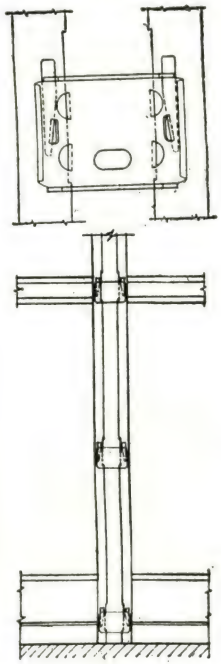
TYPICAL ELEVATIONS



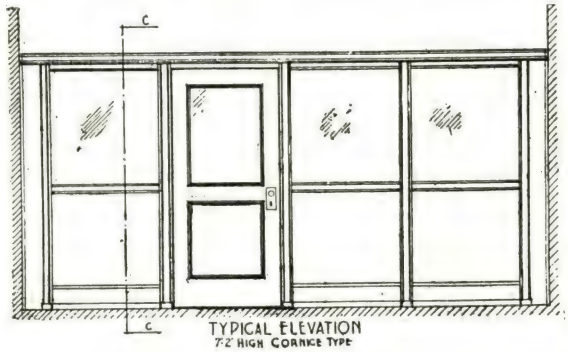
HORIZONTAL SECTION
Post assembly
with pilasters snapped into place



FOR CEILING HEIGHT PARTITIONS, PANELS WITH TRANSOM LIGHTS ARE FURNISHED IN STANDARD WIDTH PANEL UNITS 8'-2½", 8'-8½", 9'-2½", 9'-8½" AND 10'-2½" HIGH. THESE WILL CARE FOR CEILINGS UP TO 13'-6". ~ FOR HIGHER CEILINGS SUPERSTRUCTURE PANELS ARE ERECTED ON TOP OF THESE DETAIL AT LEFT SHOWS SUPERSTRUCTURE PANELS ON TOP OF 7'-2" HIGH PARTITION. ~



VERTICAL ELEVATION
of post with pilaster
removed to show
wedge linkplates



TYPICAL ELEVATION
7'-2" High Cornice Type

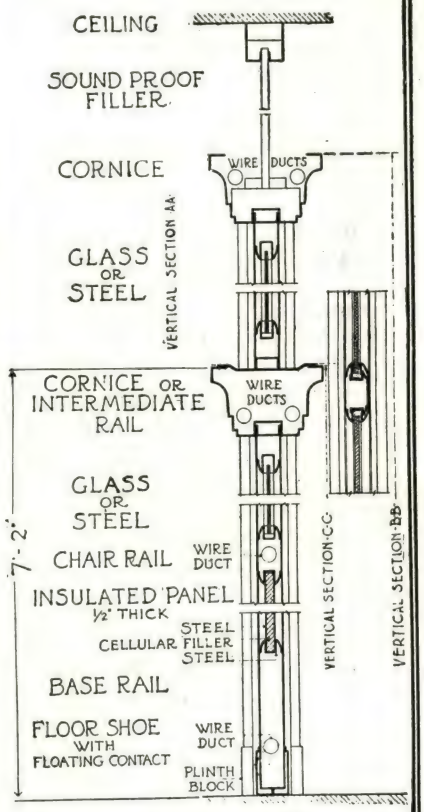
CORNICE, OR DWARF PARTITIONS, ARE MADE IN TWO STANDARD HEIGHTS, ~ 7'-2" AND 7'-6". SUPERSTRUCTURE PANELS OF VARYING HEIGHTS MAY BE ERECTED TO EXTEND THIS TYPE PARTITION TO ANY HEIGHT AFTER ORIGINAL INSTALLATION.

VENTILATORS

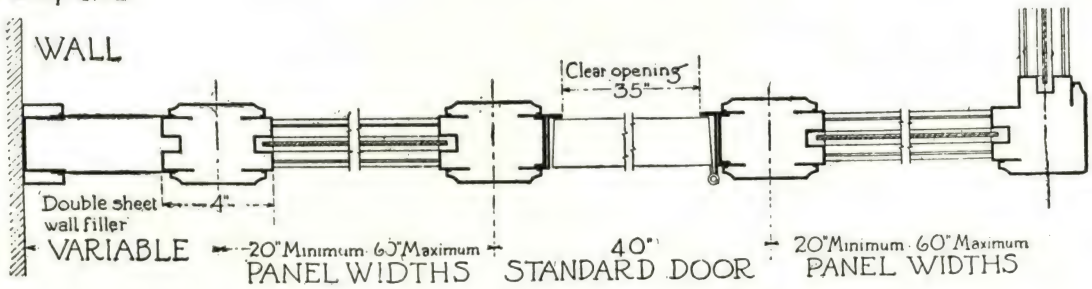
TRANSOM VENTILATORS ARE AVAILABLE IN EITHER VERTICAL OR HORIZONTAL FRICTION PIVOT TYPE. ~

RAILING

OFFICE RAILING OF STANDARD DESIGN AND DOUBLE PANEL CONSTRUCTION FURNISHED IN STANDARD WIDTHS 42 INCHES HIGH, WITH 6" CLEARANCE AT FLOOR. ~



VERTICAL SECTIONS



HORIZONTAL SECTION

SNEAD & CO.
founded 1849
JERSEY CITY
NEW YORK CITY

DETAILS
SNEAD OFFICE PARTITIONS

TYPE-M
INSULATED
PANEL
Sept. 1929

AMERICAN STEEL FURNITURE CO.

Manufacturers of Super-steeL Toilet Partitions

TELEPHONE
CHelsea 3-1236, 3-1237
WAtkins 9-10333

FACTORY AND SALES OFFICE
27 West 24th Street
NEW YORK, N. Y.

Products

SUPER-STEEL FLUSH TOILET PARTITIONS and DOORS; SUPER-STEEL SHOWER STALLS, SHOWER STALL DOORS and URINAL PARTITIONS; SUPER-STEEL DRESSING COMPARTMENT and SCREENS.

Also Lockers, Cabinets, Shelving, Radiator Cabinets, Enclosures and Special Steel Equipment.

Super-steeL Partition

SUPER-STEEL Partitions are the last word in metal toilet enclosures, where strength, utility, serviceability and economy are concerned. They will give a most rigid and permanent installation that will withstand abuse. They are sanitary and pleasing in appearance and are adaptable for commercial buildings, schools, churches, hospitals, factories and bathhouses.

Being manufactured in New York, N. Y., permits us to make shipment in that vicinity within three days.

Without obligation, our engineering force is at your service for any information which may be desired.

Material—Standard SUPER-STEEL Partitions and door panels are constructed of No. 16 gauge, full-pickled, cold-rolled, patent-leveled, copper-bearing (rust-resisting) steel. No. 16 gauge is also used for all posts, head rails and sanitary shaped tubing.

(Also manufactured in other metals, such as aluminum, Allegheny steel, etc.)

Partitions—Are made of No. 16 gauge steel panel with No. 16 gauge 1¾-in. square tubing for front and rear posts and with No. 16 gauge 1⅛x2½-in. sanitary shaped tubing for top and bottom rails. The steel panel is forced into the four members full depth, interlocked and torch-welded to give a practically noiseless, rigid, single unit. No screws, no bolts to come loose.

Doors—Are made of No. 16 gauge steel panels with 1x3½-in. sanitary stiles, and rails of No. 24 gauge steel, drawn over a solid kiln dried wood core. Especially reinforced at corners to give a strong door.

Hardware—Each door is equipped with Lawson Universal adjustable spring hinge which permits the door to swing freely and be adjusted to stand open at any desired position; a specially designed (hold fast) rubber bumper; two cast manganese bronze hinge brackets; a manganese bronze, nickel plated coat and hat hook; door latch; and door pull.

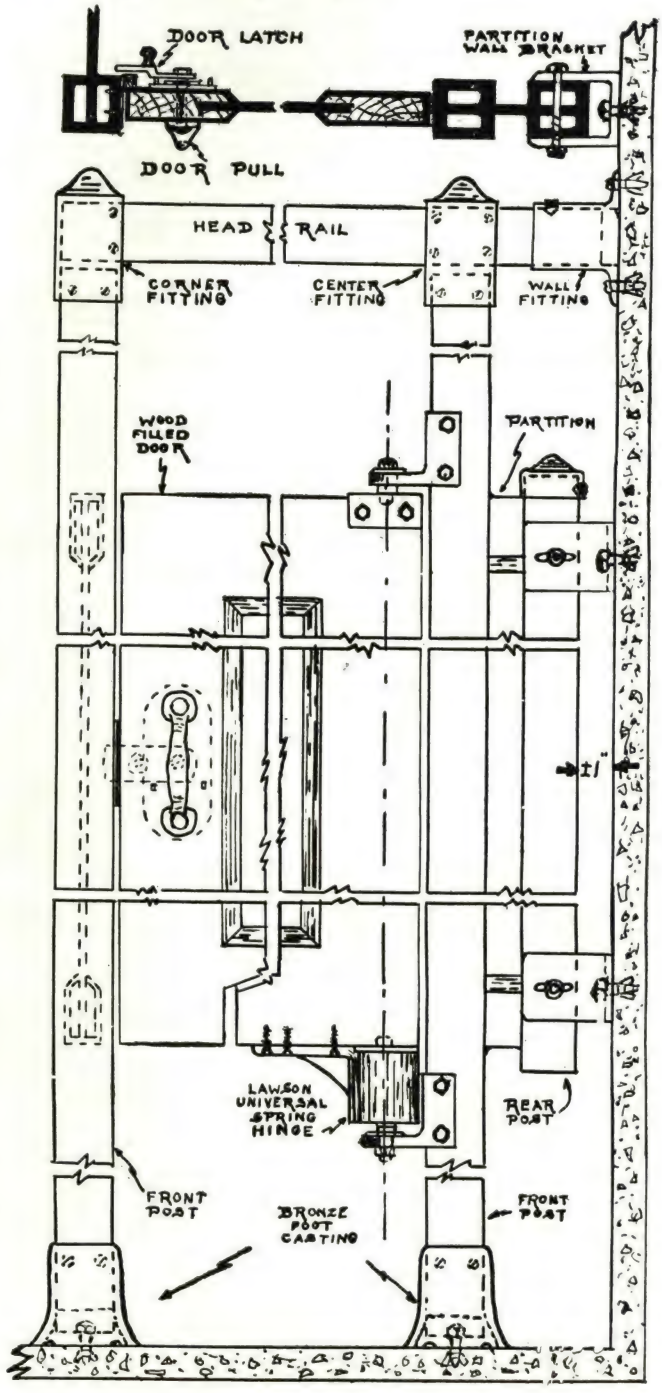
Fittings—For head rail, are of heavy malleable cast iron, secured to railing and posts with two concealed cone shaped setscrews at each point. Foot castings are of heavy cast manganese bronze, self-draining, 3 in. high, secured to floor with concealed bolt, and have vertical adjustment.

Full adjustment is provided at all points where partitions meet walls and floor.

Finish—Over a heavy metal oil primer our specially prepared green-gray finish is applied, which will harmonize with green or gray. Other colors may also be had.

Architects' Short Specifications

All toilet, shower, dressing room and urinal partitions, doors and screens, as shown on plans, shall be SUPER-STEEL as manufactured by the AMERICAN STEEL FURNITURE Co., New York, N. Y. All partitions and door panels shall be of No. 16 gauge steel. All door rails and stiles shall be of the No. 24 gauge steel drawn over a wood core. All posts and railings shall be of No. 16 gauge steel, 1¾ in. square.



TYPICAL LAYOUTS of STANDARD SUPER-STEEL TOILET PARTITIONS

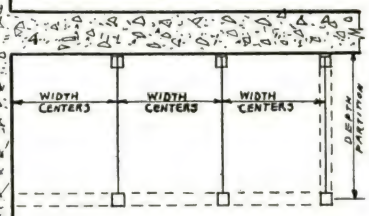
Stock Sizes
Partitions

48 x 54	42 x 60
54 x 54	48 x 60
60 x 54	54 x 60

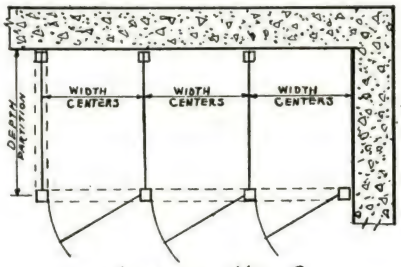
MADE BY
American Steel Furniture Co.
Twenty-Seven West 24th Street
Telephone Chelsea 3-1236—3-1237
NEW YORK CITY

Stock Sizes
Doors

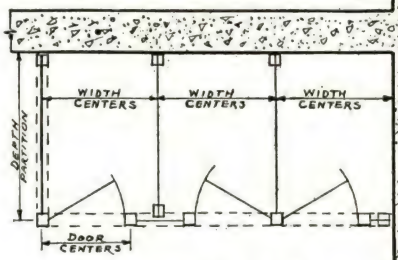
24 x 54	24 x 60
28 x 54	28 x 60
32 x 54	32 x 60



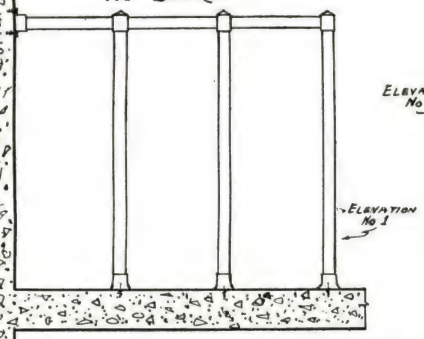
LAYOUT No 1
No Doors

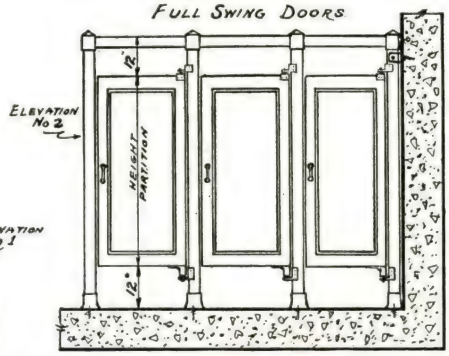


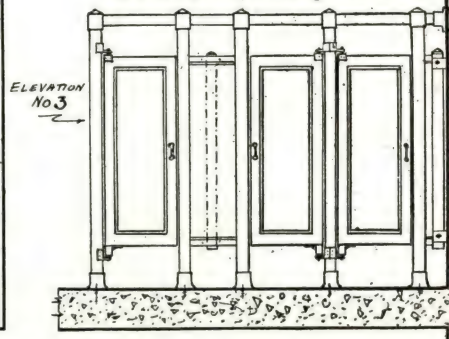
LAYOUT No 2
Full Swing Doors



LAYOUT No 3
Small Doors And Front Panels

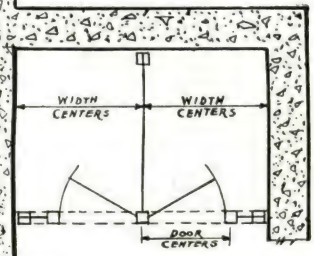






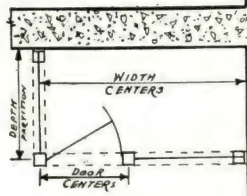
All dimensions are figured to finished walls.

All dashed lines shown on plans indicate headrail.

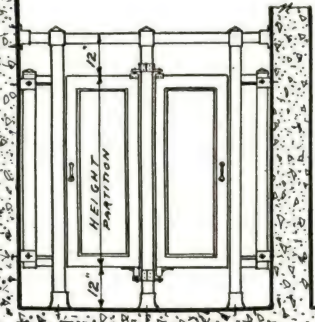


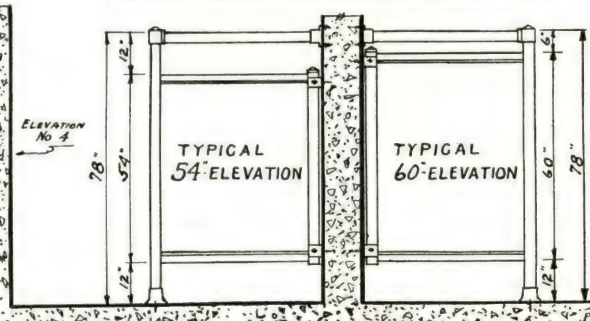
LAYOUT No 4

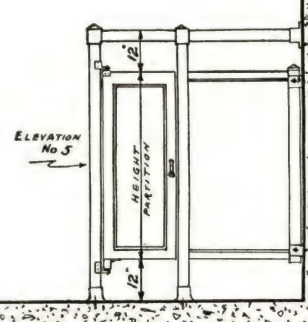




LAYOUT No 5







VENEER-STEEL PARTITIONS

BY

THE HART & HUTCHINSON COMPANY

NEW BRITAIN, CONN.

BRANCH OFFICES

NEW YORK, N. Y., 101 Park Avenue BOSTON, MASS., 260 Tremont Street

PHILADELPHIA, PA., Architects Building, 17th Street at Sansom

AGENTS IN PRINCIPAL CITIES

Products

TOILET ENCLOSURES, SHOWER STALLS and DRESSING BOOTHS.

HOSPITAL WARD SCREENS and CUBICLES, SPECIAL HOSPITAL EQUIPMENT.

Also Steel Lockers, Storage Cabinets, Key Storage Cabinets, X-Ray Viewing Cabinets, Steel Radiator Enclosures.

For All-copper Recessed Radiators and Humidifying Radiators, see Manufacturers' Index.

AN IMPORTANT STATEMENT REGARDING VENEER STEEL

THE HART & HUTCHINSON COMPANY is the originator of the *flush, sound deadened, fully galvanized* type of steel partitions for toilets, showers and dressing rooms. It is called Veneer-Steel.

Six years of service in all types of building have fully proved all the qualities claimed for it.

Veneer-Steel is the only partition, built of galvanized sheets overlaid on a fibre core and cemented thereto, with all edges solder-sealed. It is therefore so rust-proofed inside and out that no other construction surpasses this method at equal cost. All parts other than galvanized sheets are sherardized, except hardware, which is brass, chromium plated. Veneer-Steel is also sound deadened by the use of this core.

Veneer-Steel—galvanized, flush type, is now through Hart & Hutchinson introduction, an accepted design for better grade buildings.

Important points in addition to the flush type, sound deadened and galvanized features:

(1) All framing posts are fluted on four sides, affording a seat for edge of partitions, hardware or attachments. Where there are no partitions this fluting serves to relieve too severe an appearance.

(2) Only seamless 1½-in. square tubing is used.

(3) All posts and headrail tubing are sherardized inside and out, as well as painted inside and out.

(4) Wherever Veneer-Steel attaches to walls or floor ample adjustment permits easy erection.

(5) An exclusive feature is the adjustable connection at rear edge of partition. These patented connections are designed to keep the edge of partitions away from walls about ¾ in. Experience has demonstrated the difficulty of a satisfactory fit at this point where full length attachments are used because of unevenness of walls, tile coping or a variation from tile to plastered walls. Veneer-Steel connections eliminate this difficulty without loss of privacy, making for better sanitation—permit easy cleaning or repainting of walls.

(6) A better design results from the use of rectangular shapes, slender posts, and flush panels and doors.

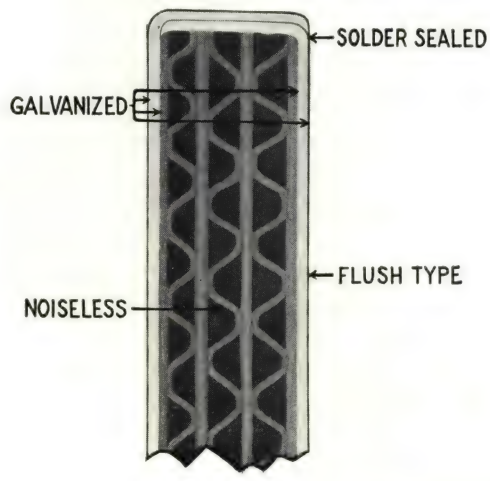
(7) Veneer-Steel is especially adapted for attachment to other equipment because its plain surfaces and fine grade hardware compare with best practices.

(8) Veneer-Steel doors, flush type, sound deadened, with special hardware for the purpose, are best for use with marble, slate or other similar materials used in toilet or shower stalls.

(9) Stainless steel is equally efficient in Veneer-Steel where the use of such material is needed.

(10) Because of interchangeability of parts, Veneer-Steel may be moved to new locations when necessary without cutting or special fitting, or new parts.

(11) Unstinted service by our own branches, and especially instructed representatives, and the guarantee of an old and well-rated company established Veneer-Steel as a safe material to use.



Full Size Section of Veneer-Steel

VENEER-STEEL TOILET ENCLOSURES

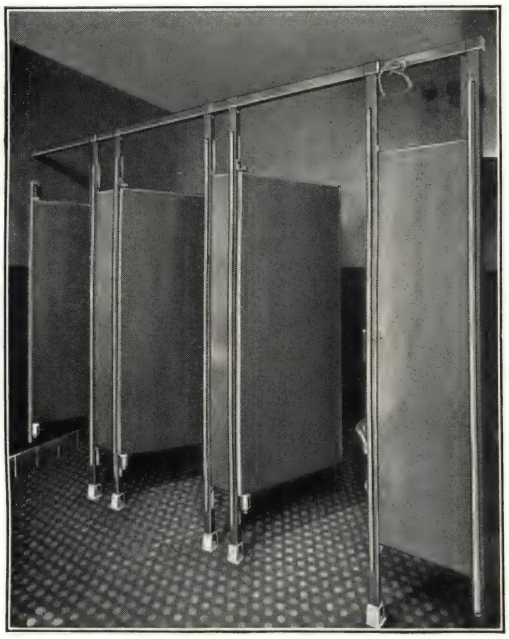
FLUSH TYPE—GALVANIZED—SOUND DEADENED

Partitions for toilet enclosures being largely divided into these two classes, we offer these clearance tables and information on the following pages to assist the architect in a selection of types and standard Veneer-Steel sizes.

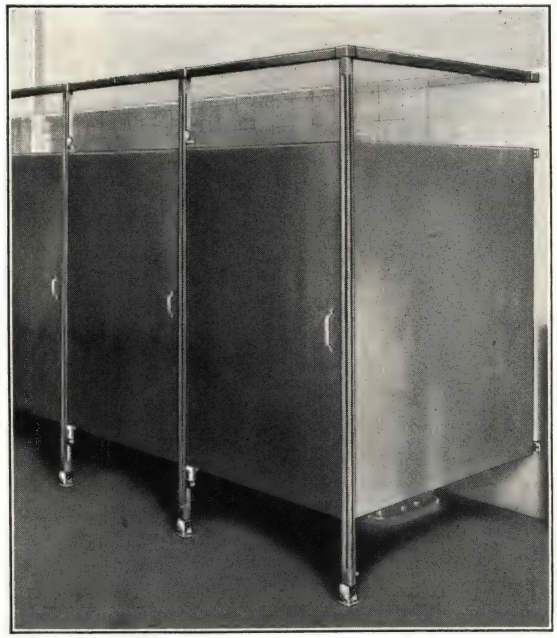
The use of 22-in. doors with small front panels is becoming increasingly popular. This is due partly to the saving in floor space by swinging doors inward and reducing the depths of partition. With the in-swing doors, less aisle space is required; stalls are always open for inspection when not in use; occupied latches are unnecessary; excessive banging of doors is eliminated. The use of the narrow panel with posts fastened to the floor on each side, also greatly increases lateral bracing to the group.

Comparison of the two tables shows that with wide doors, greater depth of partition is necessary to swing doors in for a given width of stall. Therefore where wide doors are used, except for narrow width stalls, it is generally necessary they be out-swing and ample aisle space must be allowed for them. In order to correctly interpret the architect's wishes, the specifications should clearly state either that 22-in., or slightly larger, doors are to be used with front panels to fill to width of stalls, or that full width doors will be satisfactory.

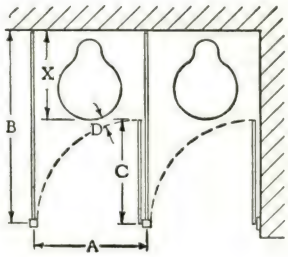
Clear indication on the floor plans of which type is wanted and swing of door will also greatly relieve any uncertainty in take-off and estimates.



Enclosures with Narrow Doors and Small Panel

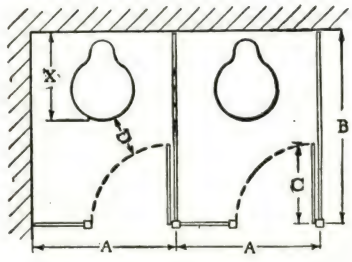


Enclosures With Full Doors Without Panel



Note

To use tables, first determine the distance of dimension X, it being the distance from front edge of seat to wall, for the particular fixture to be used. This rarely exceeds 2 ft. 4 ins.

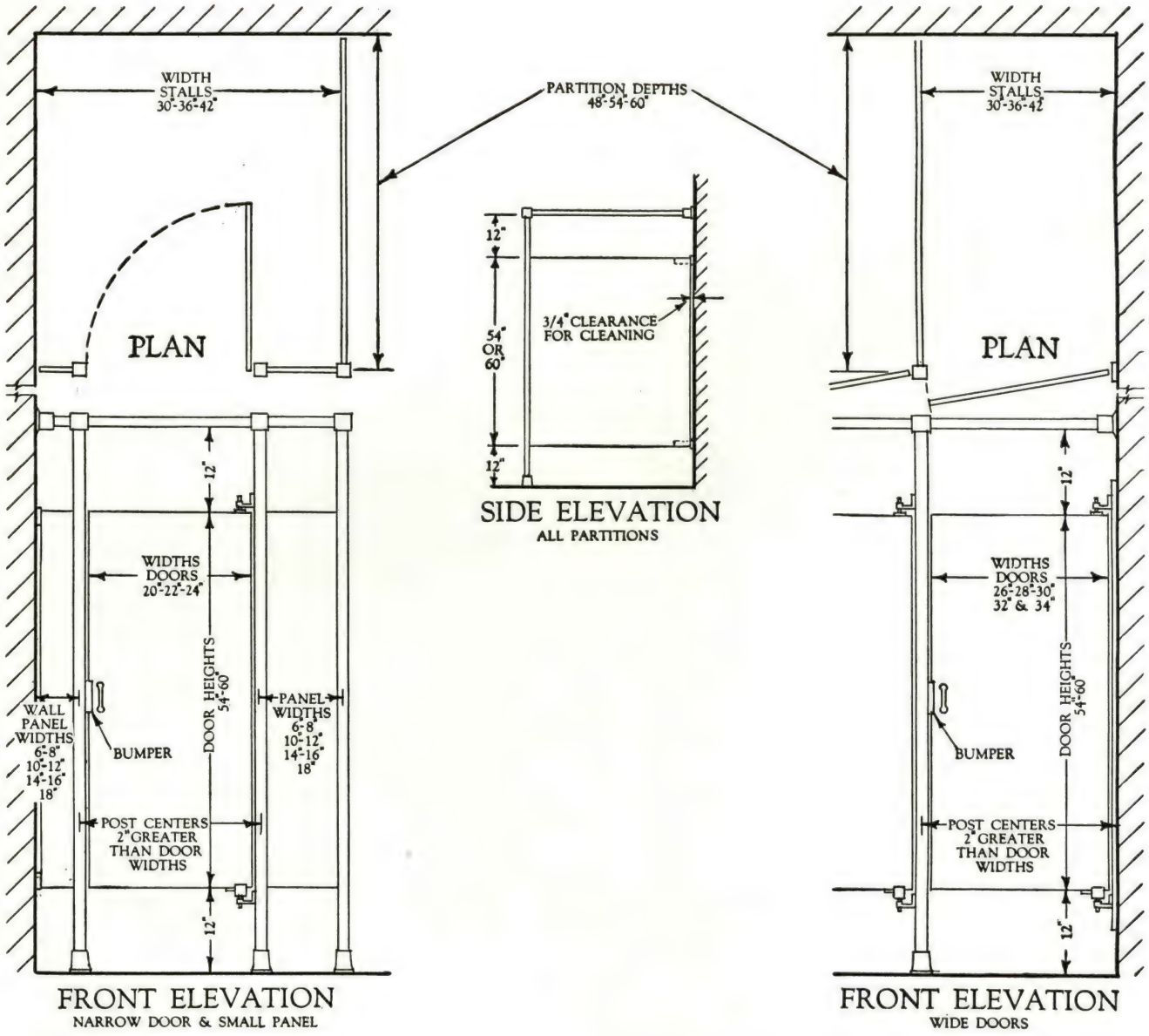


A	B	C	D
30 ins.	48 ins.	20 ins.	4 in.
36 ins.	54 ins.	22 ins.	8 ins.
42 ins.	60 ins.	24 ins.	12 ins.

A	B	C	D
28 ins.	54 ins.	26 ins.	3 ins.
30 ins.	54 ins.	28 ins.	1½ ins.
32 ins.	60 ins.	30 ins.	5 ins.
34 ins.	60 ins.	32 ins.	3 ins.
36 ins.	60 ins.	34 ins.	2 ins.

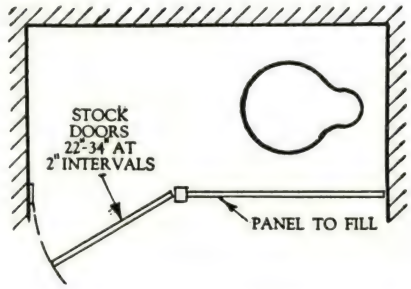
VENEER-STEEL ENCLOSURES

DIMENSIONS AND STOCK SIZES



Best practice in the manufacture of steel partitions, with the use of narrow doors and narrow front panels, results in an L-shape construction of partition and front panel. This differs from the setting of standard marble and stone partitions which are usually formed in a ⊥ shape for the same pieces. Draftsmen are urged to clearly show the L-shape design if steel is to be used, as indicated by above plan. This would eliminate a constant source of uncertainty in bidding on steel partition work.

This suggestion was adopted in the Simplified Practice Recommendation No. 101 of U. S. Department of Commerce. If full width doors are desired, show merely square terminal at front edge of partition.



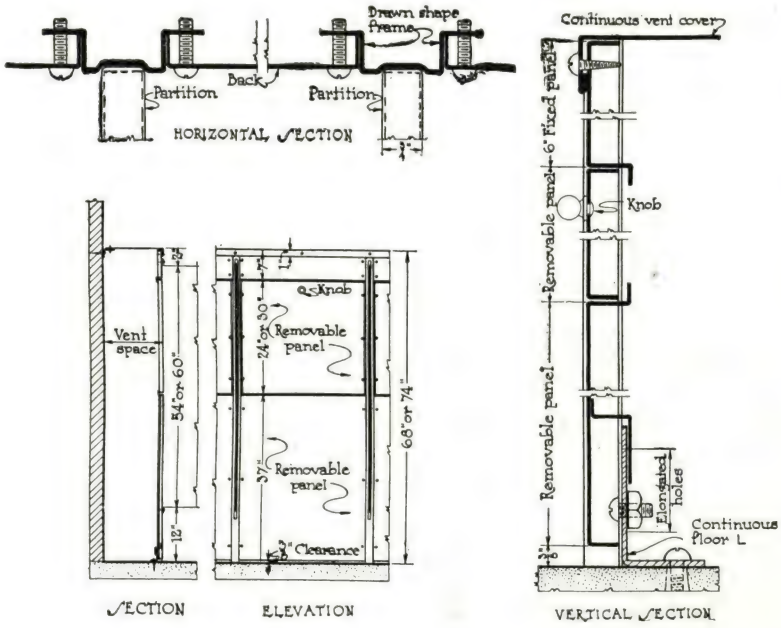
Frequently layouts require a type of stall as shown directly above. For these a wall post is used against one wall with standard partition against opposite wall. Standard door widths for this arrangement are: 20, 22, 24, 26, 28, 30, 32 and 34 ins. Standard panel widths are: 48, 54 and 60 ins.

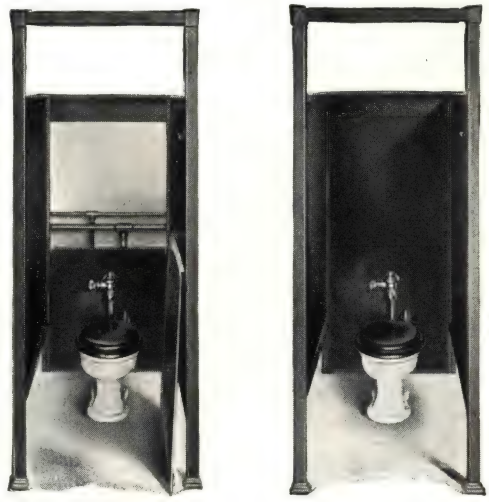
A SPACE-SAVING REMOVABLE PANEL BACK FOR VENT SPACES

Instead of the one-piece back usually supplied, a drawn shape frame is used to which is screwed two easily removable panels. Access being had through these panels, the usual access door at end of chamber is omitted. The vent space need be only deep enough for the piping—usually 8 to 10 ins.

Also Greater Accessibility—In erecting, the frame is installed with partitions. When toilet bowl is set, lower panel is placed in position and pipe holes indicated. After pipe holes are cut, lower panel is then screwed in place and a very easy hook-up of piping made, the workman being directly over his work and within easy reach. Good light and good air are available. Speedier and better work results.

For Inspection or Later Repairs—No narrow space for the workman to crawl through, pipes fully exposed, ample light, air and room.





STANDARD SPECIFICATIONS FOR TOILET ENCLOSURE

Partitions, doors and panels shall be ¾ in. thick, and shall be constructed by veneering a fibre core with sheets of galvanized stretcher-leveled steel of 22-gauge cemented to core under pressure. All edges shall be reinforced and soldered.

Upright framing and headrails shall be of 1½-in. 18-gauge hollow drawn seamless tubing. The upright members shall be fluted to receive edges of partitions and panels and shall be sherardized inside and out.

Rear edge of partitions, where attached to abutting wall shall be connected thereto by special adjustable sherardized connectors, designed to keep rear edge away from wall approximately ¾ in.

Backs for stalls (where utility space is indicated on the drawing) shall be of the removable panel type and shall be made of single thickness 18-gauge galvanized steel. There shall be two removable panels. The lower shall be arranged for easy removal by the plumber for cutting the pipe openings.

Vent tops shall be of 18-gauge steel. Vent doors at end of utility space (where same are indicated) shall be of Veneer-Steel.

(Specify narrow doors and front panels if they are to be used and state width of door desired.)

Finish

All parts shall be galvanized or sherardized. They shall then be thoroughly cleaned and given a heavy prime coat and then finish coats of (gray or green) lacquer. All tubular framing shall be enameled both inside and outside.

Hardware and Fittings

Foot casting shall be of solid brass, 3 ins. high and be self-draining and adjustable.

The 4-in. door handle and inside latch knob and bolt shall be of solid brass. Coat hook shall be of solid brass, bumper type, with rubber insert. The 5-in. rubber bumper shall be made of steel sherardized and enameled, and shall be located at center of door.

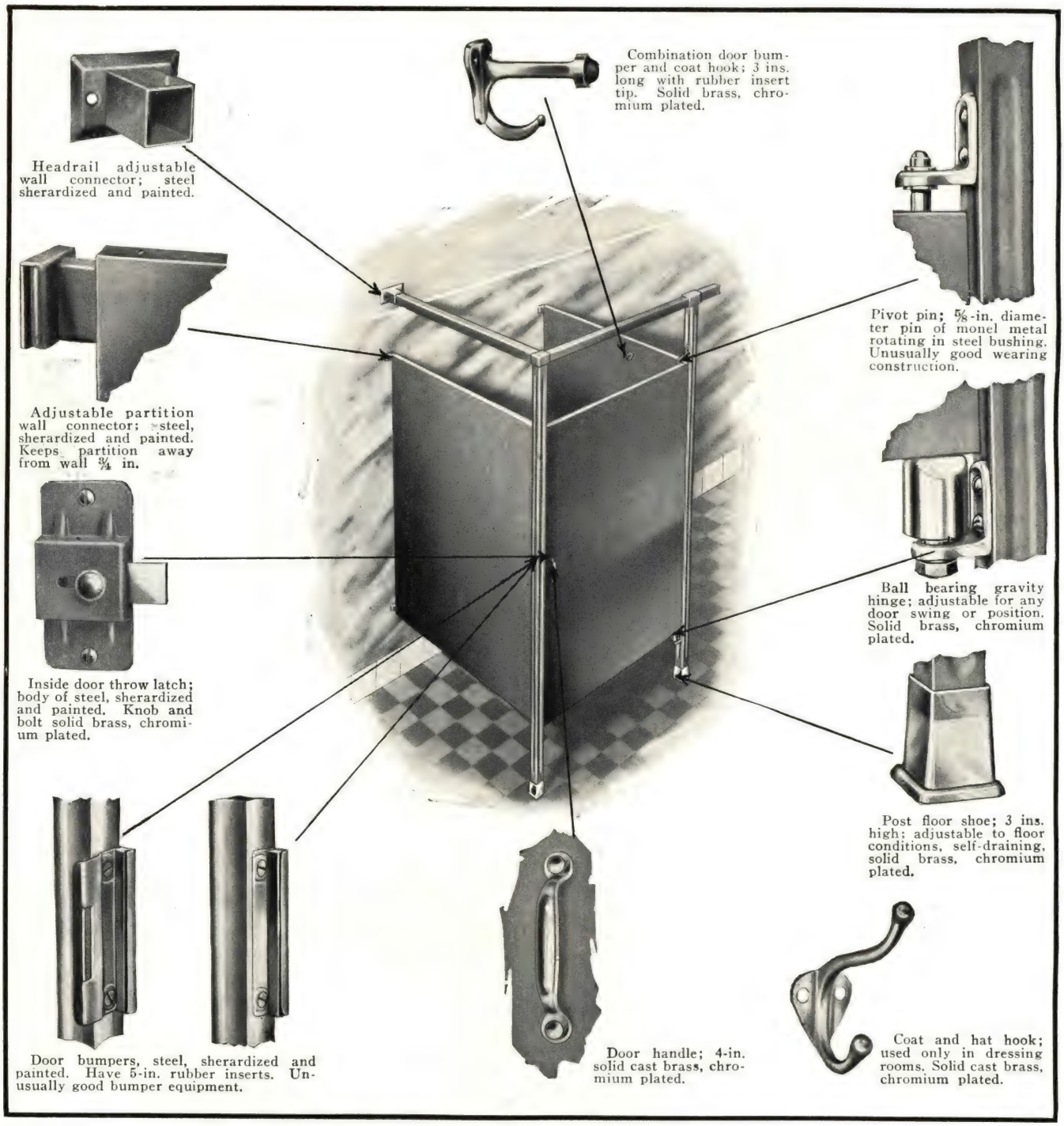
All brass hardware shall be chromium plated.

Locks (where specified) shall be of the pin-tumbler type with nickel silver keys.

Paper holders are not ordinarily supplied but they can be furnished on special order.

All Veneer-Steel partitions shall equal in every way to the satisfaction of the architects the material as manufactured by THE HART & HUTCHINSON COMPANY.

VENEER-STEEL STANDARD HARDWARE



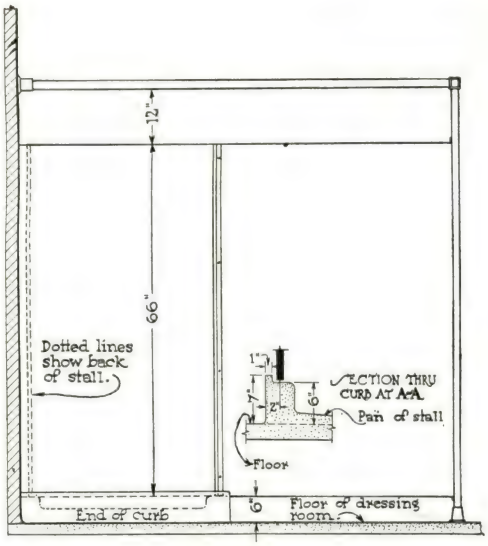
There are two qualities determining good hardware for partitions:

First, proper selection of material for a lasting satisfaction through use. Veneer-Steel uses solid brass for post shoes, because some solutions used for cleaning floors will attack practically any other metal. Also handles and hooks are of brass because those parts are frequently in touch with wet hands or clothing. Where exceptional strain is to be compensated, as in door bumpers, hinge brackets and connectors to walls, steel must be used for stiffness.

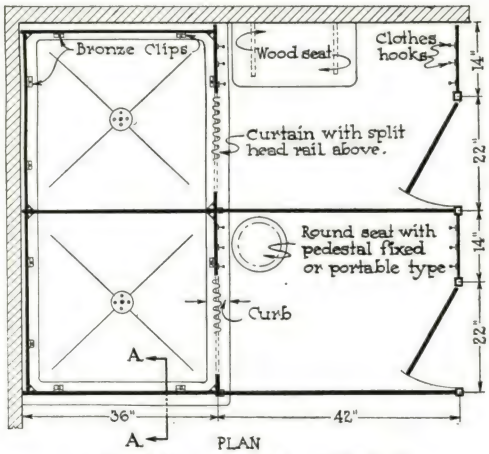
Second, finish must be considered both from the point of appearance and quality of plating. While we cannot hope to have a complete approval of the selection, we believe most architects now prefer chromium finish for hardware and we have adopted it, believing that when properly applied it is the most durable finish as well.

Thus Veneer-Steel invests in better material and expensive plating for hardware so that these parts will be in keeping with the high quality maintained throughout in Veneer-Steel construction.

VENEER-STEEL STALLS AND DRESSING ROOM PARTITIONS



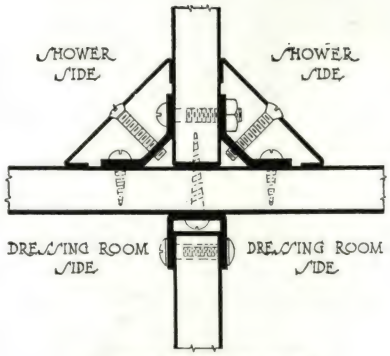
ELEVATION



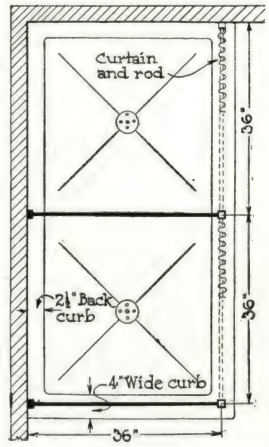
PLAN

INDIVIDUAL SHOWER STALL & DRESSING ROOM

Five years' use of galvanized Veneer-Steel partitions for showers without a single complaint of rusting, is ample justification for our guarantee on this material. The flush type panels, solder-sealed on all edges, eliminating all horizontal seams and cracks are completely sanitary. Corner joints are tight for complete water seal.

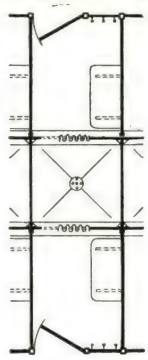


SECTION OF WATER SEAL JOINT FOR SHOWER



PLAN

SHOWER STALL WITHOUT DRESSING ROOM (USING FINISHED WALLS FOR BACK)



PLAN OF ONE BAY OF RANGE OF SHOWER STALLS WITH TWO DRESSING ROOMS TO EACH SHOWER

A New Curtain Rod Improvement

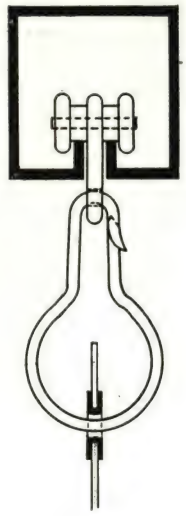
The curtain rod sketch at the right shows and easy sliding runway, with curtain hook runners on the inside. This prevents scraping finish of outside of rod by hooks. Nothing to get out of order, and curtain rings cannot become dislodged. Square 1½-in. shape makes for stiffer support than smaller round rods.

Seats for Dressing Room Compartments

For seating in dressing room compartments, we recommend a 12-in. stool, with cast iron base fastened to floor, or a portable stool.

When desired, seats the full depth of compartments and supported by either wall or post brackets will be supplied. Wooden seats are usually found preferable, but galvanized enamel steel seats can be provided.

1½" Square Split Head Rail



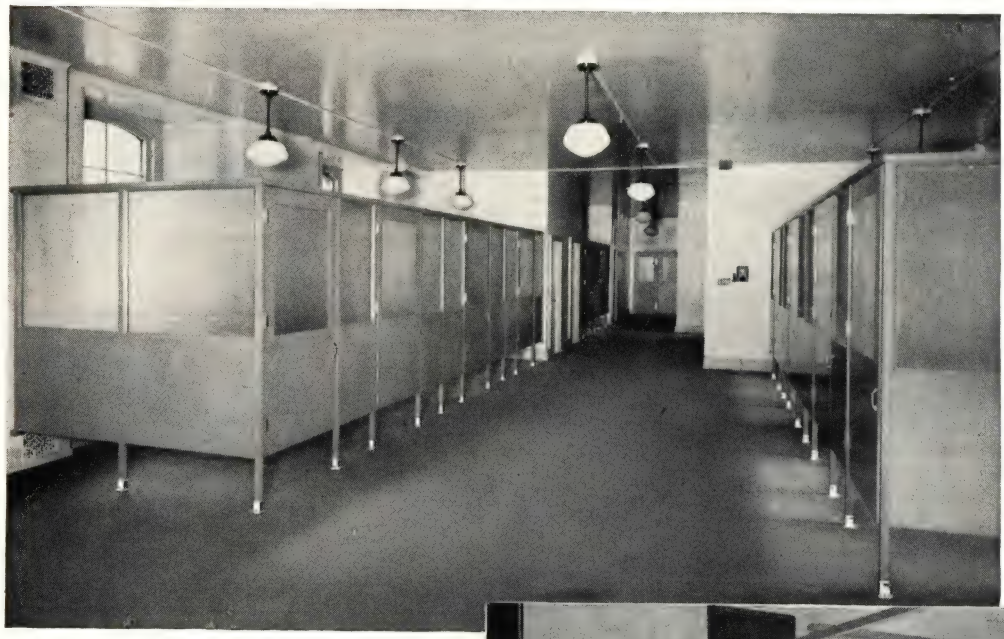
Specification—Showers

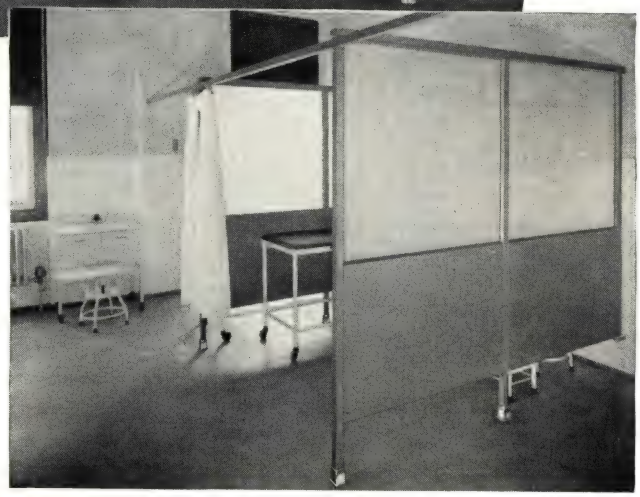
Shower partitions shall be made of Veneer-Steel panels, flush type, of galvanized 22-gauge steel sheets cemented to a fibre core, with edges solder-sealed. Joints at corners to be held by double sealing pieces. Curtains of 9-oz. white duck to be carried by 1½-in. square split headrail, with curtain rings running inside of rail.

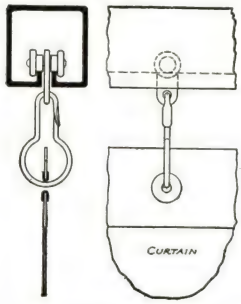
Finish shall be one heavy prime coat, followed by finish coat of lacquer. Foot castings shall be of solid brass designed so as to keep bottom edge of panels ⅛ in. off curb. All as manufactured by THE HART & HUTCHINSON COMPANY.

Note: Architect should provide curbs with 1-in. lip around outside edges. (See sketch).

VENEER-STEEL HOSPITAL WARD SCREENS AND CUBICLES

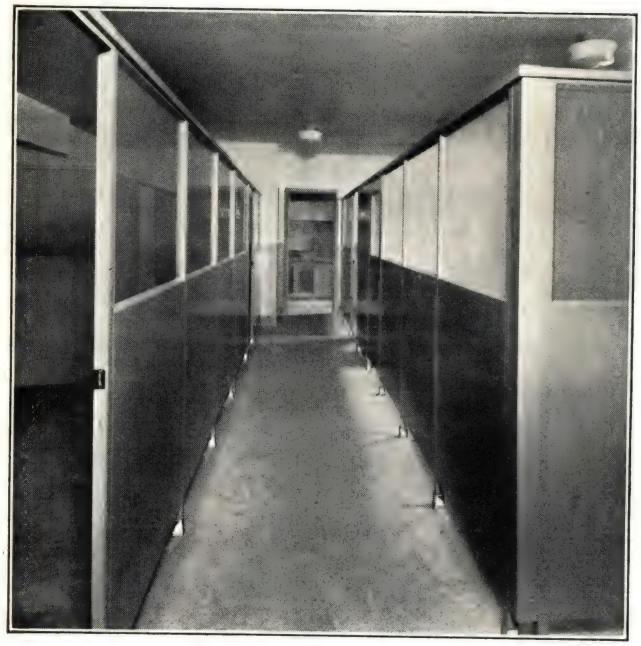


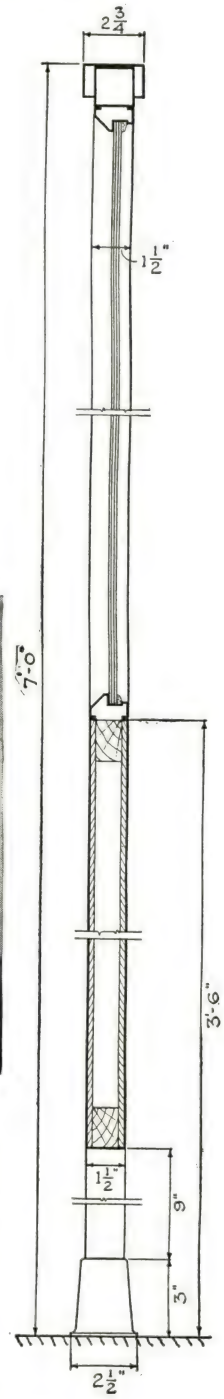




Detail of Curtain Carrying Headrail

An exclusive H. & H. feature is this headrail—special rollers run inside the tubing. Curtain rings cannot become dislodged; it prevents scraping of outside finish by hooks. 1½-in. square tubing gives greater support than smaller round rods.





Features worth specifying in Type "W" Veneer-Steel ward screens are: the full flush design, both posts and panels being the same thickness (1½-in., see cross section); rear edge of screens held away from wall about ¾ in. by brackets for sanitation and easy cleaning; 3-in. high foot casting of solid brass, chromium plated; 4 x 4-in. butts and 4-in. door handles also chromium plated; panels made by veneering steel sheets on each side of a wood core frame and cemented thereto, thus becoming fully sound deadened; and the special Hart & Hutchinson curtain carrying 1½-in. headrail.

We believe no other construction has contributed more in hospital work for sanitation, durability and finish than Veneer-Steel.

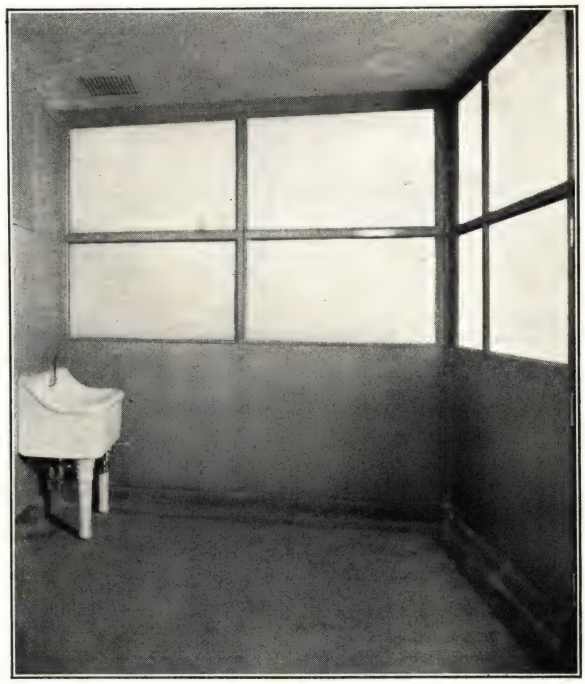
Standard size panels 24, 30, 36, 42, 48 and 54 ins. can be arranged to make various depth partitions. These sizes in various combination make ward screens up to 108 ins. in depth, and for cubicles or room grouping to any desired plan.

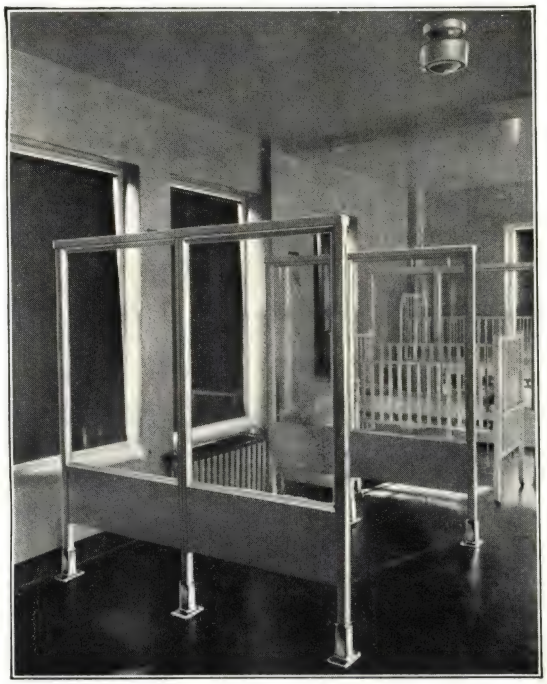
VENEER-STEEL HOSPITAL WARD SCREENS AND CUBICLES

For complete privacy, or for room partitioning, Veneer-Steel extending to ceilings, as shown at right, contributes the best construction for these uses. The absence of dirt-catching mouldings, the flush type and sound deadened panels, will be appreciated by those desiring a sanitary design of impressive and simple appearance.

The same general construction applies here as detailed on preceding page, except for glass panels added to make heights. Transoms can be substituted for upper lights if desired. Doors to receive hospital cots are usually 3 ft. 2 ins. wide between jambs and 7 ft. in height.

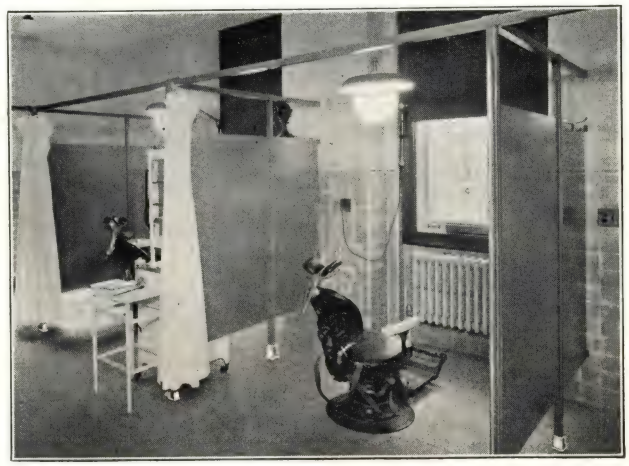
In specifying, note standard Veneer-Steel ward screen is 7 ft. to top of lower glass. Standard width panels are 24, 30, 36, 42, 48 and 54 ins. These can be arranged to any grouping or plan. Ceiling high partitions should be specified as Veneer-Steel Type W-O. Can be applied to a cast or terrazzo base, or can be furnished with bronze, stainless steel or plain enameled steel 6-in. high base.





Frequently sufficient light is provided by windows or by special lighting so that glass in the dividing screens can be omitted. For such a condition as shown at right (a dental clinic) standard Veneer-Steel ¾ in. thick solid panels can be used. These are flush-type and sound deadened. They stand 12 ins. off the floor, on 1½-in. square posts having 3-in. high solid brass, chromium plated bases, and 6 ft. to top of screen. Headrail bracing and curtain carriers are 7 ft. high over all. This type is called Type V and as in Type W the rear edge is kept away from wall about ¾ in. by special brackets for better sanitation and easier cleaning. Standard panels on post centers are 24, 30, 36, 42, 48, 54 and 60 ins. giving any desired depth of screen.

Another variation of Veneer-Steel ward screen is the mattress height. This is Veneer-Steel Type W-M. It is generally used in children's wards and affords the attendant a full view of all beds. The height from floor to lower edge of glass is 24 ins. and the height over all 5 or 6 ft. This type is usually free standing and special post shoes are necessary for proper support. These shoes are 6 ins. high, base size 4 x 6 ins. and are of solid cast brass, chromium plated. The depth of children's ward screens is usually less than for adult beds, a depth of 5 ft. usually sufficing. A selection of the following size panels either singly or combined, will give the desired depth, 24, 30, 36, 42, 48 and 54 ins.



Other equipment for hospitals, such as lockers, shelving, X-ray viewing cabinets, special type partitions and special storage cabinets are shown more fully in a special Hospital Catalogue which will be sent on request.

FIAT METAL MANUFACTURING CO.

Fiat Steel Toilet Partitions

FACTORY AND GENERAL SALES OFFICE
1201 Roscoe Street
CHICAGO, ILL.

NEW YORK OFFICE, 101 Park Avenue

BOSTON OFFICE, 11 Beacon Street

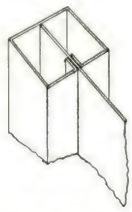
For Fiat Shower Bath Compartments and Brass Chrome Plated Shower Doors, see Manufacturers' Index

Fiat All-steel and Galvanized Steel Partitions

Fiat TRADE-MARK

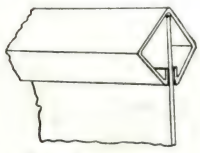
Panels—Are of No. 16 gauge open hearth, copper bearing, pickled, cold rolled, stretcher leveled sheet steel and inserted full depth into front and back posts and top and bottom panel binders.

Front and Back Posts—Note the double reinforcing shoulders at the seam, which clamp the panel firmly in position at all times—an exclusive Fiat feature which doubles the strength of the posts, insuring the most rigid and noiseless construction possible. Posts are 1¾ in. square in section made from cold rolled strip steel.



Front and Back Posts

Panel Binders—Top and bottom—diamond shape with Fiat's exclusive feature of two reinforcing shoulders, same as front and back posts, which constantly press against panels, adding sturdiness and positive assurance of rigid and noiseless construction throughout. Binders are 1½-in. outside diameter, diamond shaped, made from cold rolled strip steel. Sanitary diamond shaped binders provide no natural lodging place for moisture or dirt.



Panel Binders



Door Stiles

Tubing Joints—Where panel binders meet front and back posts are fully welded.

Overhead Rail—Is of cold rolled steel tubing 1¾ in. square in section.

Door Panels—Are of No. 16 gauge sheet steel, same as partition panels.

Door Stiles—They are 3½ in. wide by 1⅛ in. thick hollow metal with special Fiat tubular lock construction which clamps the panel securely in place. Stiles and horizontal rails are welded to form one piece frame and ground flush.

Fiat Galvanized Steel Partitions

Galvanized steel partitions are recommended for economy and durability. They are of a smooth, special finish surface prepared to receive duco enamel finish. They are furnished at a small additional cost. Construction same as all-steel partitions.

Fittings—Are malleable cast iron, adjustable to allow for unevenness in floors and walls. Aluminimum or brass can be furnished if desired.

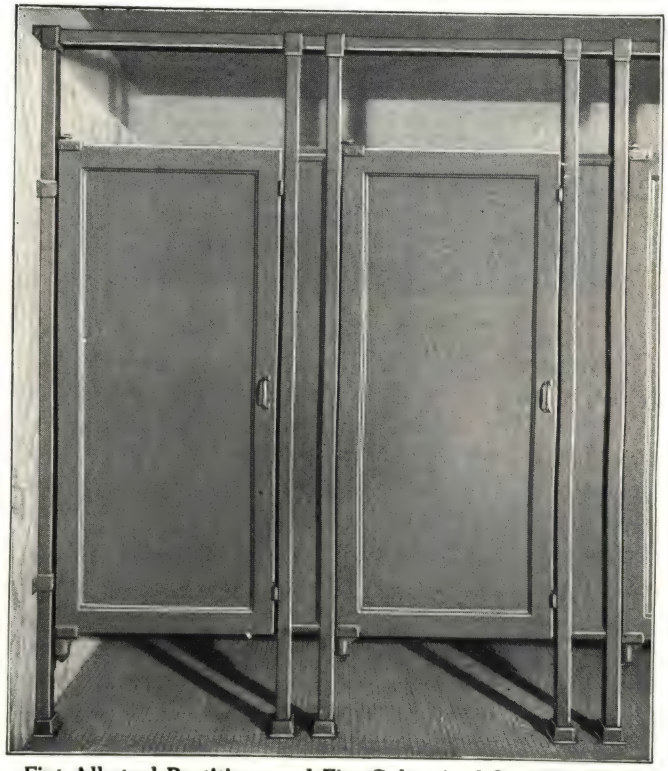
Finish

Either prime coat or duco enamel finish can be furnished. It is recommended, however, that all partitions be installed in prime coat and given final finish after installation.

Hardware

Consists of Lawson Gravity or Universal pivot spring hinge, rubber cover door strikes, chromium plated sliding bar, latch and keeper, chromium plated white metal two-prong coat hook, chromium plated door pull for doors which open out.

When doors open in no pull is furnished but doors are equipped with combination coat hook and bumper.



Fiat All-steel Partitions and Fiat Galvanized Steel Partitions


METALUNIT
DOORS
and HARDWARE
for W. C. STALLS
OF MARBLE, ETC.
WEISTEEL
PANEL and FLUSH
TOILET AND
DRESSING ROOM
COMPARTMENTS
·
HOSPITAL
CUBICLES
WEISALLOY
ALUMINUM
ALLOY
SHOWER
COMPARTMENTS
HENRY WEIS MANUFACTURING CO., Inc.
Elkhart - Indiana

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SHOWER CABINETS: See Manufacturer's Index

SALES REPRESENTATIVES

(See manufacturer's index, under Shower Cabinets, for Weis pages listing representatives of Shower Cabinet Division)

ALABAMA
- BIRMINGHAM: C. S. Caldwell, 2018 N. Second Ave.
- MOBILE: Reliance Equipment Co., 9-11 Water St.

ARIZONA
- PHOENIX: Walter Dubree, P. O. Box 145.

ARKANSAS
- LITTLE ROCK: Clippard Builders Specialties Co., 120 W. Markham St.

CALIFORNIA
- LOS ANGELES: J. E. Dwan, Inc., 616 S. Anderson St.
- SAN DIEGO: San Diego Bldg. Specialties, Inc., 629 West G St.
- SAN FRANCISCO: Dwan & Company, 532-534 Sixth St.

COLORADO
- DENVER: R. T. MacCracken Co., 1800 E. 46th Ave.

CONNECTICUT
- HARTFORD: Laurence R. Smith & Co., 88 Church St.
- NEW HAVEN: A. R. Kirschner Co., 30 Whitney Ave.

DISTRICT OF COLUMBIA
- WASHINGTON: Lally-Rohlader Co., Inc., 1756 M St., N. W.

FLORIDA
- JACKSONVILLE: Dawkins Building Supply Co., Box 2153.
- MIAMI: Frank R. Allen, c/o Dixie Novelty Works, Inc., N. W. 21st St., Miami Court; P. O. Box 1683, Buena Vista Sta.
- TAMPA: Stovall & Archer, 1001 Peninsular Telephone Bldg.

GEORGIA
- ATLANTA: Industrial Equipment Co., 92 Fairlie St.
- AUGUSTA: W. E. Raines, S. F. C. Bldg.

ILLINOIS
- AURORA: Davidson-Pearsall Co., 227 Main St.
- CHICAGO: Henry Weis Mfg. Co., Inc., 228 N. La Salle St.
- DECATUR: Gandy & Earp, 440 S. Franklin St.
- PEORIA: Samuel J. Smith & Co., 510 Lehmann Bldg.
- QUINCY: E. Best Plbg. & Htg. Supply Co., 628 Jersey St.
- ROCKFORD: Central Iron Works, 1143 Selden St.

INDIANA
- EVANSVILLE: J. C. Vaught, 712 S. Norman Ave.
- FORT WAYNE: Carl H. Penningroth, 1617 Curdes Ave.
- GARY: W. R. Baker Co., 341 McKinley.
- INDIANAPOLIS: Hoover Brothers Co., 1008 Majestic Bldg.

IOWA
- DAVENPORT: Cement Products Co., 715 E. River St.
- DES MOINES: Hawkeye Engineering Co., 301 Hubbell Bldg.
- SIOUX CITY: H. C. McNeil & Son, 308 Jackson St.

KANSAS
- TOPEKA: Lusco Brick & Stone Co., New England Bldg.
- WICHITA: Lusco Brick & Stone Co., 201 W. Douglas St.

KENTUCKY
- LEXINGTON: Clay-Ingels Co., 347 Main St.
- LOUISVILLE: R. B. Tyler Co., 1448 Levering St.
- PADUCAH: The Paducah Iron Co., 216 S. First St.

LOUISIANA
- NEW ORLEANS: J. R. Quaid, 808 Perdido St.
- SHREVEPORT: Welsh Bldg. Specialties, Inc., 310 Ricou-Brewster Bldg.

MAINE
- PORTLAND: Wm. S. Wade, 158 Walnut St., South Portland.

MARYLAND
- BALTIMORE: C. A. Weiller, 617 Lexington Bldg.
- CUMBERLAND: Grant Lumber & Supply Co., 205 William St.

MASSACHUSETTS
- BOSTON: Construction Supply Co., 8 Beacon St.

MICHIGAN
- DETROIT: Acme Wire & Iron Works, 12340 Cloverdale Ave.
- GRAND RAPIDS: S. A. Morman & Co., Perkins Bldg.
- LANSING: James E. Payne, 410 W. Saginaw St., Box 293.
- MENOMINEE: Ben B. Holmes Co.

MINNESOTA
- DULUTH: Dunlop-Moore Co., 22 Third Ave., West.
- ST. PAUL: Builders Engineering Co., 2694 University Ave.

MISSISSIPPI
- JACKSON: Fred Thrasher, 407 Tower Bldg.

MISSOURI
- KANSAS CITY: C. S. Hawley Co., 406 Orear-Leslie Bldg.
- ST. JOSEPH: Mannan-Smith Supply Co., Station A.
- ST. LOUIS: Lasar Mfg. Co., 1313 N. 16th St.
- SPRINGFIELD: Lusco Brick & Stone Co., 433 S. Jefferson St.

MONTANA
- HELENA: Raymond C. Grant.

NEBRASKA
- OMAHA: Consolidated Builders Supply Co., 1818 Harney St.

NEW YORK
- BINGHAMTON: Babcock, Hinds & Underwood.
- BUFFALO: Hercules Waterproof Cement Co., 519 Jackson Bldg.
- NEW YORK CITY: Philadelphia Fire Retardant Co., Inc., 110 W. 34th St.
- ROCHESTER: Robert C. Troup Co., 303 East Ave. Bldg., 49 East Ave.
- SCHENECTADY: Fireproof Materials, Inc., 207 State St.
- SYRACUSE: B. R. Johnson, 145 Harding Place.
- UTICA: American Hard Wall Plaster Co.

NORTH CAROLINA
- ASHEVILLE: J. A. Thompson, 8 Richards St., Kenilworth.
- CHARLOTTE: Edwin C. Boyette, Jr., Box 627, 135 Brevard Ct.
- GREENSBORO: J. D. Wilkins, W. Lee St. at Glenwood Ave.
- RALEIGH: W. H. Bond Co., Inc., 318 S. Harrington St.

NORTH DAKOTA
- FARGO: Clay-Products & Material Co., Inc., 519 Second Ave. No.

OHIO
- AKRON: O. G. Knoske, 640 N. Main St.
- CANTON: Earl H. Paar Co., 339 Bellflower Ave., N. W.
- CINCINNATI: T. A. Thauwald, Inc., 1412 American Bldg.
- CLEVELAND: J. W. Rommel, 924 Keith Theatre Bldg.
- COLUMBUS: Alvan Tallmadge, 63 Parkwood Ave.
- DAYTON: Callahan-Harris, Inc., 618 Harries Bldg.
- TOLEDO: B. F. Hausman, P. O. 243, 217 Columbia.

OKLAHOMA
- OKLAHOMA CITY: Lusco Brick & Stone Co., 818 Commerce Exchange Bldg.
- TULSA: Murray R. Womble & Co., 417 Thompson Bldg.

OREGON
- PORTLAND: Cress & Company, 283 Oak St.

PENNSYLVANIA
- ALLENTOWN: G. K. Halteman & Co., Allen and St. Cloud Sts.
- ERIE: Geo. H. Kraft & Son, 405 Scott Bldg.
- PHILADELPHIA: Philadelphia Fire Retardant Co., Inc., 1321 Arch St.
- PITTSBURGH: James R. Pitcairn, 1052 Century Bldg.
- READING: Daniel F. Yost, 1234 Dauphin Ave., Wyomissing.
- SCRANTON: Nor-East Sales Co., 417 Scranton Electric Bldg.
- WILKES-BARRE: Robert M. Miller, 400 Coal Exchange.
- WILLIAMSPORT: W. T. Ebur Co., 155 W. Third St.
- YORK: Walter Ehrenfeld, Box 162, 415 N. Hartley St.

SOUTH CAROLINA
- COLUMBIA: Shand Engineering & Sales Co., 705-13 Lady St.
- GREENVILLE: J. Mac. Rabb, News Bldg.

TENNESSEE
- CHATTANOOGA: Stephens Builders Supply Co., Box 84 St. Elmo Sta., Provident Bldg.
- KNOXVILLE: Chas. M. Allen Co., 712 S. Gay St.
- MEMPHIS: Miller-Cochran Co., 246 Court Ave.
- NASHVILLE: Geo. W. Ruth & Co., 151 Fourth Ave., North.

TEXAS
- ABILENE: West Texas Builders Supply Co., 757 N. Second St.
- AMARILLO: Borger-McCormick Brick Co., 119 W. 6th St.
- DALLAS: Gilbert Mfg. Co., 510-11 Marvin Bldg.
- EL PASO: C. C. Gaines, First National Bank Bldg.
- HOUSTON: Walcott, Maisey & Paige, 328 West Bldg.
- SAN ANTONIO: Jno. A. Williamson Co., 804 Ave. A.

UTAH
- SALT LAKE CITY: Hawley-Richardson-Williams Co., 204 Dooly Bldg.

VIRGINIA
- NORFOLK: Hall-Hodges Co., 809 Citizens Bank Bldg.
- RICHMOND: Virginia Building Material Co., 312 Bldrs. Exchange
- ROANOKE: Stone-Tile & Supply Co., Inc., Cleveland Ave. and 17th St.

WASHINGTON
- SEATTLE: Western Bldg. Specialty Co., 2307 Fifth Ave.
- SPOKANE: H. G. Lanahan & Co., 411 W. First St.

WEST VIRGINIA
- CHARLESTON: Standard Brick & Supply Co., 813 Kanawha St.

WISCONSIN
- MADISON: Builders Specialty Co., 9 S. Pinckney St.
- MILWAUKEE: Jackson & Fahey Co., 1311 Majestic Bldg.

HENRY WEIS MANUFACTURING CO., INC.

1876 — 1932

AN ORGANIZATION WITH OVER HALF A CENTURY OF EXPERIENCE IN SERVING ARCHITECTS AND BUILDERS

The Company

The Henry Weis Manufacturing Co., Inc., was founded at Kansas City, Mo., in 1876 and has been in business continuously since that time. In 1915, the factory was moved from Kansas City to Atchison, Kansas, remaining there until 1926 when a new, modern factory and office building was occupied in Elkhart, Indiana.

This company originated metal Toilet, Shower and Dressing Room Compartments. It has continuously contributed to the industry outstanding improvements in design and construction. Its products have always been known for quality materials and workmanship.

Growth of the company, its rating in Dun's and its reputation and standing with the architectural profession and building trades are proof of its responsibility and dependability.

Manufacturing Facilities

More than sixty thousand square feet of expertly planned floor space are required for the production of Weis products. Special manufacturing equipment and production methods have been developed and are constantly improved to provide volume, quality production at economical cost.

Supervision of manufacturing is in charge of men of ability and with broad experience.

Sales and Service Organization

Weis products are sold and serviced in more than one hundred principal cities in the United States. (See list opposite page and map below.) The organization of each representative is experienced and favorably known in its building trade territory. The entire sales organization has had an average of more than six years' experience in the sale of Weis products.

Products

The products of the company are as follows:

WEISTEEL Toilet, Shower and Dressing Room Compartments. These are supplied in Standard Flush, Standard Panel, and Type C Panel construction.

Weis METALUNITS (Flush Custom-Built Doors, with hardware) and Stock WEISTEEL Doors, with hardware, for W. C. Stall Partitions of Marble, Glass, Slate, Vitrolite, Alberene Stone, Terrazzo, etc.

WEISALLOY (Aluminum Alloy) Toilet, Shower and Dressing Room Compartments. (Panel Shower Compartments, Panel or Flush Dressing Room and Toilet Compartments.)

A detailed description of the above products will be found in the following pages of this catalog.

Note: **Weisway, Weisteel and Weisalloy Shower Bath Cabinets, assembled and integral, all leakproof, are manufactured by this company. See manufacturer's index for data on these products, or ask for special literature.**

A NATION-WIDE SERVICE



Engineering Service

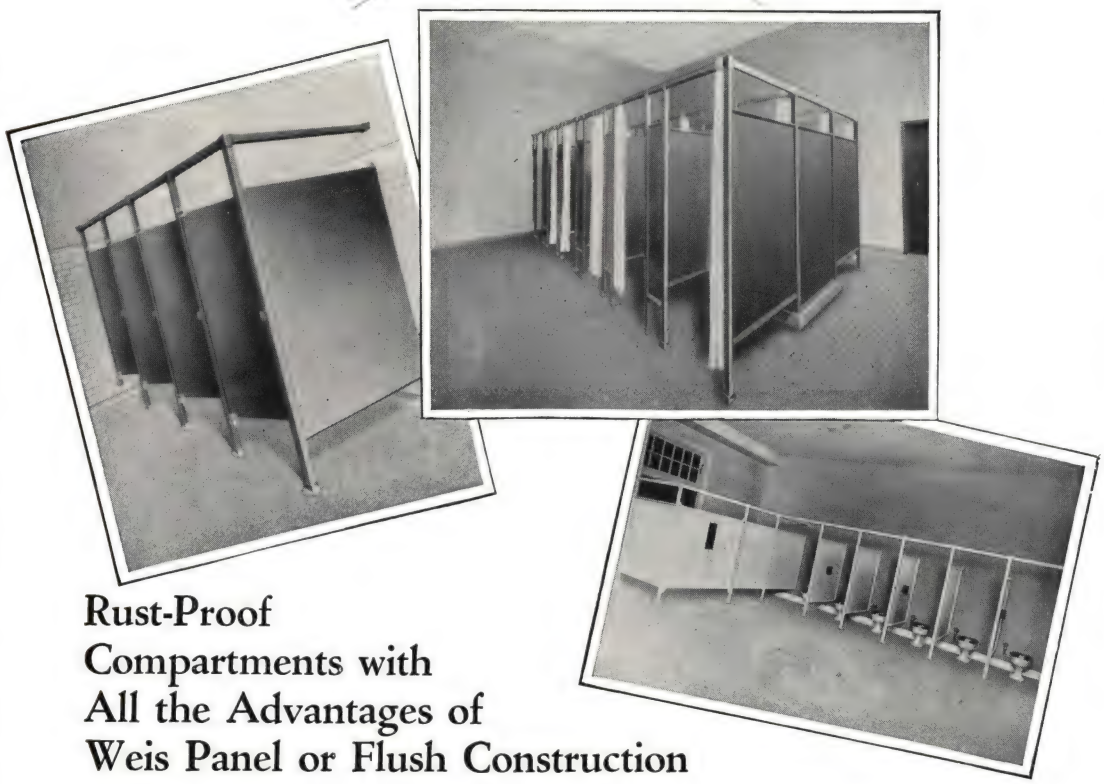
Architects, engineers, builders and owners are invited to avail themselves of the company's facilities for detailed information on specific requirements. Weis engineers will offer suggestions for practical adaptation of Weis products without obligation.

Information Necessary for Estimates

Due to variations in types of layouts and dimensions, it is advisable to submit rough sketches of the requirements contemplated, showing location of the building walls, height and depth of dividing partitions and width of compartments. Floor construction for shower and dressing room layouts should be shown.

WEISALLOY

ALUMINUM ALLOY COMPARTMENTS



Rust-Proof Compartments with All the Advantages of Weis Panel or Flush Construction

WEISALLOY (Aluminum Alloy) Partitions and Doors are now in their second year of general use by architects and builders. For eight years prior to their public introduction to architects, WEISALLOY was actually tested in buildings selected by reason of variations in climatic and general service conditions. Since WEISALLOY has been available, it has met with enthusiastic response, as indicated by specifications for and installations in representative buildings throughout the country. (Names of installations upon request.)

WEISALLOY is a tested product and is guaranteed by a manufacturer who for fifty-six years has been engaged in the making of metal building products.

WEISALLOY panel and flush designs have been fully developed—the alloys, gauges, tempers and finishes of all raw materials have been selected by tests; production methods have been developed and perfected and, equally important, a corps of workers has been thoroughly trained in the fabrication of finished products from these raw materials, which have working characteristics totally different from steel.

For shower stall enclosures, Panel WEISALLOY only is recommended. For dressing rooms and toilet stalls, either Panel or Flush WEISALLOY is satisfactory. (See explanatory notes at the bottom of opposite page.)

Advantages of Weisalloy

Rust-proof—impervious to moisture or odors—pleasing appearance and sanitary construction—economical first cost and maintenance expense—minimum installation time—all parts and fittings made of aluminum alloy—Weis designs particularly adapted to Aluminum Alloy construction—not an experiment but a guaranteed product.

WEISALLOY
ALUMINUM ALLOY COMPARTMENTS

ARCHITECTS' SPECIFICATIONS

Note: If desirable, standard panel or flush WEISTEEL *Dressing Rooms may be assembled with panel* WEISALLOY *Shower Stalls. (See pages 6 and 8 for panel and flush* WEISTEEL *specifications.)*

Panel Weisalloy

All Shower, Dressing Room and Toilet Compartments noted in this specification shall be Panel WEISALLOY, as manufactured by the Henry Weis Manufacturing Co., Inc., Elkhart, Indiana.

Partitions—Partitions, posts, headrail (backs, utility end plates and covers), to be built of not less than 14 B. & S. gauge aluminum alloy. All partition panels to have sanitary V-shaped moulding at top and bottom formed of the same sheet, which shall be interlocked and welded into the post. Furnish necessary aluminum alloy wall and top post fittings and smooth finish, Government Formula, nickel alloy foot castings, all to be adjustable to take up any variation in walls and floors.

Doors—Doors, where shown on plans, are to have 3 in. stiles and rails, with sanitary cove moulding, and panels of 16 B. & S. gauge aluminum alloy. The mitres of stiles and rails shall be reinforced and welded by the WEISALLOY process and finished flush.

Hardware—The hardware is to be panel WEISALLOY standard, consisting of a Universal Gravity Hinge, Heavy Slide Bar Latch, Pull and Coat Hook. All parts to be brass nickel plated.

Finish—All material shall be thoroughly cleaned and given a coat of grey metal primer.

1. Finish painting to be done after installation. (See painting specifications.)

2. All material to be finally finished at the factory with baked-on enamel, either Sage Green or Light Grey. Specifically state, in specifications, method No. 1 or No. 2 for final finish.

Flush Weisalloy

All Dressing Room and Toilet Compartments noted in this specification shall be Flush WEISALLOY, as manufactured by the Henry Weis Manufacturing Co., Inc., Elkhart, Indiana.

Partitions—All partition panels shall be 1 in. thick. Each panel shall be made up of two sheets of 18 B. & S. gauge aluminum alloy. Before assembly, the inner surfaces of these side members shall be given a bonding coat baked on at 350° F. They shall then be spaced and insulated with a laminated corrugated fiber-board filler, cemented to their inner surfaces. To assure uniform adhesion, all panels shall be subjected to a pressure of five hundred pounds per square foot for twenty-four hours. Edges of panels shall be bound and interlocked, under tension, with drawn aluminum alloy moulding, which shall be welded at corners. All supporting posts shall be 14 B. & S. gauge aluminum alloy and welded to panels to provide an integral, rigid partition unit.

Backs against walls or used as enclosures for utility corridors shall be of 14 B. & S. gauge single sheet, flush panel construction. Vent tops, end plates and utility doors shall be of 14 B. & S. gauge single sheet construction.

Furnish necessary aluminum alloy headrail and post fittings, also wall fittings, which shall be adjustable to take care of unevenness in walls. Include smooth finish, Government formula, nickel alloy foot castings, which are adjustable to take care of variations in floors.

Doors—Doors where shown on plans shall be 1 in. thick and of the same design and construction as specified above for partition panels. Doors shall be guaranteed to be rigid and free from wind.

Hardware—The hardware is to be flush WEISALLOY standard, consisting of a Universal Gravity Hinge, Heavy Slide Bar Latch, Pull and Coat Hook. All parts to be brass, nickel plated.

Finish—All material shall be thoroughly cleaned and given a coat of grey metal primer.

1. Finish painting to be done after installation. (See painting specifications.)

2. All material to be finally finished at the factory with baked-on enamel, either Sage Green or Light Grey. Specifically state, in specifications, method No. 1 or No. 2 for final finish.

IMPORTANT

Flush construction for shower enclosures not recommended.

Reasons: 1. Partition panels cannot be uniformly or *permanently* sealed against shower water.

2. Adaptable filler materials, while moisture resistant, are not water-proof.

3. Water temperature changes are conducive to condensation inside flush panels; hence, only panel WEISALLOY, single sheet construction, recommended for shower enclosures.

Flush compartments for Toilet Stalls and Dressing Rooms are not subject to the above service conditions to any appreciable degree.

Note: All alloys and tempers of alloys for various parts of the product are in accordance with manufacturers' adopted standards, as a result of experiments and tests which were checked with the Engineering Department of the Aluminum Company of America.

All WEISALLOY products are finished in prime coat or baked enamel at factory. (See finish specifications above.) Although these finishes are not required for the preservation of the aluminum alloy, they are recommended for appearance, as aluminum, with age and use, becomes unevenly darker in color.

For descriptions and illustrations of details of designs which are similar to Panel and Flush WEISTEEL, refer to pages 7 and 9. For layout suggestions refer to pages 13, 14, 15, and 16.

Flush Weisteel Compartments

FLUSH WEISTEEL

A few years ago a demand for flush type metal compartments became apparent. This demand resulted from two definite causes. First, two decades of use of high-grade metal compartments, such as Panel WEISTEEL, had demonstrated their advantages—sanitation, economy and durability. Second, the desire of architects and builders to have these benefits incorporated into a design which would also include those characteristics found in types of buildings where more expensive kinds of materials were generally used.

A design incorporating the materials and construction which would satisfy this demand presented many difficult problems. On their solution was concentrated the experience and facilities of the Weis organization. Flush WIESTEEL here illustrated and described is the result.

Architects and builders are invited to investigate the product and confirm its merit by comparison.

Important

Flush construction is not recommended for shower stall enclosures for the following reasons:

1—Observation and tests indicate that no suitable flush panel construction can be uniformly and *permanently* sealed against shower water.

2—Adaptable filler materials, while moisture-resistant, are not waterproof.

3—Water temperature changes are conducive to condensation inside the flush panels.

Only single sheet panel construction is recommended for shower enclosures (see description Panel WEISALLOY on pages 4 and 5, and Panel WEISTEEL on pages 8 and 9).



Flush compartments for toilet stalls or dressing rooms are not subject to the above service conditions to any appreciable degree.

Architect's Specifications

Toilet Stalls and Dressing Room Compartments, etc., noted in this specification shall be flush WEISTEEL as manufactured by the Henry Weis Manufacturing Co., Inc., Elkhart, Indiana.

Partitions

All partition panels shall be 1 in. thick. Each panel less than 54 in. in width shall be made up of two sheets of 22-gauge furniture steel; each panel 54 in. and wider shall be made up of two sheets of 20-gauge furniture steel. Before assembly, the inside surfaces of these side members shall be coated with an iron oxide primer baked on at 350° F. They shall then be spaced and insulated with a laminated corrugated fiber board filler, cemented to their inner surfaces. To assure uniform adhesion, all panels shall be subjected to a pressure of five hundred pounds per square foot, for twenty-four hours. Edges of panels shall be bound and interlocked, under tension, with drawn steel moulding, which shall be welded at corners. Supporting posts shall be interlocked and welded to panels to provide an integral, rigid partition unit.

All supporting posts and headrail bracing shall be 16-gauge rectangular steel tubing.

Backs against walls or used as enclosures for utility corridors shall be of 16-gauge single sheet panel construction. Vent tops, end plates and utility doors shall be of 16-gauge single sheet construction.

Furnish necessary headrail and post fittings, also wall fittings, which shall be adjustable to take care of unevenness in walls.

Include smooth finish, Government formula nickel alloy foot castings, which are adjustable to take care of variation in floors.

Doors

Doors, where shown on plans, shall be 1 in. thick, and of the same design and construction as specified above for partition panels. Doors shall be guaranteed to be rigid and free from wind.

Hardware—The hardware is to be flush WEISTEEL standard, consisting of a Universal Gravity Hinge, Heavy Slide Bar Latch, Pull and Coat Hook. All parts to be brass, nickel plated.

Finish

All material shall be thoroughly cleaned and given a heavy coat of grey metal primer.

1—Finish painting to be done after installation. (See painting specifications.)

2—All material to be finally finished at factory with baked on enamel, either Sage Green or Light Grey.

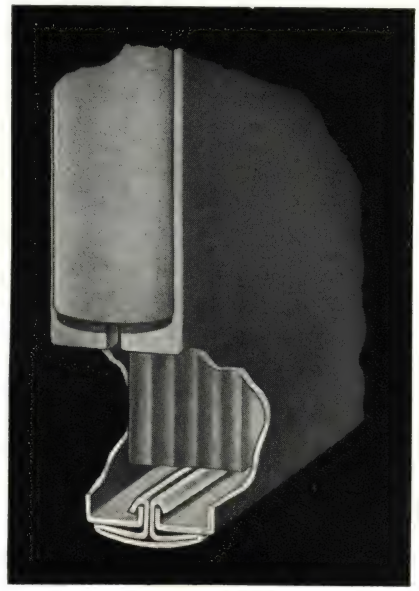
Specifically state, in specifications, method No. 1 or No. 2 for final finish.

Flush Weisteel Construction Features

1—Flush WEISTEEL is a combination of pleasing rectangular designs.

2—Partitions and doors 1″ thick. This thickness combines desired mass appearance with essential rigidity.

3—Method of binding and interlocking, under tension, the panel side members with a rolled steel moulding is an exclusive Weis construction (see illustration).



Pat. Pending

4—The above method of assembly provides permanent, uniform rigidity and strength along the entire length of edges of all partitions and doors.

5—Each edge of a partition or door is reinforced by three thicknesses of metal (see illustration).

6—No exposed raw edges of metal.

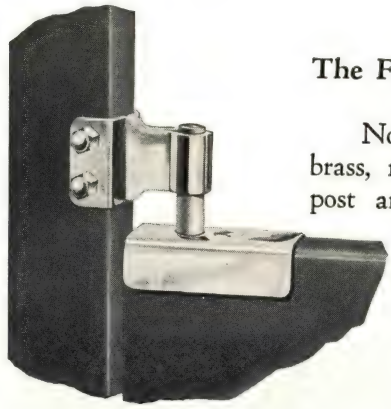
7—No open seams.

8—All cross sections are true and uniform in profile.



Flush Weisteel Partition Wall Fitting

(Top and bottom) made of 5/32″ wrought steel, adjustable to allow for any variation in the wall. Partition can be set 1″ away from wall if desired.



The Flush Weisteel Upper Pivot Butt

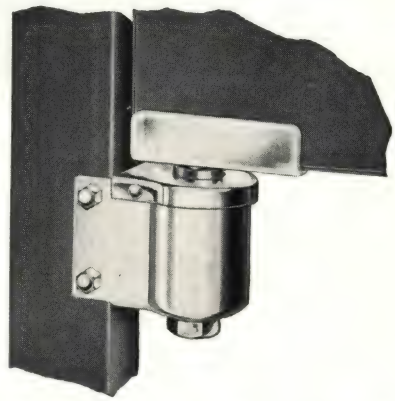
Note heavy 5/32″ wrought brass, nickel plated yokes on post and door. The special analysis steel pin for engaging the upper door fitting is assembled as a permanent part of the post yoke.

The Flush Weisteel Front Post Heavy Pressed Steel Fitting

The rectangular headrail is held rigidly by a safety head set screw. Both headrail and post are rigid and stay in alignment.



The Flush Weisteel Special Design Universal Gravity Hinge



Simple and trouble-proof. Exceptionally strong and durable. Used for either single or double acting doors. Will hold the door closed or open at any point selected within radius of swing. Can be mounted for right or left hand door opening in or out. Regular or reverse action immediately obtained without changing any part of hinge construction. See page 19 for detailed description and illustration of hinge construction.

For adaptation of flush WEISTEEL *to various layouts of toilet stalls, dressing rooms or tub bath compartments, refer to pages 13, 14, 15 and 16.*

Standard Panel Weisteel Compartments

STANDARD PANEL WEISTEEL

WEISTEEL Compartments satisfy a definite, necessary need for sanitary and economical equipment for the modern toilet, shower and dressing room. They represent a completely developed, original product for new or old buildings.

These compartments, of rigid steel construction, have proved their worth in all classes of buildings. For more than twenty years they have met all the requirements of discriminating architects and builders.

In appearance, quality of material and workmanship, they harmonize with any materials with which they may be assembled. Where sanitation, durability and economy are primary considerations, they have established a new standard of utility value.

Sanitary—All joints are closed. The design of the mouldings, floor fittings, enclosed hinge and latch and the absence of projecting screws or bolt heads prevent the accumulation of dust and dirt. The metal is non-absorbent and, when enameled or painted, is not easily defaced.

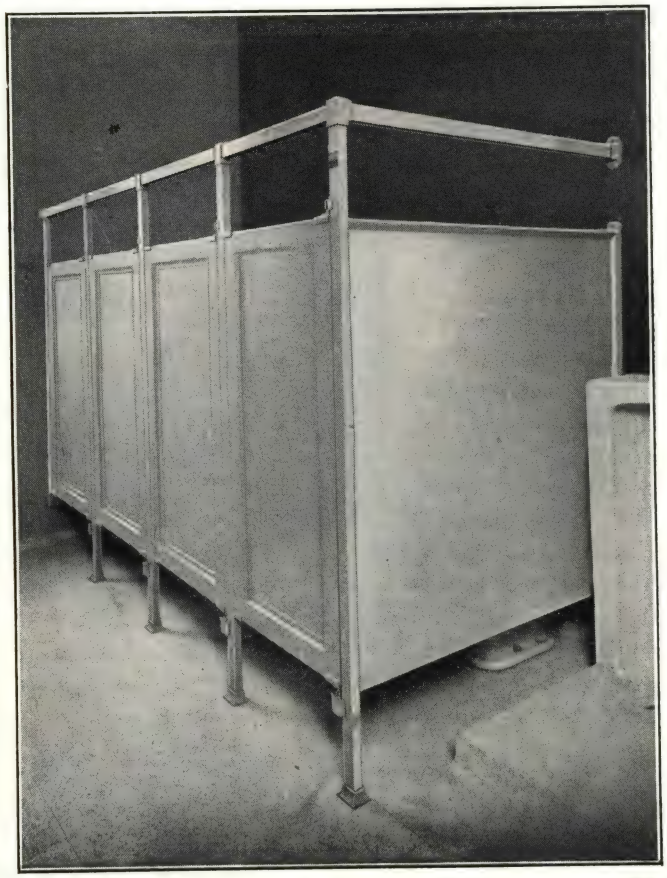
Substantially Constructed—Each partition, with its integral front and rear post, is a single, substantial unit. Panels and posts are interlocked and welded at top and bottom. The bottom of the front post is firmly held into the floor shoe; the top is rigidly anchored to the headrail. All door corners are reinforced and electrically welded into one solid unit. All joints are finished smooth.

High Quality—There are no unsightly edges or open seams. Joints between panels and rails, and between panels and posts, are closed and sealed—door corners are finished flush and smooth. All fittings are small and fit the sheet steel members snugly. Hardware parts are substantial, of good design and well finished. Paints and enamels used are baked in temperature controlled ovens.

All enamel work has the eggshell finish usually found on the best quality enameled steel products. All shower partitions are first coated with a special oxide primer baked on at 350°. This primer under tests shows wearing qualities ten times greater than metal primers usually applied.

Economical—The first cost of WEISTEEL Compartments is much less than either slate or marble and very little more than wood. There are no parts to wear out. With average care, these compartments should last as long as the building. They can be erected in less time and at much less expense than any other type of compartment.

Erection—The erection of WEISTEEL is simple and foolproof. Only average workmen are required and the cost is comparatively very low. Three bolts only are required to erect a partition; one in the floor and two in the wall fittings. All units are made accurately to dimensions, drilled to template and completely assembled. All holes for the application of hardware are drilled at the factory. No fitting, cutting or drilling is necessary at the job. All parts are plainly marked to correspond to detailed erection drawings. Confusion is thereby eliminated when distributing the material at the building. Complete directions for erection are sent with each shipment.



Architect's Specifications

Partitions—Partitions, posts, headrail, (backs, utility end plates, and covers), shall be built of not less than 16-gauge, full pickled, cold rolled furniture steel. All partition panels to have sanitary "V" shaped moulding at top and bottom formed of the same sheet, which shall be interlocked and welded into the post. Furnish necessary wall and top post fittings and brass foot castings, which shall be adjustable to take up any variation in the walls and floors. Provide necessary rectangular headrail, not less than 16-gauge, to brace partitions.

Doors—Doors, where shown on plans, are to have 3 in. stiles and rails, with sanitary cove moulding and panels of 18-gauge, full pickled, cold rolled furniture steel. The mitres of stiles and rails shall be reinforced and electrically welded by the "WEISTEEL" process and finished flush.

Hardware—The hardware is to be Panel WEISTEEL standard, consisting of a Weis Universal Gravity Hinge, Heavy Slide Bar Latch, Pull and Coat Hook. All parts to be brass, nickel plated.

Finish—All work is to be finished at the factory with prime coat of (1—red oxide primer) or (2—grey metal primer), (3—baked-on enamel, either Sage Green or Light Grey).

Note: State specifically by number which finish is desired.

Shower Curtains and Hangers—Shower curtains shall be of (nine) or (twelve) ounce duck canvas. (Other material may be specified if preferred.) Shower curtain hangers shall be "WEISTEEL" specially designed, roller bearing, and brass, nickel plated to accommodate rectangular headrail.

Assembly—All parts shall be accurately and substantially assembled with all joints and seams completely filled. Work shall be laid out and assembled to conform to the layout and details shown on plans.

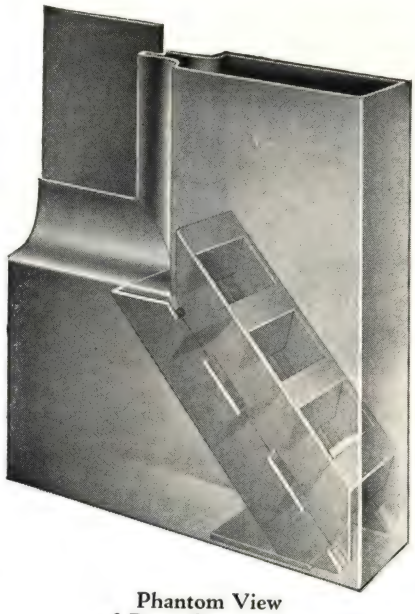
Installation—All work shall be set in place in accordance with the manufacturers' instructions and approved shop drawings. All material included in this specification shall be left in an acceptable condition and complete.

The Weisteel Door

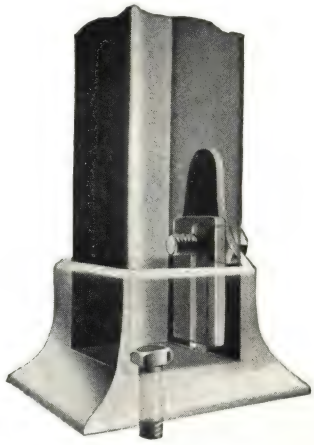
The present Standard Panel WEISTEEL electrically welded (by an exclusive WEISTEEL process) door unit is the result of a long series of tried and discarded fabrication processes, including riveting, soldering, interlocking and soldering, gas welding, arc welding, etc. Each succeeding process possessed certain merits, but with them were found difficulties in fabrication or objectionable features of construction.

Seven years ago, the present WEISTEEL exclusive process of electrically welding the four corner joints of the mitered stiles and rails was perfected. Each stage of the process is so mechanically controlled that every door is accurate to required dimensions, and square. The unique reinforcements, here illustrated, become, by this process, an integral part of each corner of the door. At the same time, the mitered ends of the hollow stiles and rails are fused together so that door joints are strongest sections of unit. These continuous, fused joints are then finished flush and smooth.

This process of joint construction, together with the method for assembly of the panel with the rails and stiles results in a sound deadened door that is rigid, wholly free from "wind" or "weave," pleasing in appearance, practically incapable of being damaged or destroyed under the most severe abuse, and, equally important, its cost is approximately the same as that of a good wood door, when prepared for hardware and finished.

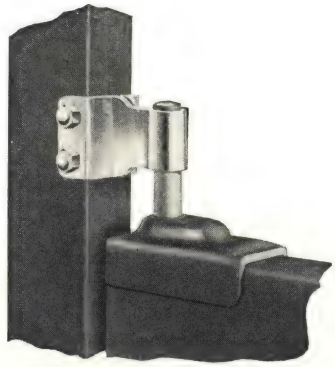


Phantom View of Door Construction



Standard Panel Weisteel Brass Foot Casting

(Phantom view), shows provision for adjustment to variations in floors. This self-draining shoe is bolted to the floor and the post is then inserted, concealing the bolt. This design of foot casting, in smooth finish Government formula nickel alloy, is also furnished for Flush WEISTEEL, described on pages 6 and 7.

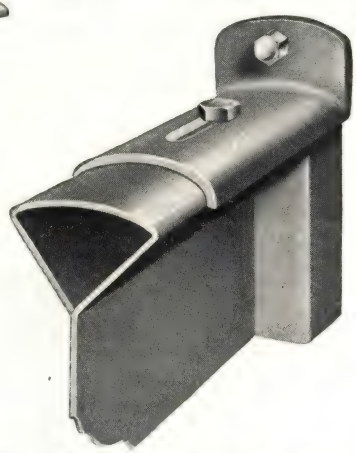


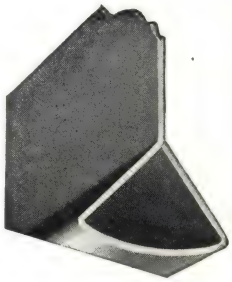
Standard Panel Weisteel Upper Hinge Pivot

The wrought brass yoke of 5/32" stock is designed for maximum strength and appearance. The special analysis steel pivot pin is assembled as a permanent part of the butt.

The Standard Panel Weisteel Rear Post Fitting

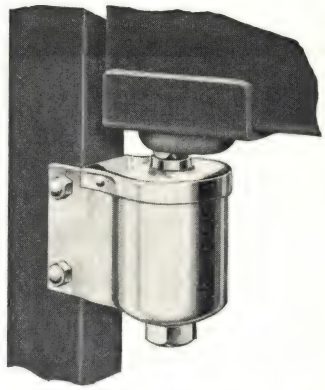
(Top and bottom), made of 5/32" wrought steel, is adjustable to allow for any variation in the wall. Partition can be set one inch away from wall if desired.





Standard Panel Weisteel Partition Top and Bottom V-rails

Are formed as an integral part of the sixteen-gauge partition panels. Each V-rail has joint on one side only. Note how joint is locked and sealed at intersection with panel. This construction affords maximum rigidity, sanitation and pleasing appearance. Bottom V-rails of all shower enclosures are protected with asphaltum acid-proof paint.



Standard Panel Weisteel Universal Gravity Hinge

Simple and trouble-proof. Exceptionally strong and durable. Used for either single or double acting doors. Will hold the door closed or open at any point selected within radius of swing. Can be mounted for right or left hand door opening in or out. Regular or reverse action immediately obtained without changing any part of hinge construction. For a complete explanation of the interior working parts, refer to page 19.

For adaptation of Standard Panel WEISTEEL *to various layouts of toilet, shower and dressing rooms or tub bath compartments, refer to pages 13, 14, 15 and 16.*

Type C Panel WEISTEEL is an entirely new single sheet panel compartment—the latest addition to the Weis line of products. *In the Type C we believe we offer more service value per dollar invested than any other single sheet panel compartment now available.* Type C Panel WEISTEEL is inexpensive and is entirely suitable for use in a wide variety of buildings where the item of costs must be carefully considered.

In adding Type C Panel WEISTEEL to its line, The Henry Weis Mfg. Co., Inc., has made available, at minimum cost, partitions and doors which retain many of the features of design and construction for which standard Panel WEISTEEL has long been recognized as a quality leader. (For description and illustrations Standard Panel WEISTEEL see pages 8-9.)

Architect's Specifications

All toilet stalls, shower and dressing room compartments, partitions, etc., noted in this specification shall be Type C Panel WEISTEEL, as manufactured by the Henry Weis Manufacturing Co., Inc., Elkhart, Ind.

Partitions—Partitions, rear posts, headrail, (backs, utility end plates and cover), shall be built of not less than 18-gauge pickled, cold rolled steel. Front posts shall be 14-gauge steel. All partition panels to have sanitary "V" shaped moulding at top and bottom, formed of the same sheet, which shall be interlocked and welded into the post. Furnish necessary wall and top post fittings and brass foot castings, which shall be adjustable to take up any variation in the walls and floors. Provide necessary headrail not less than 18-gauge to brace partitions.

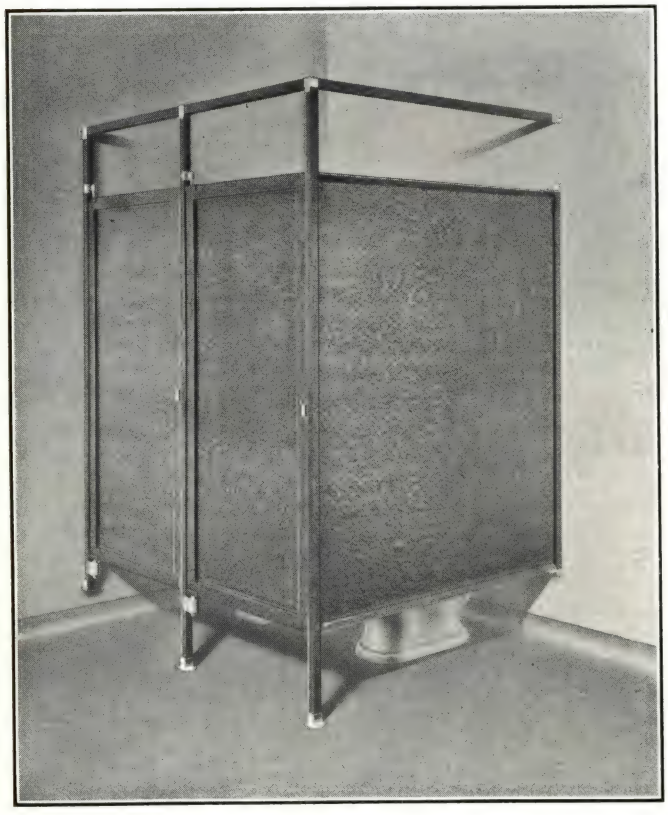
Doors—Doors where shown on plans to have 2″ stiles and rails, and panels of 18-gauge, full pickled, cold rolled steel. The miters of stiles and rails shall be reinforced and electrically welded by the Weis process.

Hardware—The hardware is to be Type C Panel WEISTEEL standard, consisting of a Universal Gravity Hinge, pendulum latch, pull and coat hook. All hardware parts to be special analysis steel, heavily cadmium plated.

Note—This unbreakable steel hardware is rust-proofed with cadmium by the well-known Udylite process. Tests conducted by Underwriters Laboratories prove cadmium plating gives 77 times the protection obtainable from standard nickel plate and 5 times the protection of sherardizing. Cadmium plating, when properly applied, will not chip, scale, peel or blister, and provides a striking silvery grey lasting finish.

Finish—All work is to be finished at the factory in prime coat of (1—red, oxide primer, baked on at 350° F.), or (2—gray metal primer), (3—gray or green wrinkle baked enamel). Note: State specifically, by number, which finish is desired. All Type C Panel WEISTEEL partitions furnished to enclose showers have Weis red, oxide primer, baked on at 350° F., whether shipped in prime coat or standard wrinkle enamel finish.

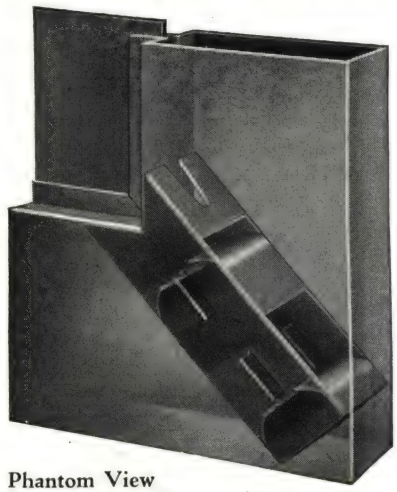
Assembly and Installation—All parts shall be accurately and substantially assembled with all joints and seams completely filled. All work shall be set in place in accordance with the manufacturer's instructions and approved shop drawings.



Type C Compartments
Standard Wrinkle Finish Shown

Type C Door Construction

Type C Panel WEISTEEL doors have 20-gauge stiles and rails 2″ wide by 1″ thick. Corners are mitered and reinforced as illustrated and electrically fused by the Weis exclusive welding process. During the welding process, reinforcement shown is fused with stiles and rails and becomes an integral part of them. Panels are 18-gauge, pickled, cold rolled steel. Panels with stiles and rails are electrically welded into a rigid unit.



Phantom View
Door Corner Construction

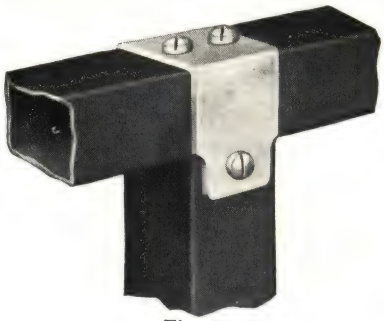


Fig. 1

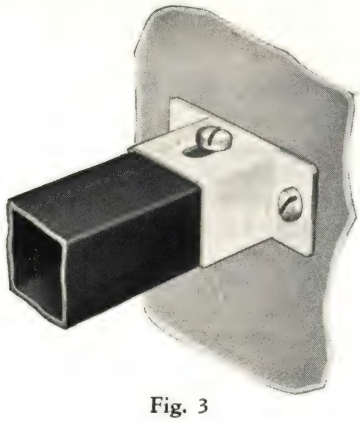


Fig. 3



Fig. 4



Fig. 2

Weisteel Type C Fittings

(1) Front Post Top Fitting—This fitting clamps square headrail securely to front post. Headrail is anchored in place by two screws.

(2) Foot Casting—Self-draining and adjustable for variations in the floor level.

(3) Wall Headrail Fitting — This fitting, which affords two point anchorage to the wall, is adjustable to take up variations in the wall.

(4) Rear Post Wall Brackets — These brackets are ⅛" wrought steel. They are adjustable to allow for any variation in the wall. Top and bottom wall fittings are similar.

All WEISTEEL fittings are cadmium plated by the Udylite process.

Weisteel Type C Hardware

The hardware regularly furnished with Type C Panel WEISTEEL Type C Compartments is made of special analysis steel, heavily cadmium plated.

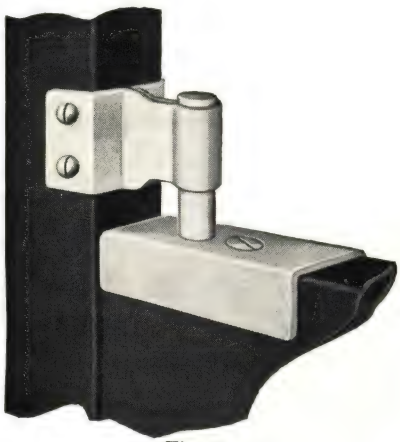


Fig. 1

Fig. 1.—Shows the Upper Hinge Pivot with ⅛" special analysis steel yoke. Yoke and pivot pin are made to withstand hard service.

Fig. 2.—Shows the Type C Panel WEISTEEL Universal Gravity Hinge. This hinge is guaranteed to be non-breakable. In design and construction it is the same hinge used in regular panel WEISTEEL, the only difference being that the outer case is steel, cadmium plated. This hinge may be used for either single or double acting doors and will hold door closed or open at any point within its swing. It can be mounted for right or left hand door, opening in or out.

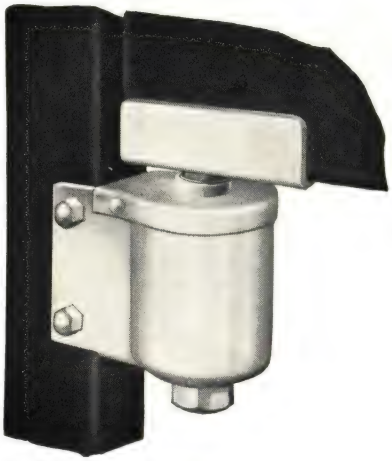


Fig. 2

Fig. 3—The pull is designed for convenience and is assembled through door with pendulum latch as shown in Figure 4. The bumper is designed for secure anchorage of rubber insert and rigid attachment to post.

Fig. 4—Latch and Keeper. Pendulum type latch of special analysis steel, cadmium plated, is assembled with knob pull opposite and is practically pilfer-proof. Keeper and bumper are assembled as a unit and may be used for right or left hand openings.

A two-prong coat hook is included with each door. Combination coat hook and bumper is furnished for in-swinging doors. Both types mounted on partition.



Fig. 3



Fig. 4

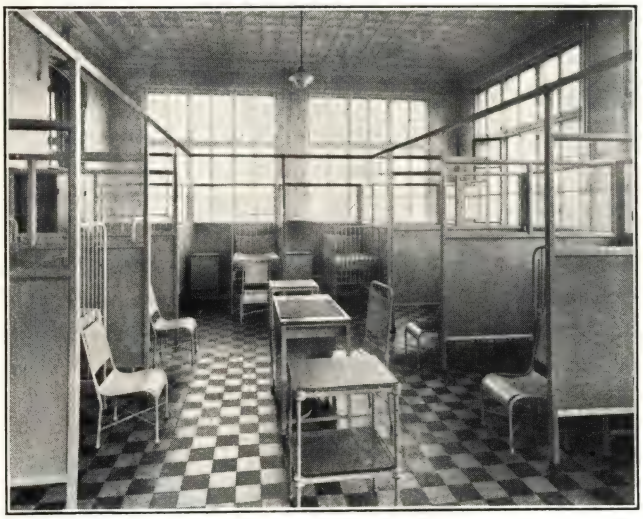
Hospital Cubicles for Wards and Waiting Rooms

WEISTEEL Ward and Waiting Room Cubicles are the result of extended studies of hospital problems and consultations with numerous hospital architects, hospital consultants and executives. The proven advantages of cubicle equipment for the hospital, the staff and patients are quite thoroughly covered in a booklet (not a catalogue) prepared by the WEISTEEL Professional Service Department, under the title "Good Will and Income from Between Type Patients."

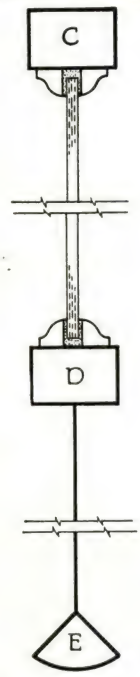
A copy of this booklet will be forwarded free, upon responsible request from architects or hospital executives.

WEISTEEL Cubicles are adaptable for use in maternity wards, children's wards, general wards, surgical and examination wards, and as waiting booths in hospital waiting rooms for out-patient departments and children's clinics. They can be installed in old buildings as readily as they can be included in new building plans. The simplicity of erection insures a satisfactory installation with a minimum amount of interruption or confusion to surrounding hospital activity.

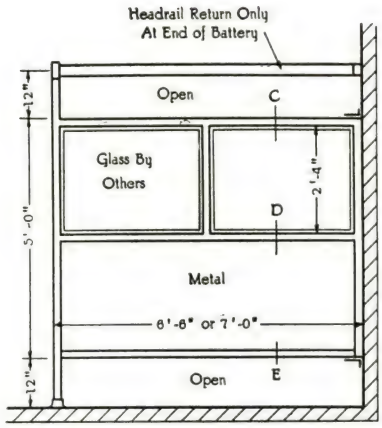
A corps of experienced engineers is available for the convenience of hospital architects and executives contemplating cubicle installations.



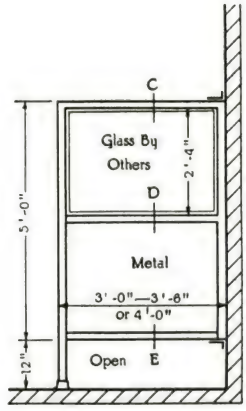




Typical Section of Panel Cubicles
Scale 3"=1'-0"



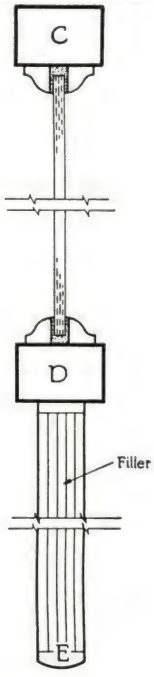
Ward Cubicles



Infant & Waiting Booth Cubicles

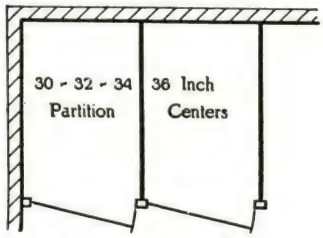


Detail of Snap On Moulding and Clip

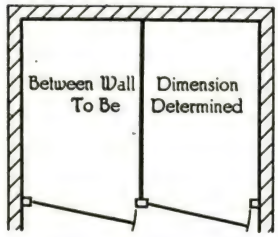


Typical Section of Flush Cubicles
Scale 3"=1'-0"

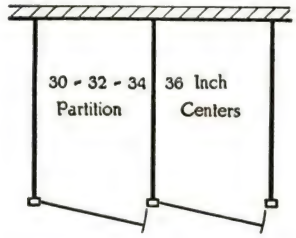
Panel and Flush Weisteel Hospital Cubicles



Series 1 - Illustrated
Series 2 - Opposite

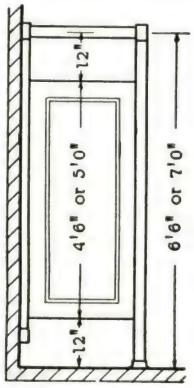


Series 3 - Between Walls

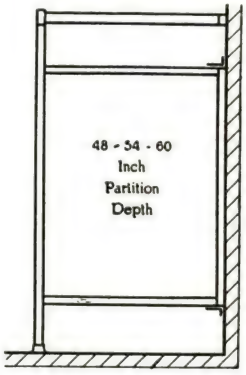


Series 4 - No Walls At Sides

Series 1-2-3 and 4 Furnished in Batteries of Any Number Stalls Required.
Door Sizes Approximately 2" Less Than Partition Centers.

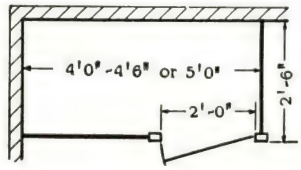


Typical Front Elevation

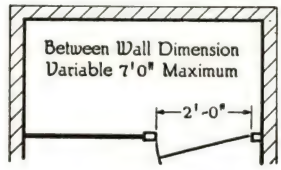


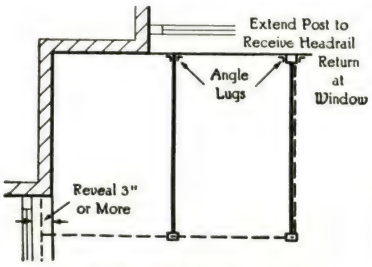
Typical Side Elevation

Series 5 - Illustrated
Series 6 - Opposite

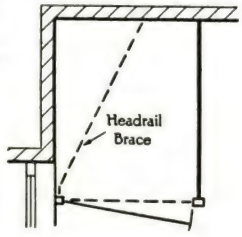


Series 7 - Illustrated
Series 8 - Opposite

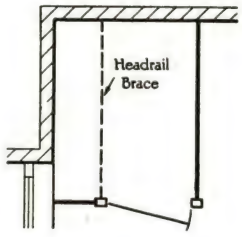




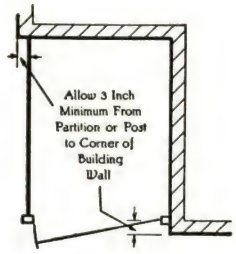
Headrail Across Window
If Not Over 5' Wide—If More Than
This Width Architect to
Detail Bracing



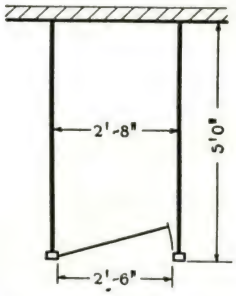
Wall Post Bracing
At Window



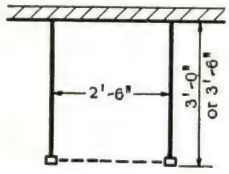
Partition Bracing
At Window



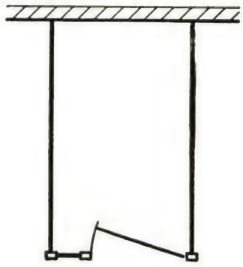
Space Required for
Corner Attachment



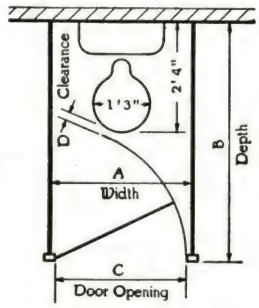
Recommended Standard Size Metal
Toilet Stall With Inswinging
Door. If Door Swings Out Depth of
Stall May be Reduced to 54"
or 48". An Economical Size Stall
Sufficiently Large for all
Types of Buildings.



Recommended Size for
Stalls Without Doors. Doors
are Not Recommended
for Stalls Under 48" Deep.



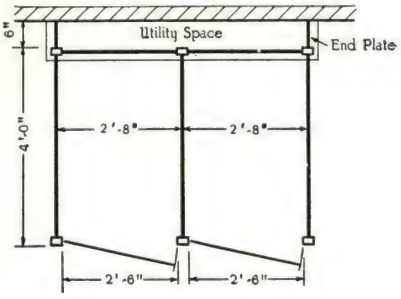
Front Partition Required With Door When
Depth of Stall Will Not Permit
Inswinging Full Width Door, See Door
Clearance Schedule at Right Front
Partition and Door Assembly as Shown is
Recommended to Provide Maximum
Room for Occupant Entering



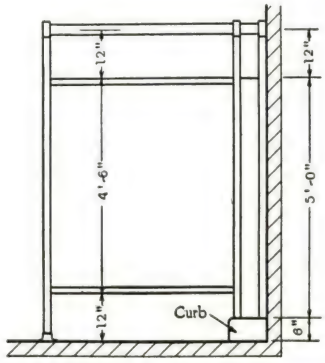
A	B	C	D
30"	54"	28"	1⅛"
32"	54"	30"	*
32"	60"	30"	5⅛"
36"	60"	34"	1¾"

*Short of Clearance

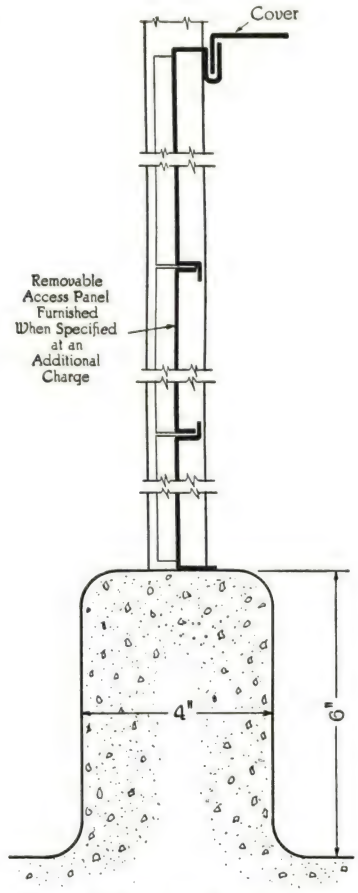
Details of Panel or Flush WEISTEEL Toilet Stalls



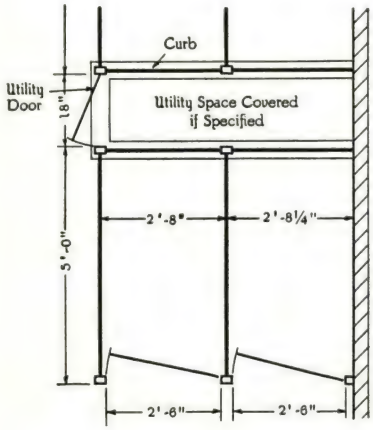
Standard Stall Units Combined With Backs and End Plates to Enclose Utility Space



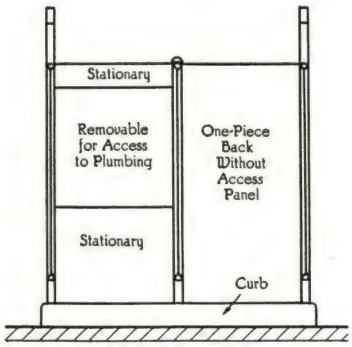
Side Elevation



Section Thru Curb Under Backs

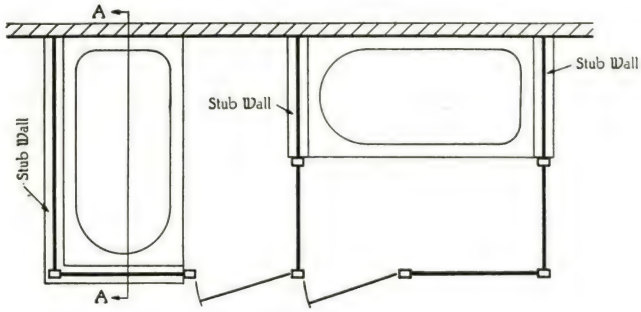


Detail of Utility Space With Stalls on Each Side



Elevation of Backs

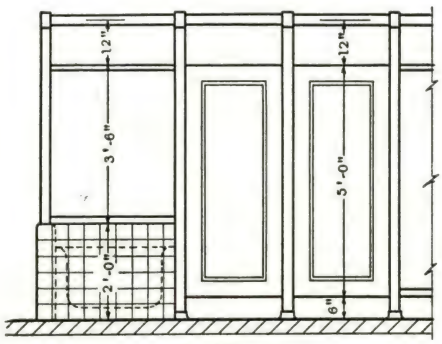
For Sanitation and Economical Maintenance Curb Recommended Under All Backs



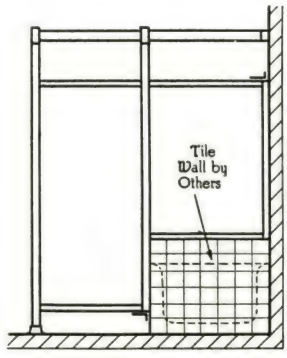
Tub Compartment Layout

Steel partitions and doors are frequently specified as enclosures for tub bathrooms, or compartments, especially where more than one private bath is desired in a group bathroom. Steel enclosures for free-standing tubs present no special problems. The built-in-type of tub, however, does require special treatment to assure uniformly satisfactory results. The wall side and end, or ends, of a built-in tub are designed to permit an integral combination with adjoining walls. Hence, square and accurately ground tub edges are unnecessary. Full height steel partitions are, therefore, not readily adaptable to the built-in-type of tub.

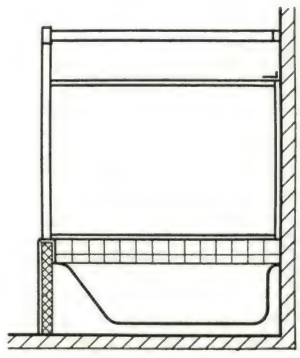
A combination of tile or other kinds of walls and steel partitions, as detailed, assures not only good construction but also one that is economical in first cost and upkeep, as well as pleasing in appearance.



Front Elevation

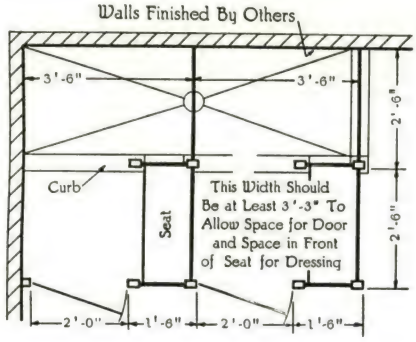


Side Elevation

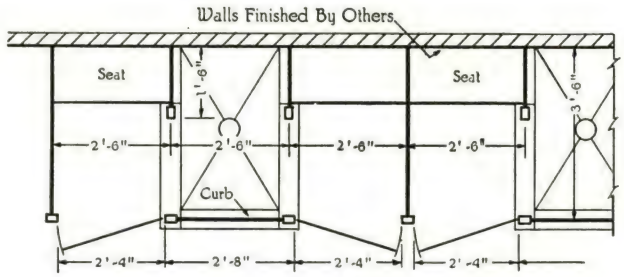


Section -A-A-

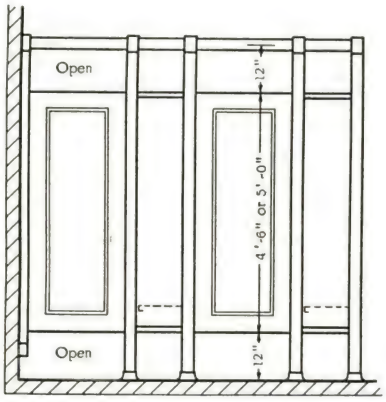
Details of Panel or Flush WEISTEEL Toilet Stalls and Tub Compartments



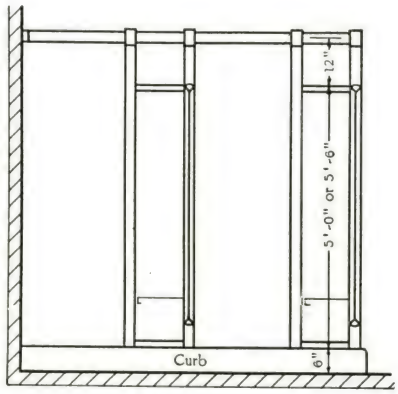
Individual Shower and Dressing Room



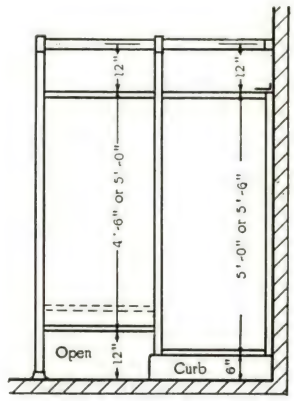
Shower With Two Dressing Rooms



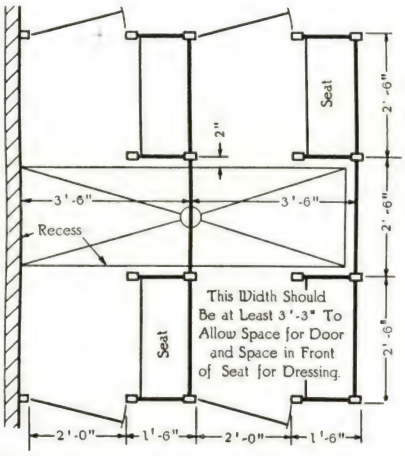
Front Elevation



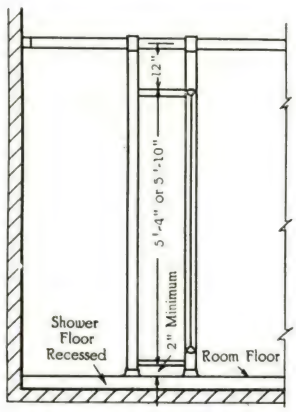
Section Thru Dressing Room



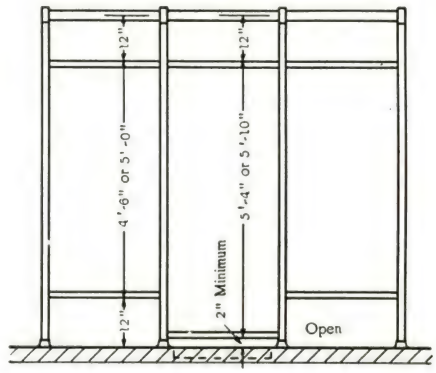
Side Elevation



Shower With Dressing Room on Each Side



Section Thru Shower



Side Elevation

These notes apply to shower and dressing room layouts on this and the following page.

Suggested shower and dressing room layouts detailed are to be used with tile, terrazzo or concrete recessed receptors or built up curbs.

When making layouts, determine first if one, two, three or four dressing rooms for each shower is desired. For high school girls three dressing rooms are generally suitable. One drain for one to four showers is usually sufficient.

The use of metal sides and backs against masonry walls is not recommended.

Allow sufficient space for stool or seat in dressing room. Allow minimum of 28" in front of seat for door swing and space for dressing.

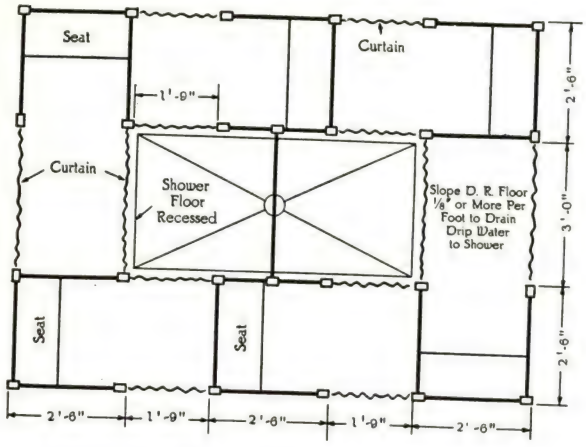
Either doors or curtains may be used for entrance to dressing rooms.

A more sanitary installation is assured by not extending shower partitions to the floor. Doors must be at least 6" above floor to enable use of Weisteel gravity hinge. If doors are less than 6" above floor, special hinges of either spring type or half surface butts must be used.

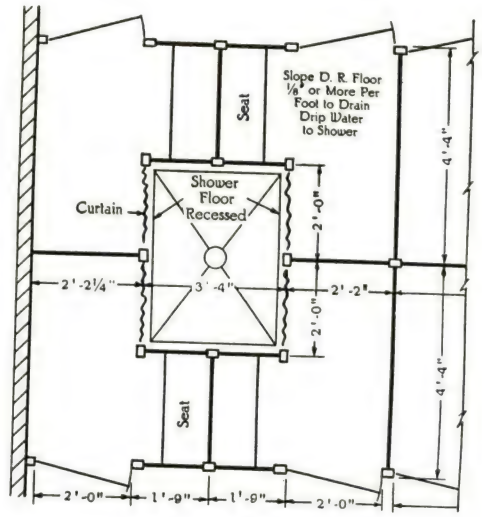
Recessed floor construction for showers is recommended as most satisfactory. Floor of dressing room should be sloped so that drip water from bather will drain from dressing room into shower.

Depth of recess should be 2" or more and partitions should be set on the dressing room level at least 2" away from edge of recess. *(Continued on next page)*

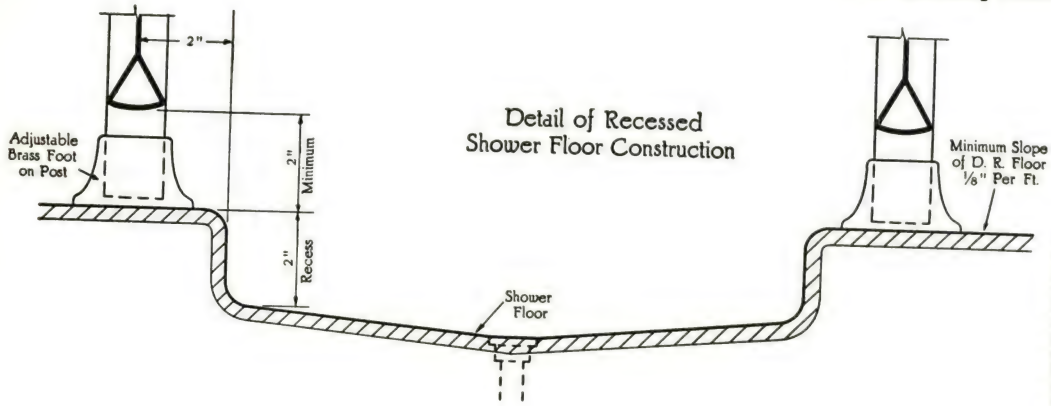
Details of Panel WEISTEEL Shower Compartments Combined With Panel or Flush Dressing Rooms



Combination Layout of Two Adjoining Showers and Six Dressing Rooms



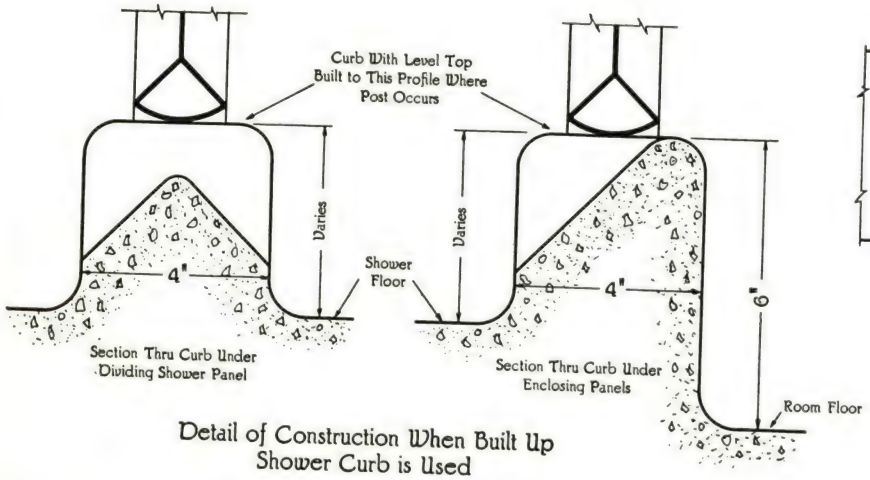
Layout of Single Shower With Four Dressing Rooms



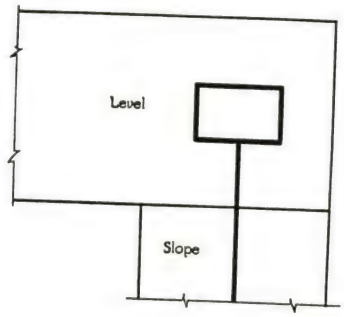
Detail of Recessed Shower Floor Construction



The Weisteel roller bearing curtain hanger is specially designed for use with standard Weisteel headrail and eliminates necessity of a special curtain rod. Shower curtains and hangers when specified are furnished as a part of standard Weisteel equipment at an extra charge.



Detail of Construction When Built Up Shower Curb is Used



PLAN OF CURB

Built-up curbs should be at least 4" wide and 4" to 6" high. Curbs under partitions should slope at an angle as shown in section. Under posts and at entrances to shower, curbs should be level on top. Under dividing shower panels each side of curb should be built at an angle as shown in section.

If unit temperature control is not used, locate valves so temperature of shower can be regulated before entering and shower spray directed toward rear. Place shower head for girls and women not over 5'0" to 5'6" above floor. For men's gang showers, head may be placed 7'-0" above floor.

Details of Panel WEISTEEL Shower Compartments Combined With Panel or Flush Dressing Rooms

Stall Doors and Hardware for Marble, Glass and Similar Partitions

The Henry Weis Mfg. Co., Inc., offers two distinct grades of metal doors for application to marble, glass, slate and other partitions. These grades are designated as Weis METALUNITS (illustrated on next page), in one case, and as Stock WEISTEEL Doors and Hardware in the other. The specification of either Weis METALUNITS (flush door and hardware sold as a unit) or Stock WEISTEEL Doors and Hardware, assures undivided responsibility from the manufacturer and saves the architect a great deal of time and trouble because the one specification eliminates the necessity for selecting individual items and coordinating the respective trades.

In Class A, or monumental buildings, where strictly first grade, hollow metal quality is desirable in the toilet rooms, Weis METALUNITS meet the demand in every particular, and have the added advantage of greatly reduced weight as compared to conventional hollow metal construction. The excess weight of conventional hollow metal doors ordinarily requires specially designed and specially built hardware, if sagging and failure are to be avoided. In METALUNITS, reduced weight is achieved without the slightest sacrifice of rigidity, freedom from wind or durability. Moreover, each METALUNIT includes the hardware. Hence the door and complete hardware are designed and built to serve each other. The manufacturers are thus able to guarantee a satisfactory installation.

Stock WEISTEEL doors and hardware offer many of these benefits, at lower cost. In the ability to deliver service, to withstand hard usage, Stock WEISTEEL Doors are just as satisfactory as METALUNITS. METALUNITS possess refinements in materials and workmanship and, particularly, refinements in finish which, naturally, cost more but which make METALUNITS suitable for the finest of buildings. Special provision is made for protection of the superior METALUNIT finish until the building is put in use.

A comparison of the specifications of the two lines of doors as printed below will make it easy for the discriminating architect to determine which of the two grades is the proper one to specify for a particular job.

Architect's Specifications

WEIS METALUNIT STALL DOOR AND HARDWARE

All W. C. stall door hardware with doors of sizes shown on plans shall be METALUNITS as manufactured by the Henry Weis Mfg. Co., Inc., Elkhart, Ind. Doors shall be flush type, 1" thick and made of 22 gauge select prime furniture steel sheets. (Or aluminum alloy, Monel metal, bronze, or rustless alloys such as Allegheny metal, state which.)

Before assembly, the inside surfaces of the side members shall be coated with an iron oxide primer baked on at 350° F. They shall then be spaced and insulated with a laminated corrugated fiber board filler, cemented to their inner surfaces. To assure uniform adhesion, all panels shall be subjected to a pressure of 500 pounds per square foot, for twenty-four hours. Edges shall be bound and interlocked, under tension, with drawn steel moulding, which shall be welded at corners. Doors shall be guaranteed to be rigid and free from wind. All joints shall be ground so that all cross sections shall be true and uniform in profile. There shall be no exposed raw edges of metal and no open seams.

Finish

Steel or Aluminum Alloy METALUNITS: All materials shall be thoroughly cleaned, filled and sanded after which a bonding coat shall be baked on and sanded smooth. Final finish shall be two coats of Weis synthetic gum enamel of finest quality. Each coat shall be baked on. Each door shall then be hand rubbed to piano finish.

Monel, Bronze, or Rustless Alloy METALUNITS: Any finish suitable and desirable for any of these metals will be furnished. Architect to include specifications accordingly.

Each door finished as above set forth shall be sealed in a Cromwell paper bag so made as to permit application of hardware and hanging of door without removal of bag.

All hardware shall be brass, chromium plated, or 18% nickel silver, satin finish. (Specify which.)

Erection

All stall doors and hardware specified above shall be erected in strict accordance with manufacturer's instructions. All drilling of marble for application of hardware shall be done by marble contractor from a template furnished by door and hardware manufacturer. Protective bags to remain on doors until building is ready for acceptance at which time this contractor shall remove same and leave doors and hardware in first-class acceptable condition.

STOCK WEISTEEL DOORS AND HARDWARE

All W. C. stall door hardware and doors of sizes shown on plans, shall be stock WEISTEEL designs (specify Standard Flush, Standard Panel, Type C Panel) as manufactured by the Henry Weis Mfg. Co., Inc., Elkhart, Ind. (Note: Standard Flush construction explained on pages 6 and 7 of this catalog, Standard Panel construction explained on pages 8 and 9, Type C Panel construction on pages 10 and 11.)

Finish

All material shall be thoroughly cleaned and given a heavy coat of grey metal primer.

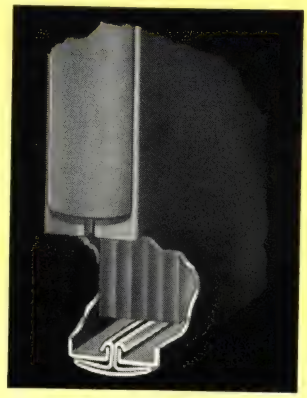
1. Finish painting to be done after installation. (See painting specifications.)
2. All material to be finally finished at factory with baked on enamel, either Sage Green or Light Grey. Special colors furnished at an extra charge.

Specifically state, in specifications, method No. 1 or No. 2 for final finish. All hardware to be nickel plated. Chromium plate furnished at an extra charge.

Erection

All stall doors and hardware specified above shall be erected in strict accordance with manufacturer's instructions. All drilling of marble for application of hardware shall be done by marble contractor from a template furnished by door and hardware manufacturer. Complete installation shall be thoroughly cleaned down and left in condition acceptable to architect.





Patent Applied For

Weis METALUNITS (custom built flush metal doors with hardware) are, in every particular, in keeping with the expression of design and quality identifying the better class of buildings. They are available in steel, aluminum alloy, Monel Metal, bronze, or rustless alloys such as KA2. The doors, together with the hardware, make Weis METALUNITS the most advanced items of their kind in quality of materials and careful workmanship and in perfection of finish.

Each METALUNIT is sealed in a Cromwell paper bag which is not removed until the building is ready for acceptance. Thus the perfect finish of METALUNITS is preserved not only during shipment but in handling at the building and even after the doors are hung.

Weis METALUNITS should not be confused with ordinary metal doors. Weis METALUNITS should not even be confused with Stock WEISTEEL Doors which, in themselves, possess features of design and construction that raise them out of the ordinary class. Reference to the specifications on the preceding page will not only explain the superiorities of Weis METALUNITS but will show wherein they differ from Stock WEISTEEL Doors.

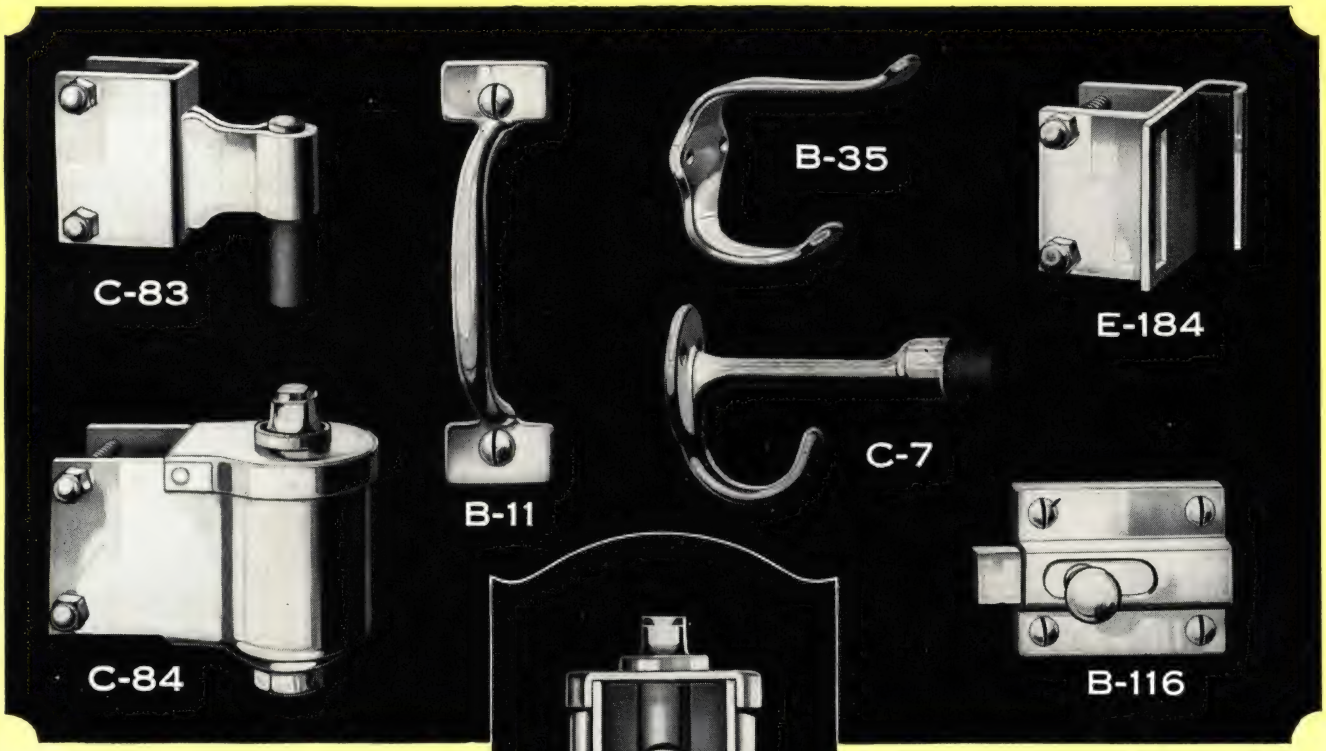
Weis METALUNITS include the Weis Hardware Set in brass, chromium plated, or 18% nickel silver, satin finish. Illustrations and information concerning the Weis Universal Gravity Hinge assembly and other items in the hardware set will be found on page 19 of this catalog.

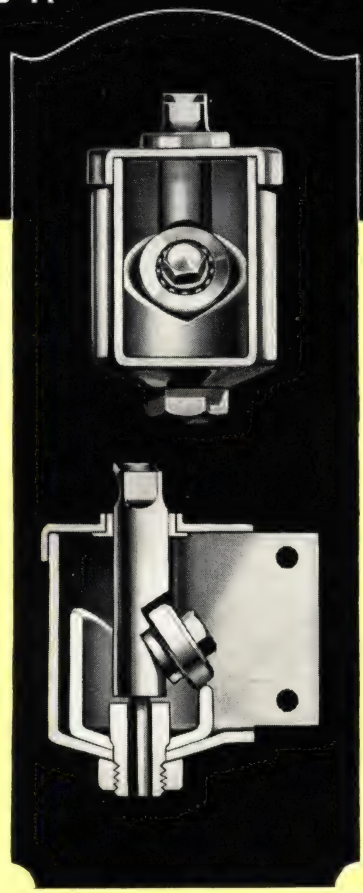
METALUNITS, being custom built, are available in any door size. However, the following table includes the range of sizes usually specified:

Suggested Sizes for Metalunits

DOORS		HARDWARE	DOORS		HARDWARE
Width	*Height*		*Width*	*Height*	
24″	54″	For stiles	24″	60″	For stiles
26″	54″	of any	26″	60″	of any
28″	54″	thickness	28″	60″	thickness
30″	54″	7/8″ to	30″	60″	7/8″ to
32″	54″	2½″	32″	60″	2½″

Special Note: State specifically the thickness of partition stiles on which METALUNITS are to be mounted.





The Weis W. C. Stall door hardware set, illustrated above, embodies new principles of design and construction. This new conception of W. C. stall door hardware combines beauty of line and harmony of parts with practical strength.

Outstanding among the features of this hardware set is the Weis Universal Gravity Hinge, here illustrated. The ball bearing roller is so mounted on the pintle that in operation geometrical continuity of contact is maintained between the roller and its race (see illustration); thus, side thrusts and wear are eliminated. This new principle of construction definitely removes the cause of trouble which frequently develops in gravity hinges. Ball bearing roller and roller race are of case hardened steel. These with the pintle are cadmium plated. Exposed parts are brass, nickel or chromium plated. This hardware set is standard equipment on METALUNITS.

It is also available as a separate hardware set for wood doors or metal doors of other manufacture, where weight of door does not exceed eighty pounds. Standard sets of Weis W. C. stall door hardware are furnished to fit any thickness of stiles, up to and including 2½″,



of marble, vitrolite, slate, terrazzo, etc. Hinge assemblies are also furnished for fly doors or swing gates.

Architects' Specifications

(Weis W. C. stall door hardware set for wood doors or metal doors of other manufacture.)

NOTE — When METALUNITS are specified, this hardware set is included.

All W. C. stall door hardware for attaching doors to (state kind of) partitions (state thickness) inches thick shall be Weis W. C. stall door hardware manufactured by Henry Weis Mfg. Co., Inc., Elkhart, Indiana.

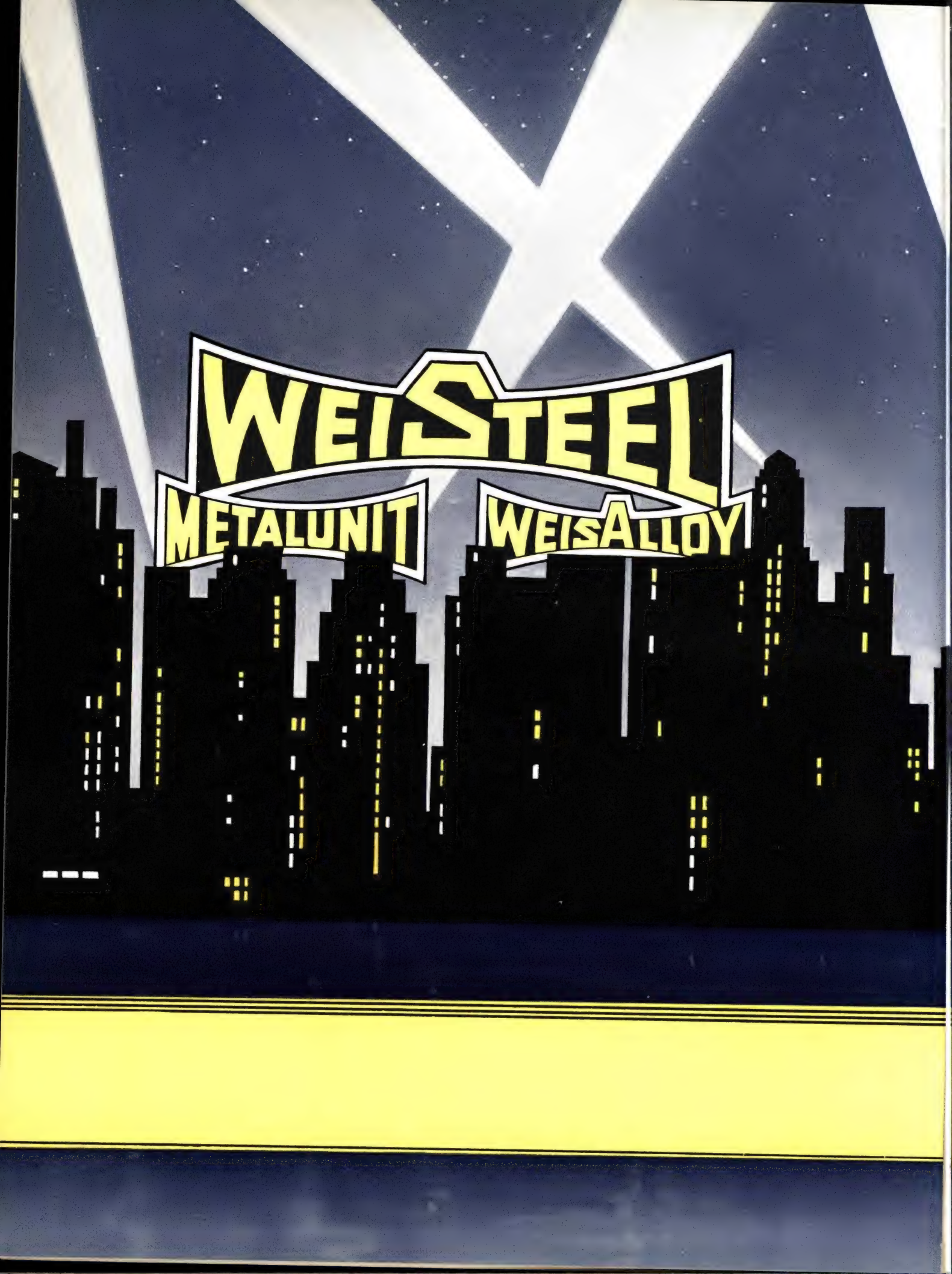
All hardware parts to be (nickel) or (chromium) plated (state which).

Hardware set shall consist of Weis Universal Gravity Hinge assembly, latch, combination keeper and bumper and combination coat hook and bumper. (Two prong coat hook and pull are substituted for combination coat hook and bumper, if doors swing out.)

Important Notes

Special fitting is provided for mounting doors flush with stiles. Standard fitting requires stile to project at least 4″ above and below door.

When specified, a throw or pendulum type latch will be substituted for standard slide bar latch, as illustrated.


WEISTEEL
METALUNIT
WEISALLOY

FERROMETAL

Metal Doors, Partitions, Toilet Stalls, Shower Compartments, Dressing Rooms, Hospital Cubicles, Corridors, Utility Enclosures

FORMERLY MANUFACTURED BY LITTERER BROS. MFG. CO.

MILWAUKEE STAMPING COMPANY

MILWAUKEE, WIS.

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REPRESENTATIVES

ABILENE, TEX., Abilene Brick Co., P.O. Box 241
AKRON, OHIO, Fred J. Crisp, Inc., 710 No. Main St.
ALBANY, N. Y., Albany Steel & Iron Supply Co., Inc., Troy Rd.
ALBUQUERQUE, N. M., A. C. Weigerding, P.O. Box 173
ALLENTOWN, PA. (Write Philadelphia Office)
ALTOONA, PA., Altoona Pipe & Supply Co., 2111 Beale St.
AMARILLO, TEX., W. A. Fowler, 223 W. 7th St.
ANDERSON, S. C., Building Supplies & Service Co.
ATLANTA, GA., Geo. Dowman Co., 462 Highland Ave.
AUGUSTA, GA., Bowen Bros. Hardware Co.
AUGUSTA, ME. (Write Boston Office)
AURORA, ILL. (Write Chicago Office)
AUSTIN, TEX. (Write San Antonio Office)
BALTIMORE, MD., E. W. Kemp, 333 St. Paul Place
BINGHAMTON, N. Y., Mallery Engineering Corp., 27 Emma St.
BIRMINGHAM, ALA., Ingalls Iron Co.
BLOOMINGTON, ILL., Holder Hardware Co.
BLUEFIELD, W. VA., Central Sales & Purchasing Co., 506 L. & C. Bldg.
BOISE, IDA. (Write Salt Lake City Office)
BOSTON, MASS., Continental Building Supply Corp., 80 Boylston St.
BOZEMAN, MONT., F. I. Powers
BUFFALO, N. Y., W. D. Shumway, 1142 Prudential Bldg.
CHARLESTON, W. VA., Fireproof Products Co., 216 Professional Bldg.
CHARLOTTE, N. C., W. L. McDonald, 114 East Boulevard
CHATTANOOGA, TENN., Standard Iron & Wire Works
CHEYENNE, WYO. (Write Denver Office)
CHICAGO, ILL., Milwaukee Stamping Company, 150 No. Wacker Drive
CINCINNATI, OHIO, Al. Levinson Co., 607 American Druggists Bldg.
CLEVELAND, OHIO, J. B. Olmstead Co., 218 Union Bldg.
COLUMBIA, S. C., C. W. Turner, 612 Columbia N. B. Bldg.
COLUMBUS, OHIO, Hausman Steel Co., 799 W. Goodale St.
CUMBERLAND, MD. (Write Baltimore Office)
DALLAS, TEX., J. L. O'Hearn, 1913 No. Harwood St.
DAVENPORT, IOWA. (Write Moline, Ill., Office)
DAYTON, OHIO, Dayton Builders Supply, 104 So. Wayne Ave.
DECATUR, ILL., Moorehouse & Wells Co.
DENVER, COLO., Rocky Mountain Architects & Builders Service, California Bldg.
DES MOINES, IOWA, Hansen Metalkraft Co., 3905 Amick Ave.
DETROIT, MICH., Metallic Door & Specialty Co., 407 Murphy Bldg.
DULUTH, MINN., H. D. Bullard, 410 Builders Bldg.
EAST ST. LOUIS, ILL. (Write St. Louis Office)
EL PASO, TEX., Neff-Stiles Co.
ERIE, PA., Erie Concrete & Steel Supply Co., 1301 Cranberry St.
EVANSVILLE, IND., G. L. Mesker
FAIRBURY, NEB., Fairbury Supply Co.
FLINT, MICH. (Write Saginaw Office)
FORT WAYNE, IND., Don E. White, 225 Cooper Bldg.
FORT WORTH, TEX. (Write Dallas Office)
GALESBURG, ILL., Illinois Bldg. Specialty Co., Galesburg Bank Bldg.
GALVESTON, TEX. (Write Houston Office)
GARY, IND. (Write Hammond Office)
GRAND RAPIDS, MICH., Lincoln Brick Co., 609 Michigan Trust Bldg.
GREAT FALLS, MONT. (Write Bozeman Office)
GREENSBORO, N. C. (Write Charlotte Office)
GREENVILLE, S. C. (Write Anderson Office)
HAMMOND, IND., McLaughlin Mill Supply Co., 274 Michigan Ave.
HARRISBURG, PA., O. L. Preble, Jr., 25 So. Third St.
HARTFORD, CONN. (Write Boston, Mass., Office)
HASTINGS, NEB., Polenske Bros. & Schellack Co.
HELENA, MONT. (Write Bozeman Office)
HOUSTON, TEX., Bayer-Voightlander, 1112 Wood St.
HUTCHINSON, KAN., Hutchinson Foundry & Steel Co.
INDIANAPOLIS, IND., Stackhouse Building Specialty Co., 1011 Hume-Mansur Bldg.
JACKSON, MICH., Robert Lake Co.
JACKSON, MISS., Mississippi Steel & Iron Co.
JACKSONVILLE, FLA., Geo. P. Coyle, 1023 Lark St.
JOLIET, ILL., Rudy A-1 Sheet Metal Co., 408 McDonough St.
JOPLIN, MO., Joplin Cement Co.
KANSAS CITY, MO., Building Specialty Co., 924 Baltimore Ave.
KINGSTON, N. Y., Aird-Don Co., 74 Ten Broeck St.
KNOXVILLE, TENN. (Write nearest representative or factory)
LANSING, MICH., Lansing Steel Corporation
LAPORTE, IND., Decker Bros., 908 Lincoln Way
LEXINGTON, KY. (Write Louisville Office)
LIMA, OHIO, H. V. Freeman, Opera House Bldg.
LINCOLN, NEB., Paul O. Wells, P.O. Box 1210
LITTLE ROCK, ARK., Charles S. Watts
LOGANSPORT, IND., Tom Flanagin Hardware Co.
LOS ANGELES, CALIF., Cochran-Izant, 1923 Hooper Ave.
LOUISVILLE, KY., Kentucky Iron Works, 521 So. Second St.
MACON, GA., Taylor Iron Works, Broadway and Oglethorpe Sts.
MADISON, WIS. (Write Milwaukee Office)
MASON CITY, IOWA, Mason City Builders Supply Co., 221 7th St. N.E.
MEMPHIS, TENN. (Write nearest representative or factory)
MIAMI, FLA. (Write nearest representative or factory)
MILWAUKEE, WIS., Millies Bldg. Specialties Co., 782 No. Jackson St.
MINNEAPOLIS, MINN., Geo. T. Warner, 1406 Washington Ave. S.
MOBILE, ALA., Nachary Bldrs. Supply Co., 111 No. Royal St.
MOLINE, ILL., Beder Wood's Sons
MONTGOMERY, ALA. (Write Birmingham Office)
NASHVILLE, TENN., Englert Engineering Co., 120 3rd Ave., No.
NEWARK, N. J. (Write New York Office)
NEW CASTLE, PA. (Write Youngstown Office)
NEW HAVEN, CONN. (Write Boston Office)
NEW ORLEANS, LA., Nachary Bldrs. Supply Co., 318 Carondelet St.
NEW YORK, N. Y., Milwaukee Stamping Company, 416 Broadway
NORFOLK, VA. (Write Richmond Office)
NORTH CHICAGO, ILL., McKinney Steel & Sales Co., 1715 Sheridan Rd.
OGDEN, UTAH. (Write Salt Lake City Office)
OKLAHOMA CITY, OKLA., J. B. Klein Iron & Foundry Co.
OMAHA, NEB., Construction Products Co., 400 Omaha Loan Bldg.
PADUCAH, KY. (Write Louisville Office)
PEORIA, ILL., Roland Oliver, 1206 Lehmann Bldg.
PHILADELPHIA, PA., Parent Metal Products Co., Ltd., 338 Lawrence St.
PHOENIX, ARIZ., A. C. Thomas, 233 Luhrs Bldg.
PITTSBURGH, PA., Frank Limbach, 1722 E. Ohio St.
PORTLAND, ME. (Write Boston, Mass., Office)
PORTLAND, ORE., Builders Hardware & Supply Co., 7 Park Ave.
PROVIDENCE, R. I. (Write Boston, Mass., Office)
PUEBLO, COLO. (Write Denver Office)
QUINCY, ILL., Metzger Builders Supply Co., 1018 Broadway
RALEIGH, N. C. (Write nearest representative or factory)
READING, PA., P. L. Peters, 1630 No. 11th St.
RICHMOND, VA., W. Morton Northen Company
ROANOKE, VA., Roanoke Bldrs. Supply Co., 11 Franklin Rd. S.W.
ROCHESTER, N. Y., Genesee Bridge Co., 344 West Ave.
ROCK ISLAND, ILL. (Write Moline Office)
ROCKFORD, ILL., Capitol Ornamental Iron Works, 1012 9th St.
SACRAMENTO, CALIF. (Write San Francisco Office)
SAGINAW, MICH., Koehler Bros.
ST. JOSEPH, MO., Seaman-Schuske Metal Works, 1611 Frederick St.
ST. LOUIS, MO., F. A. Cammann Bldrs. Service, 927 Century Bldg.
ST. PAUL, MINN. (Write Minneapolis Office)
SALT LAKE CITY, UTAH, Steel-Engineers, 1527 S. W. Temple
SAN ANTONIO, TEX., J. L. O'Hearn Co., 617 Houston Bldg.
SAN DIEGO, CALIF. (Write Los Angeles Office)
SAN FRANCISCO, CALIF., Forderer Cornice Works, 16th and Potrero Aves.
SANTA BARBARA, CALIF., Ott Hardware Co., 727 State St.
SAVANNAH, GA., James Henry Persse
SCHENECTADY, N. Y. (Write Albany Office)
SCRANTON, PA., LaBar-Evans & Allen Co., 805 Board of Trade Bldg.
SEATTLE, WASH., S. W. R. Dally, 332 Pioneer Bldg.
SHREVEPORT, LA., Welsh Bldg. Spec., Inc., 301 Ricou-Brewster Bldg.
SIOUX CITY, IOWA, Otto Bridge, 504 Jackson St.
SPOKANE, WASH. (Write Seattle Office)
SPRINGFIELD, ILL., P. Vredenburgh Lumber Co., 3rd and Jefferson Sts.
SPRINGFIELD, MO., Kelly Coal & Material Co., 550 No. Jefferson St.
SOUTH BEND, IND., South Bend Bldg. Spec. Co., 232½ S. Michigan St.
SYRACUSE, N. Y., R. J. Geary, 250 Wieting Bldg.
TAMPA, FLA., A. B. Zierleyn, 512 Schulte United Bldg.
TEXARKANA, TEX. (Write nearest representative or factory)
TOLEDO, OHIO, Hausman Steel Co.
TOPEKA, KAN., Topeka Foundry & Iron Works, 300 Jackson St.
TRENTON, N. J. (Write New York, N. Y. Office)
TROY, N. Y. (Write Albany Office)
TULSA, OKLA., J. B. Klein Iron & Foundry Co.
UTICA, N. Y., Utica Structural Steel Corp., 2104 Dwyer St.
WACO, TEX. (Write Dallas Office)
WASHINGTON, D. C., Robert McWhirter, 1722 19th St. N. W.
WATERLOO, IOWA, E. A. Pickworth Co., Pioneer Bank Bldg.
WHEELING, W. VA. (Write Pittsburgh Office)
WICHITA, KAN., Grabendike Engineering Sales Co., 601-2 Brown Bldg.
WILKES-BARRE, PA. (Write Scranton Office)
WILLIAMSPORT, PA., W. R. Huntington, 415 Woodland Ave.
WILMINGTON, DEL. (Write Philadelphia, Pa. Office)
YORK, PA. (Write Harrisburg Office)
YOUNGSTOWN, OHIO, G. A. Doeright, Jr., 355 E. Wood St.
ZANESVILLE, OHIO, Wise Foundry Machinery & Supply Co., 269 No. 6th St.

FERROMETAL

METAL COMPARTMENTS

For our pages on Hinges, Shower Compartments and Garment Fixtures, see Manufacturers' Index

FERROMETAL
FLUSH AND PANEL TYPE METAL DOORS

For use with Marble, Slate, Vitrolite, Glass, Metal or other Partitions

FERROMETAL
METAL COMPARTMENTS

FERROMETAL Flush type and FERROMETAL Panel type metal doors with Lawson-Milwaukee Lavatory Hardware allow an unlimited selection of pleasing color contrasts in decorative treatment when used in conjunction with marble, slate, vitrolite and glass partitions as well as metal.

The flush type door, with its slightly thinner panel, has a trimness and rigidity which makes other type doors look cumbersome by comparison. Its perfectly smooth surface and practically noiseless closing action, combined with its wearproof quality, are prominent among the features which make it an ideal door for use with all types of partitions.

The new FERROMETAL Panel Door with its rigid construction and new light weight design is a strong metal door for general purposes. The stile has a wood core, insuring noiseless operation and permitting the use of any type hardware desired.

The Lawson-Milwaukee Hardware, which is standard equipment on all doors, is nationally known, and is described on our pages in the hardware section of this edition of SWEET'S.

The hinges are shown below.

These hinges have patented features which provide long wear and quiet operation.

Doors are finished in a variety of colors and types such as crackle, crystalized and crinkle. Mahogany, oak and walnut grain can be furnished where desired.

Architect's Specifications

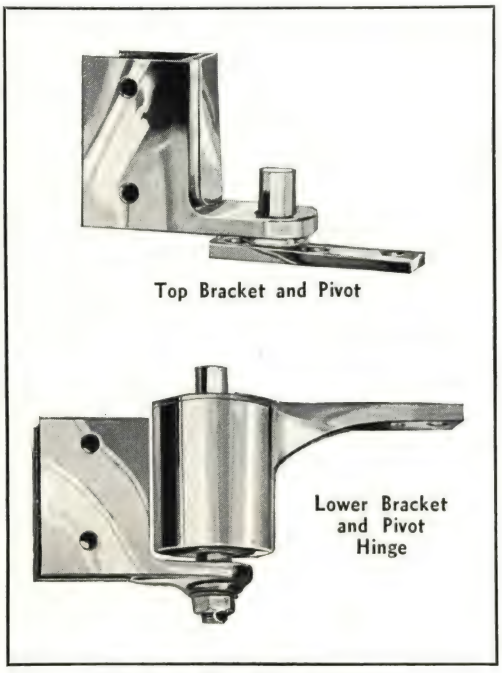
All Lavatory Doors shall be FERROMETAL [flush] [panel] type with Lawson-Milwaukee Hardware as manufactured by MILWAUKEE STAMPING COMPANY, Milwaukee, Wis.

Flush Doors shall be FERROMETAL Flush type $\frac{13}{16}$ in. thick with two layers of fibreboard filler pressed together, glued, bound and sealed between two boxed sheets of lead-coated steel [aluminum] with vertical inside wood stile for hardware connections.

Panel Doors shall be FERROMETAL Panel type Doors $\frac{13}{16}$ in. thick with $3\frac{1}{2}$ in. stiles of lead-coated copper-bearing steel with overlapping double thickness countersunk miters and kiln-dried wood core $\frac{3}{4}$ in. thick. Inner edge of door stiles to be sanitary shape and interlocked 1 in. with panel of lead-coated copper-bearing steel.



Panel Type Door



Gravity Type Pivot Hinge

This type is standard equipment but *spring* type can be furnished if desired. Brackets are adjustable to thickness of jamb. These hinges are designed so that the door may be held open or closed at any desired angle.



Flush Type Door

FERROMETAL
PANEL TYPE PARTITIONS

FERROMETAL
METAL COMPARTMENTS

Ferrometal Partitions and Doors

FERROMETAL Partitions and Doors have filled a definite requirement for many years by providing an economical and sanitary equipment for modern toilet, shower, dressing room and hospital cubical installations.

Shower Partitions, Dressing Room

Partitions and Unit Showers—FERROMETAL Partitions, Doors and Backs are used for showers and dressing rooms and in connection with shower compartments. For complete description of shower compartments, see our listing in Manufacturers' Index.

Cubical Partitions and Special Enclosures

FERROMETAL Partitions and Doors are adaptable for cubicles and other special enclosures for hospitals and institutions.

Suggested Material Specifications

Manufacture—All toilet stalls, showers and dressing room partitions noted in this specification shall be manufactured by the MILWAUKEE STAMPING COMPANY, Milwaukee, Wis.

Material—FERROMETAL Panel Partitions to be built of 16-gauge (rust-resisting) copper bearing, full pickled, three-pass, cold rolled patent leveled steel. Partitions to have solid steel panel construction with 1¾-in. square 16-gauge hollow metal front and rear post with 16-gauge 2⅛x¾-in. hollow metal top and bottom sanitary shaped rail. Partition panel interlocked, welded and inserted full depth into the surrounding panel members, making sanitary and homogeneous joints throughout. Furnish necessary wall and top post fittings with heavy self-draining base fitting. These fittings shall be adjustable to take up any variation in walls and floors. Provide necessary head rail not less than 1¾ in. square 16-gauge to brace partitions.

Doors—Doors where shown on plans are to have stiles 3½ in. wide and 1⅜ in. thick of lead-coated plate with double thickness overlapping countersunk corners finished flush. Panels to be stretcher leveled lead-coated plate, inserted 1 in. into surrounding wood and metal stile. Stiles to have ¾ in. thick kiln dry, wood core, pressed in with two 6-in. dowel pins at each corner.

Hardware—Doors are to be provided with Lawson-Milwaukee Self-closing Universal [Gravity Type Hinge] [Spring Type Hinge] allowing adjustment to be made to any desired position. The balance of the hardware shall be as follows:

Heavy nickelplated brass slide door bolt and door pull.

The hinge, hinge bracket, top door pivots, coat hooks, bumpers and strikes to be furnished in the same finish as partitions and doors.

Finish—(a) All material to be finished at the factory in a (gray prime) or (b) (Gray) or (green) enamel.

Shower Curtains and Hangers—Shower curtains shall be of pre-shrunk duck. (Other material may be specified if preferred.) Shower curtain hangers shall be brass nickelplated to accommodate either 1¾ in. square head rail or brass nickelplated rod.

Installation—All work shall be set in place in accordance with the manufacturer's instructions and approved shop drawings. All material included in this specification shall be left in acceptable condition and complete.

Schedule—The following compartments shall be included in this contract. (Give schedule of work to be included.)

Checking List for Use with Scheduled Paragraph

Toilet stalls	Janitor's closets
Shower compartments	Utility corridors
Dressing rooms	Toilet room screens
Storage rooms	Toilet room screen doors
Hospital cubicles	Integral shower cabinets
	Waiting rooms



Features of Construction of the Ferrometal Panel Partition and Doors

FERROMETAL
FLUSH TYPE PARTITIONS

FERROMETAL
METAL COMPARTMENTS

Adapted to Many Uses

FERROMETAL Flush Type Partitions have a wide range of usefulness for many kinds of installations such as: toilet partitions, dressing rooms, storage rooms, utility corridors and janitors' closets.

Their rigid, non-vibrating, soundproof construction insures their adaptability to any modern building program, and permits the utilization of space to the highest degree. They harmonize with the finest architectural plans.

Sanitary and Strong in Design

The sanitary construction of FERROMETAL Flush Type Partitions eliminates all unnecessary moulding, paneling, corners and crevices providing ease of cleaning and minimum up-keep. All fittings are heavy drawn steel with rounded edges (no sharp-edged brittle castings are used).

Foot fittings of heavy drawn rustproofed steel, brass or aluminum are adjustable. Posts and headrail are 16-gauge 1¾-in. square tubing.

Also Built in Aluminum

FERROMETAL Flush Type Partitions in standard design are also furnished with all metal parts made of a special alloy of Alcoa aluminum.

Suggested Material Specifications

All toilet stalls, dressing rooms and other compartments, etc., shown on the plans shall be FERROMETAL Flush Type Partitions, Doors, etc., of sizes as shown on plans or as hereinafter specified as manufactured by the MILWAUKEE STAMPING COMPANY, Milwaukee, Wisconsin.

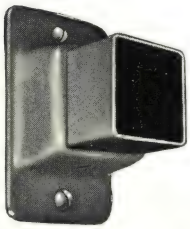
Partitions—Partitions to be $\frac{13}{16}$ in. thick and each partition to be made of two sheets of 22-gauge pickled cold rolled, copper-bearing, stretcher leveled furniture steel. The partitions shall be insulated with corrugated fibreboard core, cemented together combining sheets and filler in one solid mass. A heavy steel moulding to be inserted on the inside along each edge to interlock the metal sheets. To assure proper adhesion, between filler and sheets partitions and doors shall be placed in a press subject to high pressure until set. All posts and head rails to be of heavy 16-gauge steel tubing 1¾ in. square with sanitary shaped edges. Furnish adjustable self-draining foot fittings of rustproofed steel, finished to match partition. (Foot fittings can be furnished in brass, or aluminum if desired.)

Doors—Doors shall be of the same material and thickness as partitions, except they shall have kiln-dried white pine wood stiles both front and rear for the attachment of hardware.

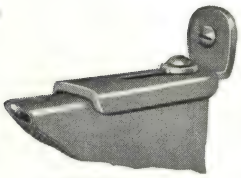
Hardware—Doors are to be provided with Lawson-Milwaukee Universal Self-closing [gravity type] [spring type] Hinges (which allow for adjustment to any desired position). Furnish heavy nickelplated brass slide door bolt and door pull.

The Hinge, hinge bracket, top door pivots, coat hooks, bumpers and strikes to be furnished in the same finish as partitions and doors.

(a) All material to be finished at the factory in a (gray prime) or (b) (gray or green) enamel.



HEADRAIL WALL FITTING



PARTITION WALL FITTING



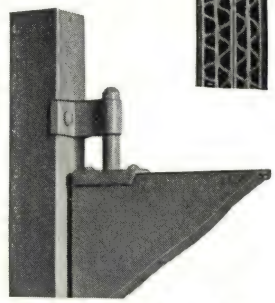
FOOT FITTING AND POST



Features of Construction of the Ferrometal Flush Partition and Doors



CROSS SECTION OF PARTITION



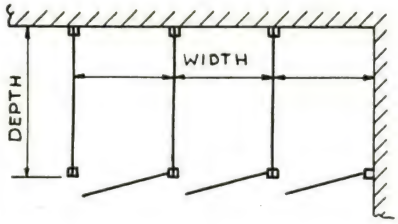
UPPER DOOR PIVOT AND BRACKET



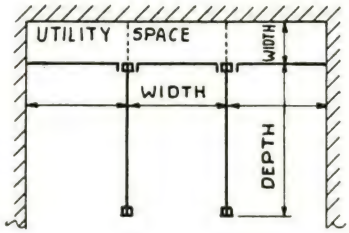
UNIVERSAL HINGE

FERROMETAL

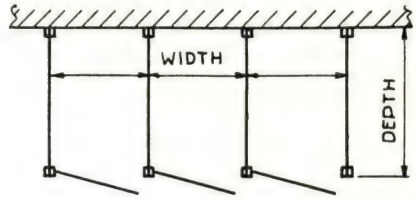
TYPICAL TOILET INSTALLATIONS



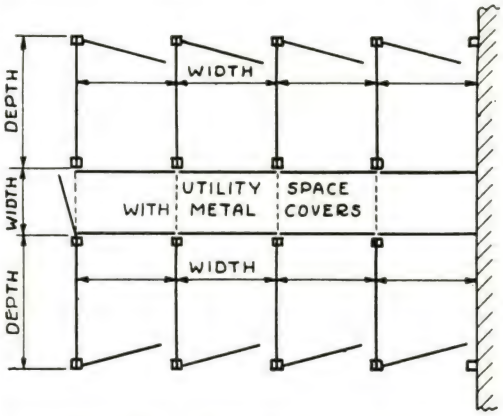
TOILETS



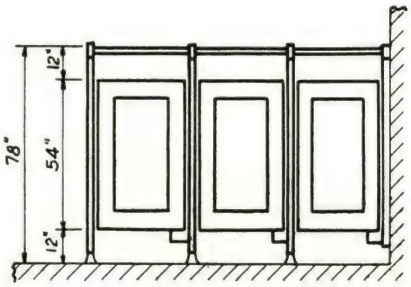
TOILETS WITH UTILITY SPACE



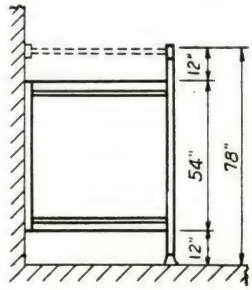
TOILETS



TOILETS WITH UTILITY SPACE

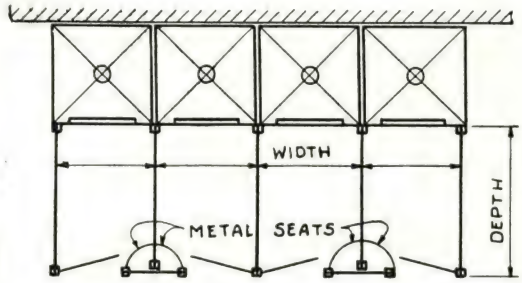


TYPICAL FRONT ELEVATION OF TOILETS WITH DOORS

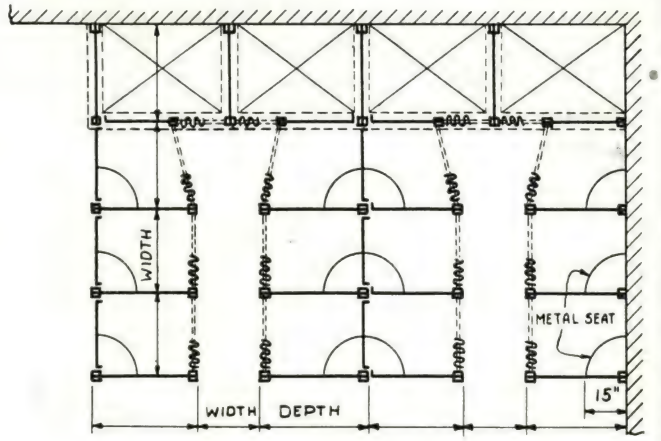


TYPICAL TOILET PANEL

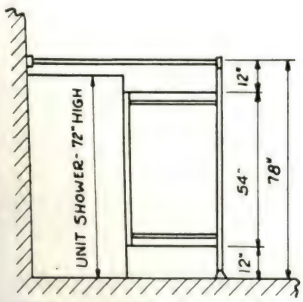
TYPICAL SHOWER & DRESSING ROOM INSTALLATIONS



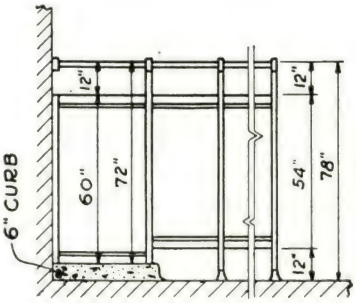
UNIT SHOWERS WITH DRESSING ROOMS



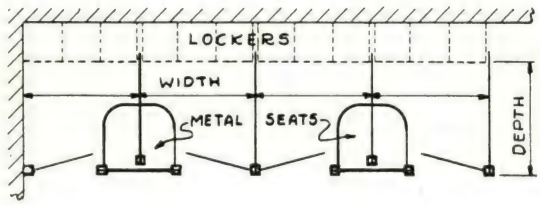
SHOWERS WITH DRESSING ROOMS



END OF UNIT SHOWER WITH DRESSING ROOM



END OF SHOWER AND DRESSING ROOM



DRESSING ROOMS

ALLEN-DREW COMPANY

DIVISION OF BABCOCK-DAVIS CORPORATION

474 Dorchester Avenue
BOSTON, MASS.

For Our Other Pages, see Manufacturers' Index

VERTICAL SLIDING WALLS AND PARTITIONS

For All Services—Stage Curtains, Gymnasium Divisions, etc.

The great possibilities of the use of motor operated vertical lift walls are being realized and made use of more and more by architects. Some of the uses in gymnasiums of high school and college auditoriums as well as in immense halls such as are used for conventions are illustrated here.

Walls of this nature can be finished in almost any way desired. The illustration below shows an immense wall finished to represent stone on one side to give architectural effect and on the other side to take the rough usage of a gymnasium. Some of the methods of finishing which we have used are plastering, vitrified cellular asbestos, wood and cork. These all have their own particular advantages under certain conditions.

General Construction

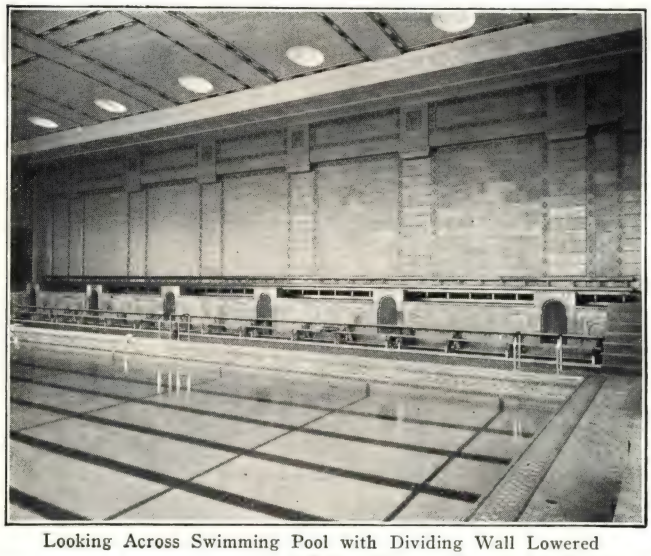
Vertical lift walls may be constructed in a variety of ways. The best construction to secure the maximum soundproofing and fireproofing qualities are described as follows:

Framing should be of rigid steel construction of the proper size to carry the span between the lifting cables and the weight of the covering which is to be applied to the framing. The covering should consist of not less than 20-gauge sheet steel securely fastened to the framing, with the interior filled with soundproofing and fireproofing material.

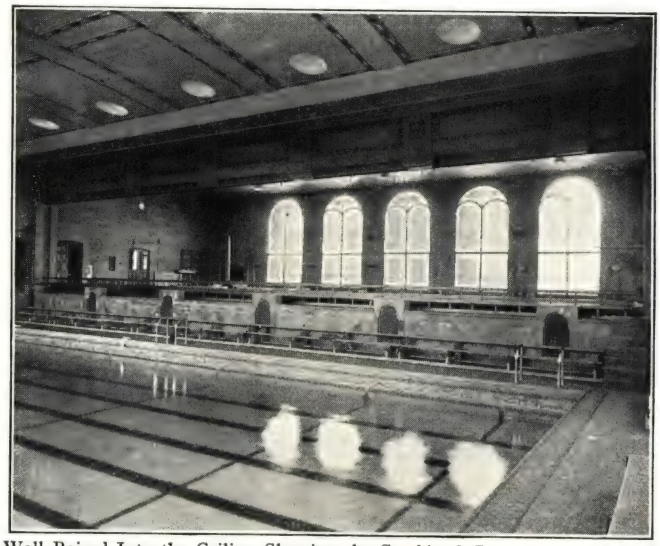
The bottom of all walls and curtains is faced with felt or rubber sealing strips for the closing of any opening which might occur, due to unevenness of the floor.

The partition should be so framed that where the pull-up chains or cables are attached, the steel members are to run continuous the entire height of the partition in order to transmit the load to all parts of the wall or partition.

At the bottom of both walls and curtains cast dowel pins are placed. These pins to be placed at not over 15 ft. on centers and in conjunction, automatic opening and closing floor pockets are placed in the stage floor at the point where each of these dowels occur. These dowels and pockets are of sufficient size and strength to hold the walls and curtains rigidly to the floor and prevent buckling of the walls and curtains should they receive heavy thrusts near the floor line. The face of the floor pocket should be set flush with the floor and be of bronze. The covers of these are closed by springs of sufficient size to prevent this depression, except by the walls and curtains themselves.



Looking Across Swimming Pool with Dividing Wall Lowered



Wall Raised Into the Ceiling Showing the Combined Gymnasium and Pool

Installation Shown Is Located in the Intra-mural Sports Building, University of Michigan

HORIZONTAL SLIDING WALLS AND PARTITIONS

Where it is impossible to use vertical sliding walls or partitions due to structural conditions, we furnish horizontal sliding walls and partitions which are substantially framed in steel and covered with sheet iron filled with soundproofing material and faced on both sides in accordance with any required architectural details.

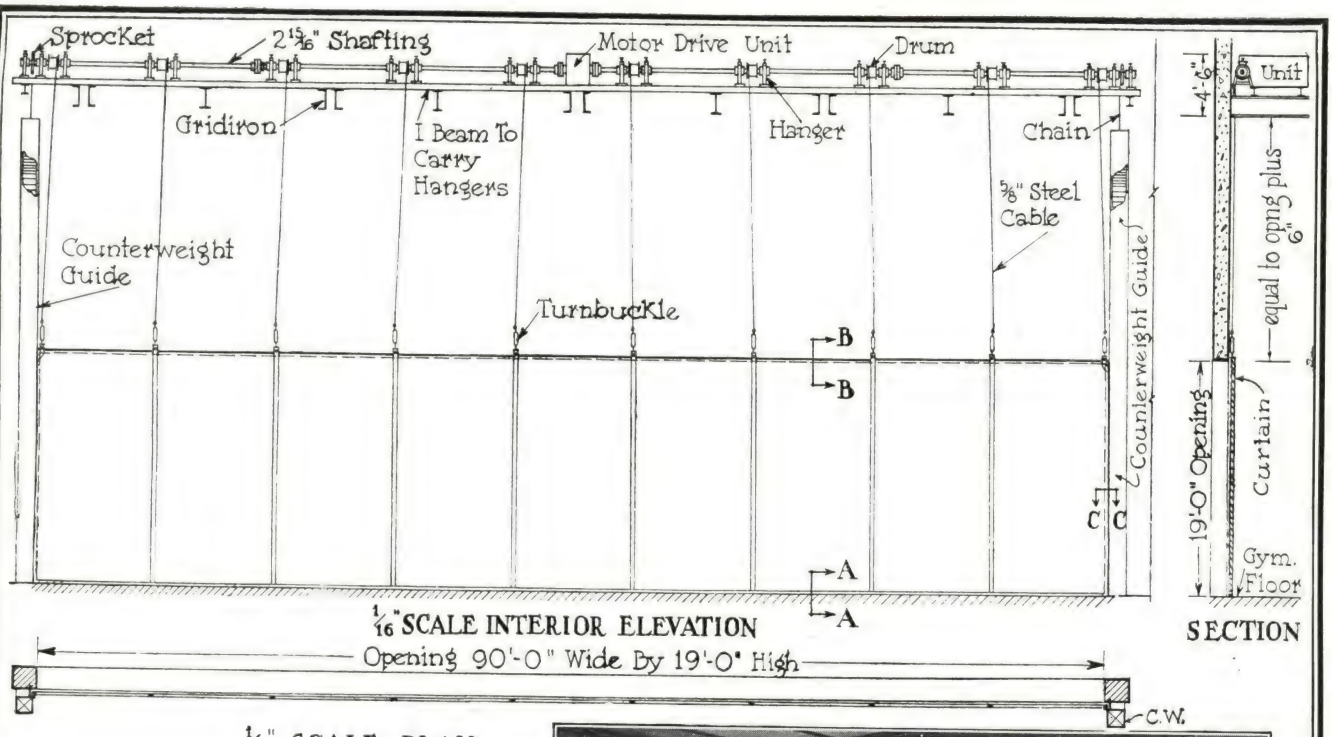
It is possible to face these partitions with plaster, wallboard, etc. In other words, the same treatment can be given to this partition as to any wall surface.

These wall and partition sections are equipped with large ball bearing wheels not less than 8 ins. in diameter rolling either on a track in the floor or on a substantial overhead track.

The overhead hung type of construction eliminates the necessity of any tracks whatsoever in the floor.

Inasmuch as these walls move horizontally and do not pivot, there is no hardware showing on the surface and no pivoted sections to warp, twist or bind.

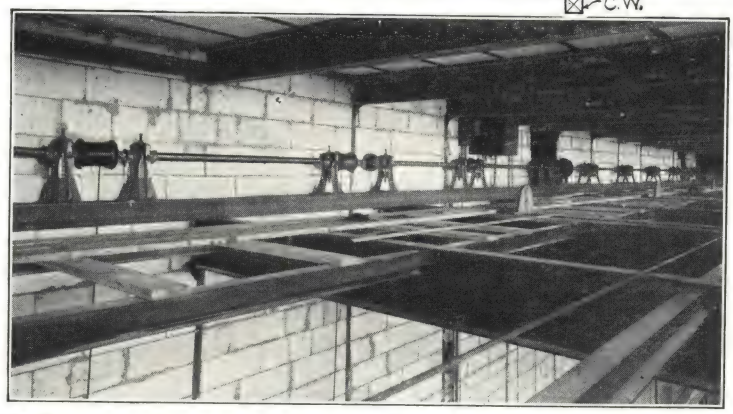
Due to the fact that the frames are of steel, these partitions and walls retain their original appearance and when once installed require no maintenance other than oiling and greasing.



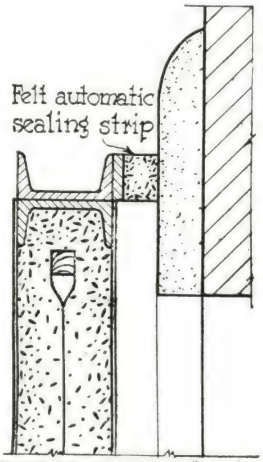
1/16" SCALE INTERIOR ELEVATION

SECTION

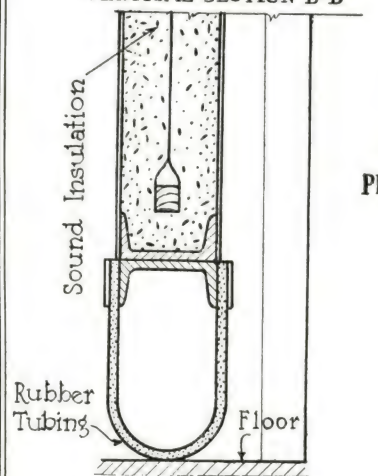
1/16" SCALE PLAN



VIEW TAKEN ABOVE THE GRILLAGE SHOWING THE OPERATING MECHANISM FOR CURTAIN OF HIGH SCHOOL IN LITTLE ROCK, ARK.

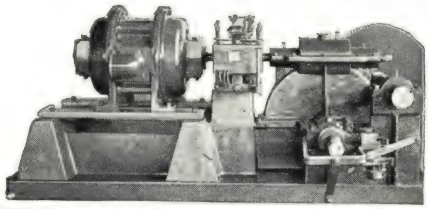


VERTICAL SECTION "B-B"



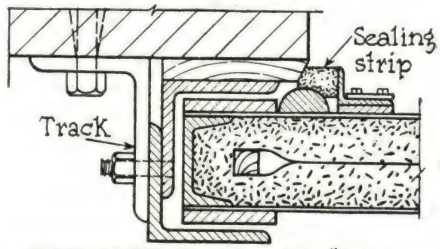
VERTICAL SECTION "A-A"

Scale, 1" = 1'-0"

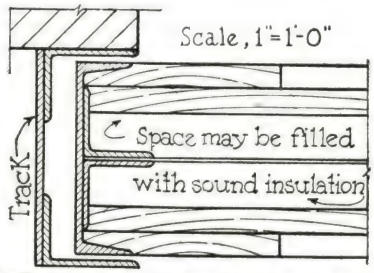


PHOTOGRAPH OF MOTOR DRIVE UNIT Nº 600

Scale, 3/8" = 1'-0"



HORIZONTAL SECTION "C-C"



DETAIL FOR USE WHEN PLASTER CORK OR OTHER MATERIAL IS USED AS A FACING

DETAILS SHOWING GENERAL CONSTRUCTION OF CURTAIN BETWEEN AUDITORIUM & GYMNASIUM, LITTLE ROCK, ARK.

ESTABLISHED 1886 INCORPORATED 1905

ACME PARTITION COMPANY, INC.

FORMERLY UNION BLIND & LADDER COMPANY, INC.

Rolling Wood Partitions and Rolling Steel Doors

OAKLAND, CALIFORNIA

SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

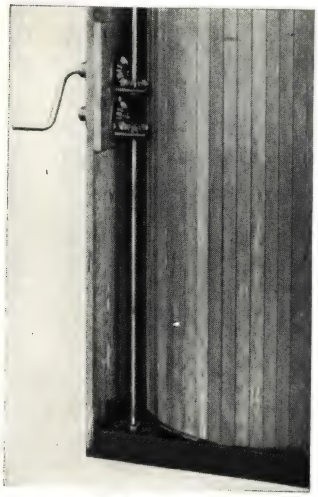
Products

VERTICAL and HORIZONTAL WOOD ROLLING PARTITIONS.

Also Vertical and Horizontal Steel Rolling Doors, Horizontal Wood Rolling Doors (Exterior) and Wardrobe Fronts.

Acme Vertical Wood Rolling Partitions (Side Coiling) for Interior or Exterior Use

Construction—Acme Vertical Partitions embrace an unusually successful mechanism which has been designed exclusively for side coiling action. All Acme Vertical Partitions are carried on an overhead tubular track across the opening. A section of this track, showing the type of hanger used is illustrated. Leaving the track the partition comes to rest on a rotating disc inside the coil box. The weight of the disc assembly, including the partition when coiled, is carried on an angular contact ball bearing of ample size to carry the weight involved. These partitions are fabricated of vertical grained Oregon pine slats having a minimum thickness of $\frac{13}{16}$ in. Other woods can be used where the height does not exceed 16 ft.



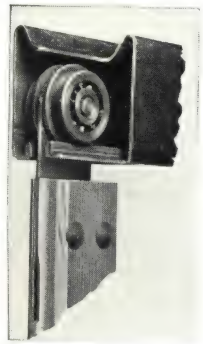
Type "J"

Type "J"—Type "J" Acme Vertical Partitions are for use where the single unit contains at least 600 sq. ft. of area. Operation of Type "J" partitions, in both directions, is by hand crank through steel cut miter and spur gears. Crank may be located either upon the side or front of the coil box, the latter when flush treatment is desired.

Modified Type "J"—Where the single unit contains between 400 and 600 sq. ft. Modified Type "J" partitions are used, the only difference being that the partition is pulled out of the coil box by hand and returned to the coil box by hand crank.

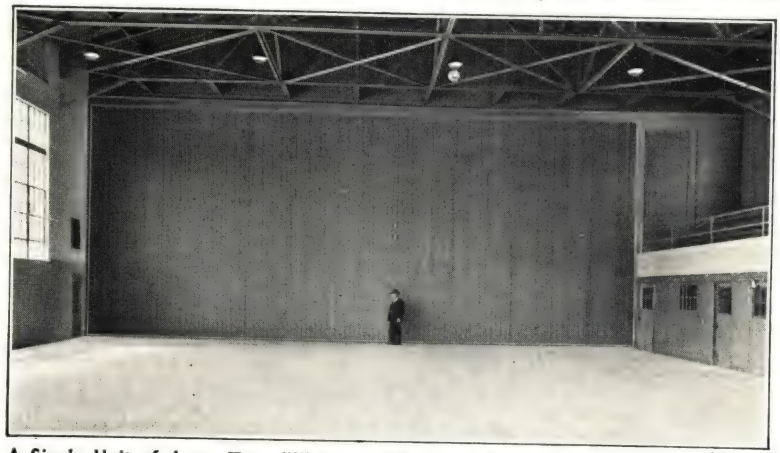
Type "K"—This type of partition is used where the single unit has an area of less than 400 sq. ft. Construction is similar to the Type "J" partition in all respects save that the partition is manually operated in both directions, the partition being coiled within the box by the action of specially processed springs which are threaded transversely through the slats. This construction insures positive coiling as each foot of the partition has its own inherent coiling action.

Completely Assembled—Each Acme Vertical Partition and its operating mechanism is completely assembled and installed in its coil box at the factory where it is tested in actual operation prior to shipment. The result is an installation on the job that works perfectly.



Section of Overhead Track
Showing type of hanger used

Uses—Type "J" Partitions will be found to be an ideal form of closure for *openings of unusual size,* such as the division of large banquet rooms, lodge halls, gymnasiums and as a closure across the proscenium of a wide stage. We do not place any maximum limitation upon the size of the Type "J" partitions, except to say that where a single partition of this type contains more than 1500 sq. ft. it is advisable to consider operation by motor. Type "K" partitions will be found a convenient form of closure for dividing classrooms and, in some instances, for forming the division between classrooms. All types of Acme Vertical Partitions may be used in exterior openings when desired.



A Single Unit of Acme Type "J" Vertical Partition Dividing the Gymnasium of the Aptos High School in San Francisco
The partition is 58x24 ft. in the clear. It is coiled in a box 39 in. square. Acme Horizontal Partitions divide the balcony

Specifications—Provide and install complete with all necessary floor track, hardwood floor guide strips, overhead steel track, and hardware Acme Wood Rolling Partitions Type "J" ["K"] as manufactured by the ACME PARTITION COMPANY, INC., Oakland, California, of the dimensions indicated on the drawings.

THE FOLDING WALL CO.

TELEPHONE
Henderson 2380

5716 Euclid Avenue
CLEVELAND, OHIO

Communicate with
Home Office

AN ACOUSTICAL FOLDING WALL FOR EVERY DIVIDING PURPOSE

THE FOLDING WALL CO., pioneer folding wall manufacturer, aided by others, has proved the superiority of acoustical divisions over folding wood doors and rolling slats.

"Wooden mill doors on independent hardware installed by regular carpenters"; as a specification, is passé. Architects know ordinary doors are not effective sound stoppers, and that continued every day experience in erection is imperative. *Sound-stopping folding walls,* propose new plan economies, in unprecedented places.

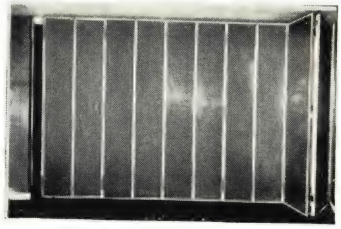
"Silent Zone" Folding Walls, for instance, have four times single door efficiency.

Seven years ago "Quiet Zone" was the only folding wall to correct room acoustics to minimize transmissible sound. Then it alone used combinations of absorbing and reflecting materials to multiply absorption. Later, it used reflecting surfaces, facing each other with a liberal intervening dead air space, to improve sound stoppage.

Now, bulk is added to these, making Folding Wall products the best sound stoppers.



"Quiet Zone" Folding Walls
Single, double or triple fabric each side of folding frames



"Silent Zone" Folding Walls
Pairs of sound-stop doors each side of folding frames



"Slide-Post" Folding Walls
Single pairs of sound-stop doors between sliding posts



"Sound-Stop" Access Door

"QUIET ZONE" FOLDING WALLS

Use

Where the folding wall should be part of the furnishings rather than the building.

Model "A"—To isolate ordinary talking, typewriting, or minor noises; as for Sunday School class, dining, exhibit, private office, or other smaller cubical.

Model "B"—As above where high or sloping ceiling or obstruction prevents use of overhead track; as for dividing church gymnasiums into class and bazaar cubicals; club and Y gymnasiums into emergency sleeping cubicals; exhibition halls into permanent fold-a-way booths; school back-stages into extra dressing rooms; and museums for extra fold-a-way exhibit space.

Model "C"—The special sound subduing type, with triple fabric faces; in large openings and where loud and musical sounds are to be separated; as for division of school gymnasiums for simultaneous boys and girls sessions; church gyms, dining, or other halls, into simultaneous church school department sessions; and for club, Y or hotel dining rooms into smaller private dining units.

Advantages

Acoustical—Cuts down volume of sound at any given moment by absorbing residual sound so that little remains to encourage loudness, and so that only a minimum of sound remains to be stopped by the wall.

Mechanical—Light weight; tight closure; easy and quick operation regardless of size; narrow folding space; automatic floor bolts instead of floor track or guide; absence of binding or shrinking; fool proof mechanism which withstands roughest gymnasium usage even better than folding doors.

Decorative—Out of sight in shallow cabinets when not in use; when in use presents a smooth taut surface fitting snugly to the floor, wall and ceiling; to all appearances a 4-in. solid wall, harmonizing with the decorative treatment of the surrounding walls; obtained in colors to match sample, or in decorative velours, tapestries, or other special fabrics; easily cleaned with wall paper cleaner or soap and water.

Construction

Consists of a series of wood frame-sections each from 4 to 6 ft. long. The upper and lower members of each section fold inwardly by a mechanism which keeps the side members vertical.

Bolted connections only are used. With malleable iron hinges, steel cantilever angles and heavy sash chains operating over steel pulleys, they form a fool proof unbreakable mechanism.

On each side of the series of frames is an outer face of tautly stretched, well-nigh indestructible, special herringbone, closely woven fabric; with a sound absorbing dead air space of 3½ in. between the faces.

Models "A" and "B" have only the outer fabric. Model "C" has in addition an intermediate layer of felt and an inside layer of polished drill on each side. Sound not absorbed by the outer fabric, the felt, the drill, or the air cushions between them, is then reflected from one polished inside surface to the other, back and forth across the dead air space, until its wave energy is exhausted. This results in a "swallowing-up-of-sound" effect not obtained in any other folding partition.

The opposite faces of the wall are held in control in intermediate folding positions until each section is folded into the cabinet which protrudes only 12% of the opening.

Cabinets may be provided as part of the building or will be furnished in cloth over wood frames or in wood with wood doors to match the trim of the room.

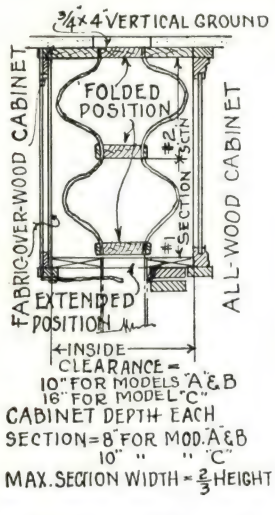
Models "A" and "C" are suspended at each vertical frame member on roller bearing trolleys running in overhead track which may be concealed in the ceiling or with wood moldings.

Floor bolts, operating automatically, hold the wall rigid at each vertical member and release automatically as well.

Model "B" rolls on the floor and requires no floor or ceiling track. Disappearing stay-chains on top furnish the only lateral support needed.



"Quiet Zone" Walls—Woburn, Mass. High School
Typical installation indicating endurance



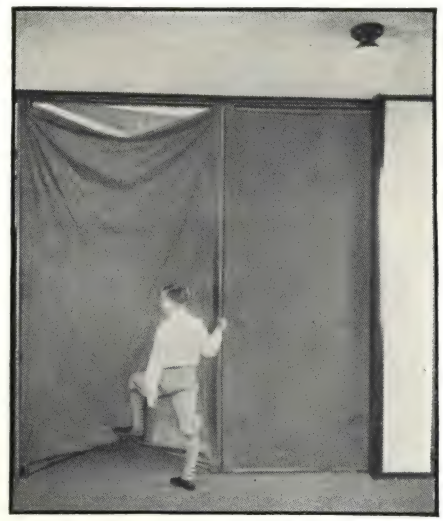
Cabinet Details and Clearances "of Quiet Zone" Folding Walls



Wood Cabinet showing Doors Closed



Pulling Wall Out of Cabinet



Pressing Down Foot Tread to Complete Operation



Vertical Section Through Wall

Operation

To extend, simply pull out of cabinet, and press down foot tread of each section if necessary. The end section is easily folded for passage, or it may be hinged and used as a swinging door.

To fold, lift up foot tread of each section, beginning with the section nearest the cabinet and push section by section into cabinet.

Automatic folding and extending, is provided in high walls and where patented mechanical operator, similar to that shown under "Slide-Post," is provided for large units.

Guarantee

Free service is provided for two years and free parts indefinitely. Seldom are either required.

Specifications

Erect where shown on plans, models and cabinets of "Quiet Zone" Folding Walls as manufactured and guaranteed by THE FOLDING WALL CO., and described in SWEET'S ARCHITECTURAL CATALOGUES using standard fabric of color selected by architect or using velour, tapestry, or other decorative fabric to cost ..... per yard to architect's selection.

"SOUND-STOP" ACCESS DOORS

Use

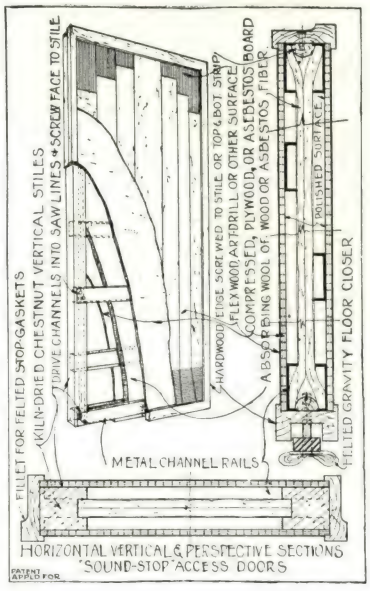
In ordinary door openings where sound stoppage equal to surrounding walls is imperative; as in hospitals, schools, hotels, apartments, music rooms, etc.

Advantages

Acoustical—High sound stoppage efficiency, due to: omission of the usual top, bottom, and intermediate sound conducting through-rails; substitution of metal channel rails, to permit uninterrupted continuity of sound absorbing wool from top to bottom within the hollow door; hollow interior except for very narrow vertical stiles and one inch of absorbing wool; the polished inside surfaces of the outside compressed-board which reflect sound waves back and forth into the absorbing wool, for repeated multiplication of absorbing efficiency; and perfect tightness of closure, due to stop-gaskets on three sides, and automatic gravity floor closers.

Mechanical—Light weight, due to narrow vertical stiles, non-through and narrow horizontal rails, whose stiffness makes possible relatively thin outside compressed-board faces; unusual door stiffness, due to driving and screwing metal channel rails into the vertical wood stiles; and added stiffness from glued contact of outer board with entire rail and stile surface. No special hardware required.

Decorative—Standard doors expose rough side of compressed-board which may receive paint, plaster, Flexwood, art drill, or other treatment to any new-art or other design-detail of the architect. They permit unusual wide latitude of architectural design selection.



Specification

Erect where shown, soundproofed doors known as "Sound-Stop" as manufactured by THE FOLDING WALL CO., and described in SWEET'S ARCHITECTURAL CATALOGUES, using stop gaskets, gravity floor closers, as furnished by manufacturer. All hardware as specified under hardware. Doors to be painted as under paint specifications, or plastered 1/16-in. coat of Am. G. Co. plastic plaster, or to have walnut, oak or other Flexwood or art drill glued solidly to the compressed-board in design shown, all by THE FOLDING WALL CO. If fireproofed doors are desired, and called for, asbestos board will be substituted for compressed-board and asbestos fiber for absorbing wool.

"SLIDE POST" FOLDING WALLS

Use

Where preferred over equally efficient fabric covered "Quiet Zone" Folding Walls, and where it should be a part of the building rather than the furnishings as for school gymnasiums, for improvised corridors, and where plaster, wood, or black- or cork-board effects are desired.

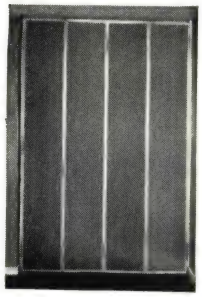
Advantages

Acoustical—The use of efficient "Sound-Stop" Doors, with felted contact between top of doors and track, and with all other contacts felted—together with gravity floor closers—obtains unusual tight closure and very efficient sound separation.

Mechanical—Ordinary folding door partitions are in most cases supported from swivel action trolleys, on the center or corner of the top or bottom rail of the door, cutting heavily into the rail for support and weakening the usual and necessarily wide and objectionable sound conducting through-rail.

"Slide-Post" doors are hinged to side stiles without at all weakening any structural part of the door and with complete elimination of objectionable horizontal through-rails. Rigid, bolted connection of "Slide-Post" to trolley makes for direct straight line mechanical action. All hinges are ball-bearing and semi-concealed. Automatic floor bolt at the bottom of each post eliminates the usual hand operation of many floor bolts so annoying to operators.

Decorative—The wide field of decorative possibilities described under "Sound-Stop" Doors and "Slide-Post" Folding Walls is available.



"Slide Post" Folding Wall
Extended position

Construction

Consists of a series of pairs of "Sound-Stop" Doors ball-bearing-hinged to each other between and to aluminum posts which are hung by roller bearing (non-swivel action) trolleys which roll in a steel track. Automatic floor bolts eliminate need of floor guide or track.

Operation

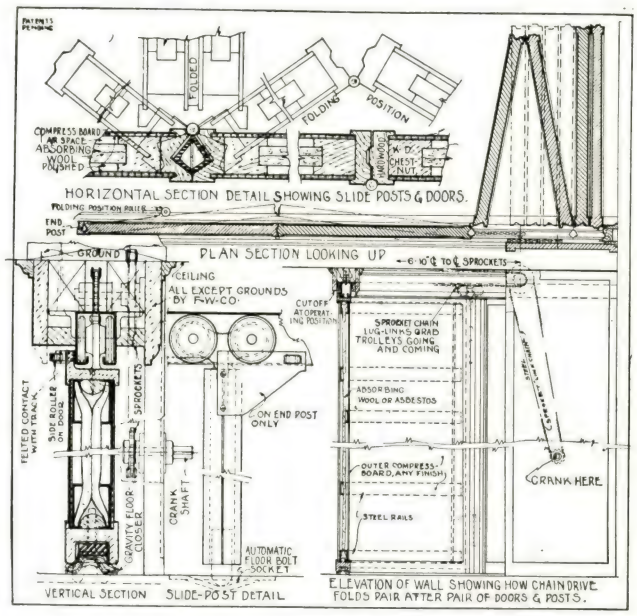
Continuous pair after pair, beginning with the one next to wall and out again beginning with the end post. The folded doors come to extended position as they pass a side overhead roller. A mechanical short length chain drive cranking mechanism grabs post after post and folds or unfolds the intervening doors easily and quickly. Hand operation for smaller units is quite as efficient.

Guarantee

All "Slide-Post" installations subject to the same free service and parts as under "Quiet Zone" Folding Walls.

Specifications

Erect complete where shown "Slide-Post" Folding Walls as manufactured and guaranteed by THE FOLDING WALL CO., and described in SWEET'S ARCHITECTURAL CATALOGUES, using exterior treatment (as under "Sound-Stop" Doors or "Silent Zone" Folding Walls).



"SILENT ZONE" FOLDING WALLS

Use

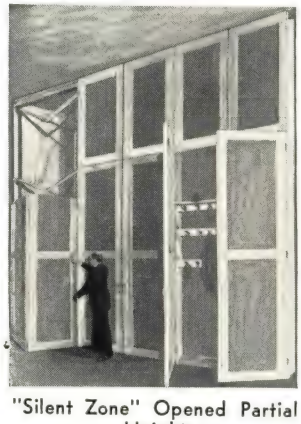
In places where the folding wall should be part of the building and as permanent in decorative and sound-stoppage effect as the most efficient permanent wall. It is especially designed for use between public school classrooms where two or more are to be thrown together for departmental or other assembly; may be used to divide hotel sample rooms into permanent effect bedrooms, etc.

Advantages

Acoustical—Has four times single folding door sound stopping efficiency.

Mechanical—No swivel action hangers; but instead, bolted connection of trolleys to vertical frame members on which doors are hinged, thus making for easy and direct action operation unsurpassed in competing single doors. Automatic floor bolts eliminate hand operated ones and the need of floor track. It is fool proof in every way and locked in position except when operated from locked cabinet in adjacent wall or closet. All hinges are ball bearing and semi-concealed.

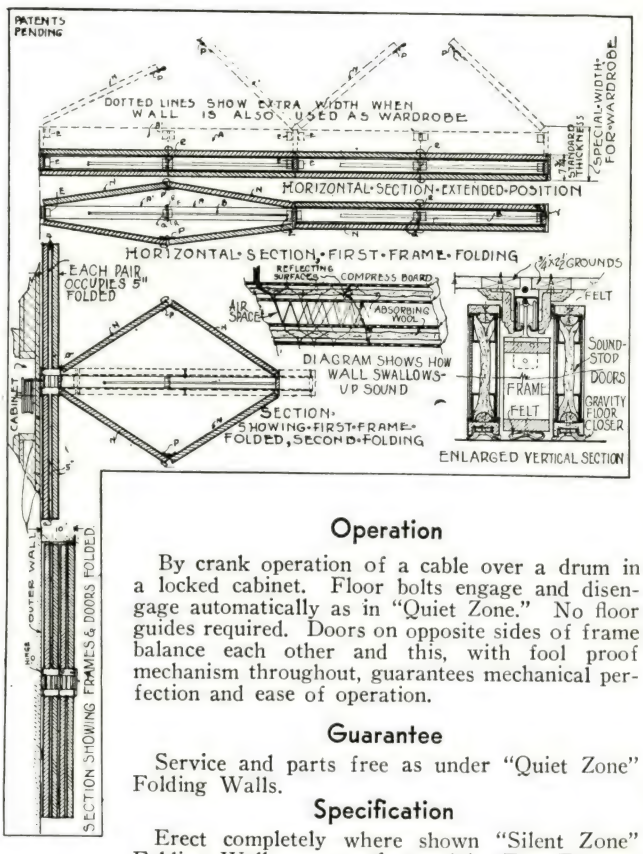
Decorative—Any finish to match permanent adjacent walls in plaster, wood, art drill, marble, etc. is possible.



"Silent Zone" Opened Partial Height
Near side for use as wardrobe

Construction

Consists of wood frame sections similar to "Quiet Zone," and substituting for the flexible covering on each side of the frame, a pair of "Sound-Stop" doors operating simultaneously with it and having a similar dead air space between. The door sides facing the air space are polished so that sound residue transmitted through the "Sound-Stop" Doors is reflected back and forth from one polished surface to the other within the air space until the sound wave energy is exhausted. This silencing mechanism, with "Sound-Stop" Doors on the other side as a further barrier to transmission, obtains practically complete silencing.



Operation

By crank operation of a cable over a drum in a locked cabinet. Floor bolts engage and disengage automatically as in "Quiet Zone." No floor guides required. Doors on opposite sides of frame balance each other and this, with fool proof mechanism throughout, guarantees mechanical perfection and ease of operation.

Guarantee

Service and parts free as under "Quiet Zone" Folding Walls.

Specification

Erect completely where shown "Silent Zone" Folding Walls as manufactured by THE FOLDING WALL CO., and described in SWEET'S ARCHITECTURAL CATALOGUES, with surface treatment to be plaster, Flexwood, art drill or otherwise (as under "Sound-Stop" Doors) to detail.

USERS OF FOLDING WALLS

Perth Amboy, N. J., High School
Woburn, Mass., High School
East St. Louis, Ill., Lincoln High School
Knoxville, Tenn., High School
Harrisburg, Pa., Harrisburger Hotel
Bradford, Pa., Holley Hotel
Cleveland, Ohio, May Co. Department Store
Columbus, Ohio, Central Presby. Church
Chicago, Ill., First Presbyterian Church
Detroit, Mich., St. Matthew's Episcopal Church
Tacoma, Wash., Y.W.C.A.

FOLDING PRODUCTS CORPORATION

Manufacturers of Fol-Dec Folding Doors, Partitions and Window Closures

228 South Desplaines Street, CHICAGO, ILL.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

Folding Doors and Partitions

Fol-Dec Folding Doors and Partitions are a patented means for closing off adjoining rooms or dividing one room into smaller units. Resembling draperies, they can be made to harmonize with any color scheme or decorative effect.



Construction

Steel upright stiles, held in place by steel spacers, are covered on each side with a layer of heavy felt. Over this felt is placed a decorative material, such as velours, tapestries, silks, fabrikoid leather, etc. The decorative fabric is so attached to the frame that it may be easily removed in the event it is desired to have it cleaned or replaced. Ball bearing rollers, under each stile, assure easy and noiseless operation as they glide over a small track set flush with the floor.

Advantages

Fol-Dec Doors when folded back give the general appearance of perfectly folded draperies, thereby eliminating the necessity of further decorations. The air pocket construction, between two layers of heavy felt, insures the greatest privacy and improves the acoustics. They conserve space, permit economy in building construction, as well as add beauty and refinement to any interior. They will not warp or stick. Fol-Dec Doors combine beauty, utility, economy and privacy.

Installation

Fol-Dec Doors are self-contained and easily installed, needing no special construction as they are fastened to the jambs or side walls by means of vertical spring locks, which fasten in both the top and the bottom tracks.

Color

Any color can be selected to match the color scheme or decoration, and each side can be made up in a different color if so desired.

Fabric

Velours, tapestry, silks, fabrikoid leather, etc., are used for the decorative covering on Fol-Dec Doors.

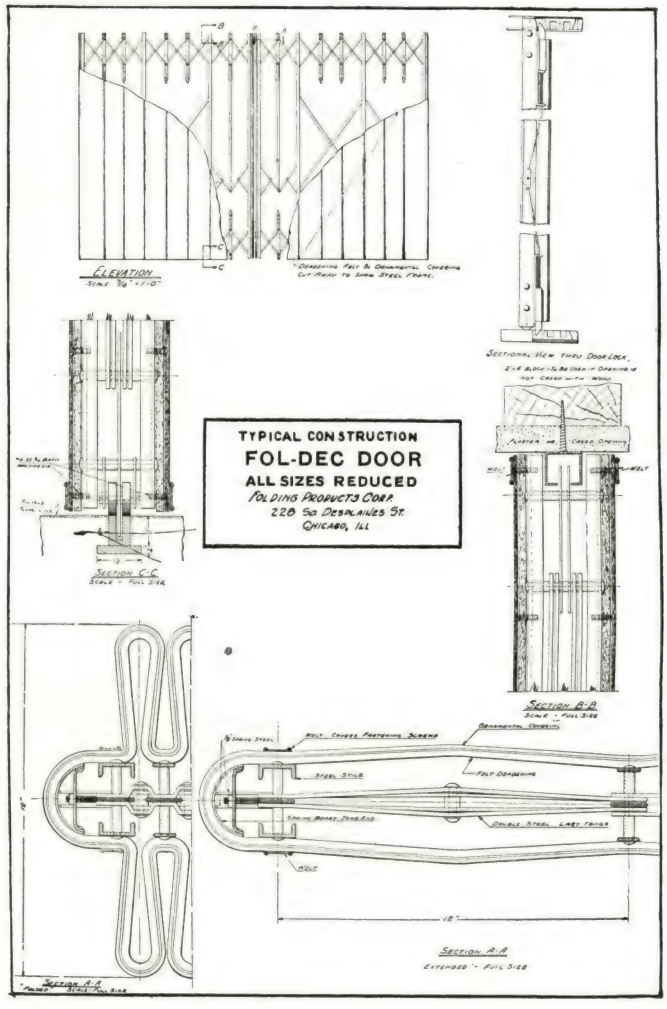
Size

Fol-Dec Doors are custom built for any size opening.

Service

Doors are shipped complete with top and bottom track and all necessary hardware ready for installation.

We will gladly submit plans, estimates or further information on request. Specify Fol-Dec Doors.





Fol-Dec Apartment Type Door

Fol-Dec Apartment House Type Door is designed for the smaller opening where top and bottom tracks are not necessary.

These doors are hinged to the side jamb, the same as ordinary wood doors. Not only can they be turned at right angles to the opening but they fold back against the side jamb giving the appearance of perfectly folded drapes very similar to the larger Fol-Dec Door on preceding page, with the exception that the folds are smaller in width.

Fol-Dec Apartment House Type Doors are finished in velour, tapestry, silks and fabrikoid leather in a wide range of colors that will meet any decorative scheme. They present a smart and attractive appearance.

Fol-Dec Window Closures

The newest and latest creation of FOLDING PRODUCTS CORPORATION opens up an entirely new field for architects. Fol-Dec Window Closures enable the architect to put on the last touch of beauty and convenience. They fold back into perfectly folded drapes and permit the elimination of shades and curtains. They afford control of light and take the place of and act as ventilators. When closed, they keep out the summer's heat and the winter's cold and furnish the utmost privacy.

Fol-Dec Window Closures are built in two styles: one with two sections running the entire height of the window; the other with four sections meeting in the middle of the window.

The framework of Fol-Dec Window Closures is of steel for strength and stability. The upright stiles of trussed construction are held parallel at all degrees of extension by means of rows of steel extensible members which insure proper operation.

Fol-Dec Window Closures are fastened to the existing side jamb or the head and sill of the window openings, being hinged at these points so that they may be moved at right angles to the window if desired. From these points of fastening they extend to any degree or may be entirely closed with the slightest pressure, remaining stationary at the point desired as the framework is cantilevered.

The framework is covered on both sides with an ornamental covering. Different materials, as well as design and color, may be had on each side of Fol-Dec Window Closures. The covering is easily detached for cleaning purposes or to change the decorative scheme.



HORN FOLDING PARTITION CO.

Manufacturers and Installers of Folding Partitions

MAIN OFFICE AND FACTORY

FORT DODGE, IOWA

SALES OFFICES

ALBANY, N. Y.
ATLANTA, GA.
BALTIMORE, MD.
BOSTON, MASS.
CHARLOTTE, N. C.
CHICAGO, ILL.
CLEVELAND, OHIO
DALLAS, TEX.
DENVER, COLO.
DETROIT, MICH.
FARGO, N. D.
GRAND RAPIDS, MICH.
HOUSTON, TEX.
KANSAS CITY, MO.
KNOXVILLE, TENN.
LOS ANGELES, CALIF.
MEMPHIS, TENN.
MILWAUKEE, WIS.
NASHVILLE, TENN.
NEW ORLEANS, LA.
NEW YORK, N. Y.
OKLAHOMA CITY, OKLA.
PHILADELPHIA, PA.
PORTLAND, ORE.
SAN FRANCISCO, CALIF.
SCRANTON, PA.
SEATTLE, WASH.
SIOUX FALLS, S. D.
ST. LOUIS, MO.
ST. PAUL, MINN.
SYRACUSE, N. Y.
TAMPA, FLA.
WASHINGTON, D. C.

(Complete addresses will be furnished on request to main office)

Products

ACOUSTIC FOLDING PARTITIONS and SOUNDPROOF DOORS for schools, churches, auditoriums, gymnasiums, hotels, etc.

Horn Selfold, Acoustic, Mechanically or Electrically Operated Folding Partitions

Acoustics (Sound Absorption)—Horn Selfold Partitions are acoustically constructed. They have thick sheets of Celotex and Flaxlinum inside to absorb sound and prevent the transmission and deflection of noises. They are especially satisfactory for soundproofing between auditorium stages and gymnasiums, classrooms, dining rooms, etc. The acoustic insulation is so complete that rooms on each side of a Selfold Partition can be most satisfactorily used at the same time. Faulty acoustics in any large room will be materially improved by the installation of one of these partitions.

Construction—The Horn Selfold Partition is carried by an overhead track. No unsightly, bothersome, filth and rubbish catching floor track or groove is required. This detail makes possible the construction and maintenance of beautiful, unmarred floors. Notice the floors in the following illustrations. Horn specially designed hangers, equipped with roller bearings, make for easy operation of the partition. Rubber floor stops automatically seal the space between the bottom of the partition and the floor. One flush bolt at the bottom of each section holds the partition firmly in place. Corkboards, continuous or paneled blackboards with chalk rails, etc., can be furnished as needed. A pass door opening through the partition can be installed in any section. Recesses may be used into which the entire Horn Partition will fold. Horn recess doors, made to match the partition, will close the recess when the partition is either folded or unfolded.

Operation—The Horn Selfold Partition is operated by the Horn Operating Device, a simple but high grade and positive mechanical arrangement which folds or unfolds the entire partition by the simple turning of a hand crank, or the pressing of a button which controls an electric motor drive. The hand operating device works so perfectly that a child can easily operate the largest partition. The electric operating device is used mainly on the larger installations. Either operating device can be located so that the operator will remain out of sight. This is a splendid feature where the partition is used to cut off a stage, altar room, etc., from an auditorium.

Guarantee—The HORN FOLDING PARTITION CO. manufactures its own partitions in its own fine factory, and installs them with its own expert workmen. The purchaser has no freight to pay, no labor to hire, and no other details to bother about.

The HORN FOLDING PARTITION CO. builds the partitions, installs them, guarantees them, and services them for five years.

Cost—The cost of a fine Horn Selfold Partition is commensurately low. Prices will be quoted on request.

Free Service to Architects, etc.—The Horn designing department offers a free service without obligation.

The HORN FOLDING PARTITION CO. welcomes all inquiries and serves them in the best manner possible from the main office at Fort Dodge, Iowa, or from one of its many branch offices listed above.

Specifications

(Note: It is advisable to keep the folding partition specifications separate from those for millwork.)

The folding partitions, as shown on the plans, shall be Horn Selfold Partitions, manufactured, completely installed, and guaranteed by the HORN FOLDING PARTITION CO., Fort Dodge, Iowa.

The partitions shall be Type .... (B for example), constructed as shown on the Horn standard detail sheets. All casings and track enclosures shall be back painted. (Where Types A or B are specified, add, "All duck covered surfaces shall receive one coat of filler at the factory.") No other painting nor finishing shall be required in the partition contract.

Complete installation shall consist of the following: all partition units, track enclosures, wall jambs, and the necessary finish trim; all partition hardware, including overhead tracks, hangers, steel cables, and Horn mechanical operating devices; all freight and drayage charges; and all labor for installing the partitions. (If electrically operated, add, "The motor drive for the partitions shall include the necessary motors, switches and wiring leading from 110-volt outlets conveniently placed for connection with the motors.")

The HORN FOLDING PARTITION CO. shall guarantee the materials, workmanship and operation of these partitions for five years from the date installation is completed. The guarantee shall include free servicing of the partitions and free replacement of faulty parts, should either become necessary.

Note: To avoid misunderstandings, all plans must show plainly the widths and heights of the folding partitions as follows: *Widths* extend from outside to outside of wall posts and therefore include the depths of recesses. *Heights* extend from finished floor to top of track plank.



Heavy Type A Partition, 53x26 Ft., Dividing the Gymnasium in the High School at Fort Lee, N. J.

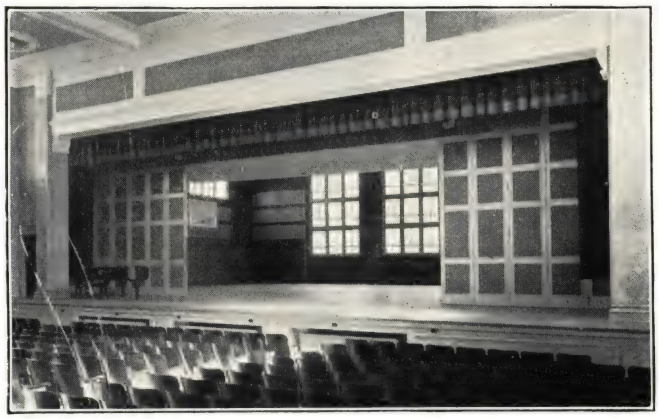
ERNEST SIBLEY and LAWRENCE C. LICHT, Palisade, N. J., Architects

Description of Standard and Heavy Types A

The Standard Type A Horn Selfold Partition, furnished regularly for heights less than 20 ft., and the Heavy Flush Type A, furnished regularly for heights of 20 ft. and over, are the best general purpose types and are the lowest in price. Their simplicity, strength, acoustic design and unlimited possibilities for decorative harmonies to match other walls make their use for dividing gymnasiums, church auditoriums, classrooms, dining rooms, etc., most advisable.

Their smooth, unpaneled surfaces are covered with heavy No. 10 roll duck which will withstand the roughest usage, yet which, from a decorative point of view, holds all the possibilities of an artist's canvas. Acoustically constructed pass doors, continuous or paneled blackboards, etc., may be built in as a unit with these types of partitions.

The illustration of Type AE (shown in next column) suggests the wonderful way in which a Type A partition may be decorated. It can be painted to match the plainest walls, or artistically decorated in panels, textured tiffany, antique or modernistic designs of paint or papers, or in almost any other manner to harmonize with any interior.



Type B Partition, 78x18 Ft., Separating the Auditorium and Gymnasium in the Robert E. Lee High School, Goose Creek, Tex.
HARRY D. PAYNE, Houston, Tex., Architect

Description of Types B and BB

The Type B Horn Selfold Partition has been scientifically developed for the express purpose of separating gymnasiums from auditoriums. It has created an unlimited opportunity to work out room arrangements like that shown above. The acoustic properties are so effective that they make it possible and satisfactory to use the gymnasium and auditorium at the same time. The framework of this partition is made only of strictly clear, unveneered, kiln dried fir, which may be stained or painted to most effectively enhance the beauty of any stage arrangement. The partition is paneled on the auditorium side, the panels being covered with ornamental art cloth which needs no painting. The partition on the gymnasium side looks like the Type A. It is smooth and is covered with heavy No. 10 roll duck which will resist rough usage and which may be painted in panels, in flat colors or otherwise to match the gymnasium walls.

Pass doors are acoustically constructed like the main partition and can be placed wherever desired.

The Type BB Horn Selfold Partition is paneled on both sides. It is acoustically designed and built. The framework is constructed of the finest, strictly clear, unveneered, kiln dried fir. All panels are covered with ornamental art cloth. The character and beauty of this partition make its use appropriate in churches, schools, club rooms, tea rooms, etc. Architects and owners find herein their opportunity for procuring a paneled partition at a most reasonable cost.

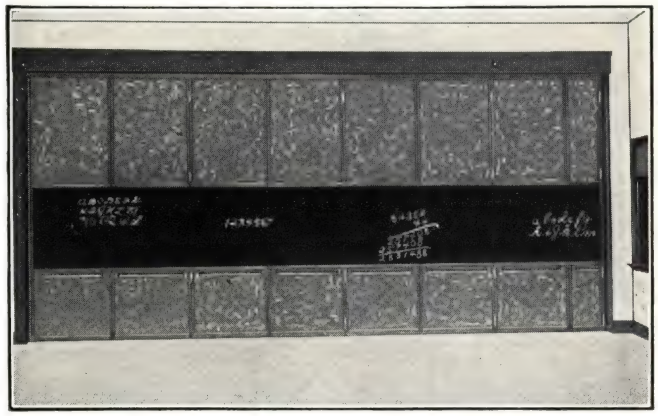


Type C Partition, 21x9 Ft., Dividing the Club Room in the St. Francis House at Madison, Wis.
ESCHWEILER & ESCHWEILER, Milwaukee, Wis., Architects

Description of Type C

The Type C Horn Selfold Partition is an acoustic partition, designed to be used where only a wood veneered partition can serve in correspondence with the design or ornamental features of a wood finished interior. This partition is paneled on both sides. The framework is veneered, the veneer being any kind of wood necessary to match the finish of the room. The panels are built with thick, acoustic Flaxlinum, faced on each side with three-ply wood panel designed to match the framework. Pass doors, continuous or paneled blackboards, etc., will be provided as unit construction whenever required. All materials and workmanship are in keeping with the highest class of cabinet work.

The height of the Type C partition, including track enclosure, *is limited* to 12 ft. because no satisfactory veneered work can be made in excess of that.



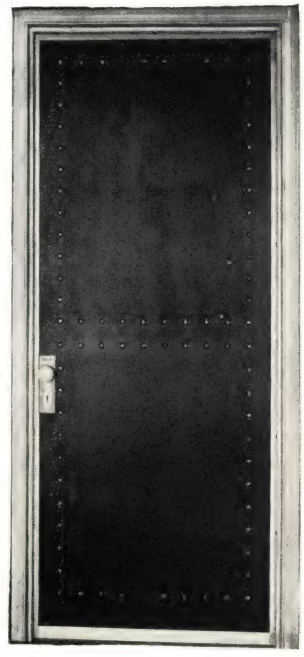
Type AE Partition, 24x11 Ft., Dividing Two Class Rooms in the Carlisle Grade School at Elyria, Ohio
J. W. BAGLEY, Cleveland, Ohio, Architect

Description of Types AE, AEE, etc.

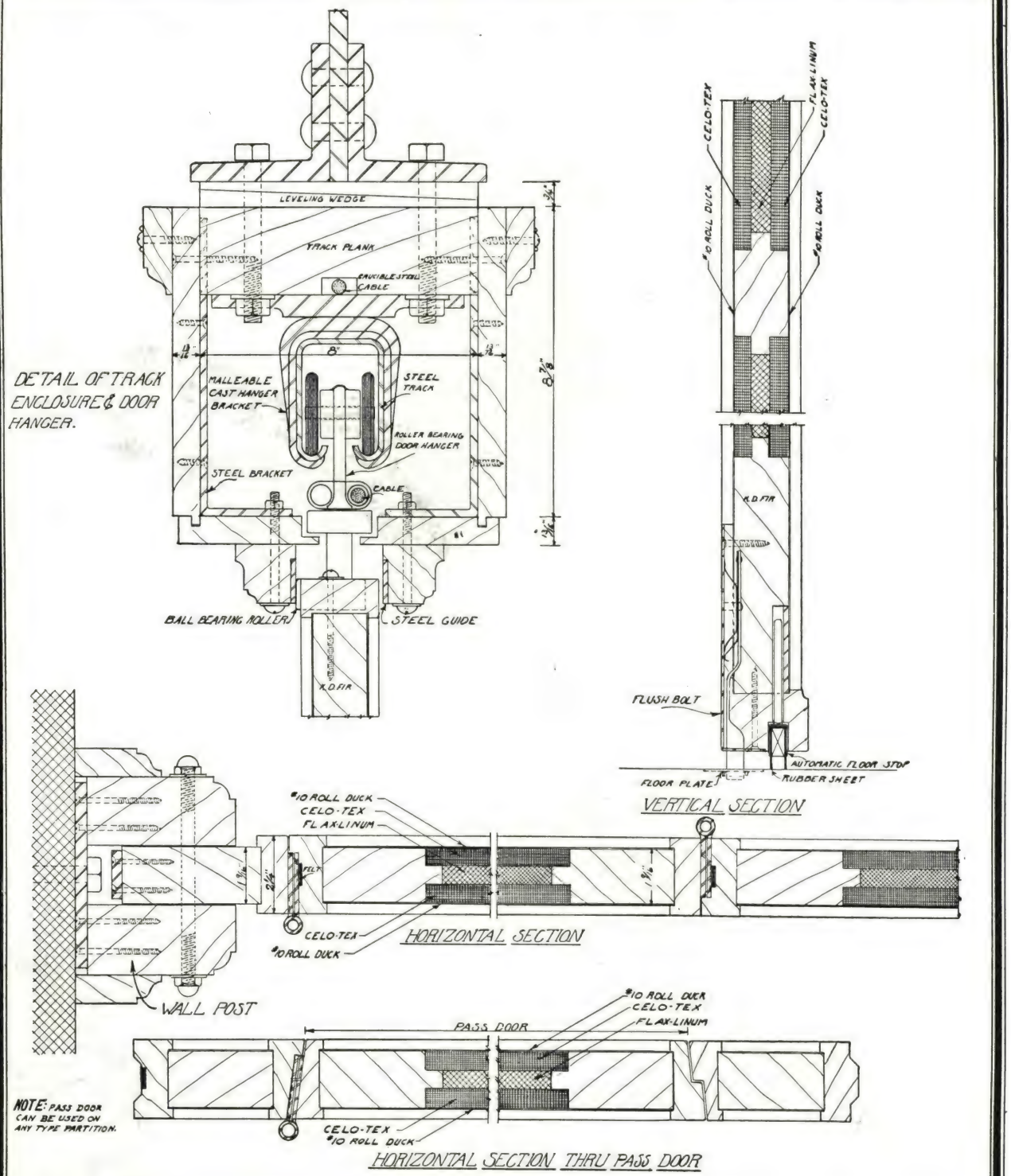
The Type AE Horn Selfold Partition is a regular acoustic Type A partition equipped in the factory with a blackboard and chalk rail on *one* side. Type AEE is the same, except that a blackboard and chalk rail are placed on *each* side. Any other types of Selfold Partitions can be similarly equipped. "E" indicates blackboards consisting of continuous natural slate unless paneled or composition blackboards are desired. Corkboards or other special construction may be arranged in connection with any type of Horn Partition.

Description of Individual Soundproof Doors

Horn Soundproof Doors have been developed for use in hospitals, music rooms, study rooms, offices, etc., where positive soundproofness is essential. The acoustic construction is the same as used in the most sound absorbing Horn Folding Partition. Side and head jambs with gaskets and other insulation are furnished with the doors to guarantee more perfect soundproofness. Locks and hinges are also furnished. The standard soundproof doors are covered with Fabrikoid—color, texture and trim as desired. Details and sizes can be changed to meet any special requirements. Further information and prices will be furnished on request.



Horn Soundproof Door. 3x7 Ft.
Furnished complete, as shown, with all jambs and hardware.



THE HORN A REAL FOLDING PARTITION

TYPICAL DETAILS STANDARD TYPE -A

HORN FOLDING PARTITION COMPANY

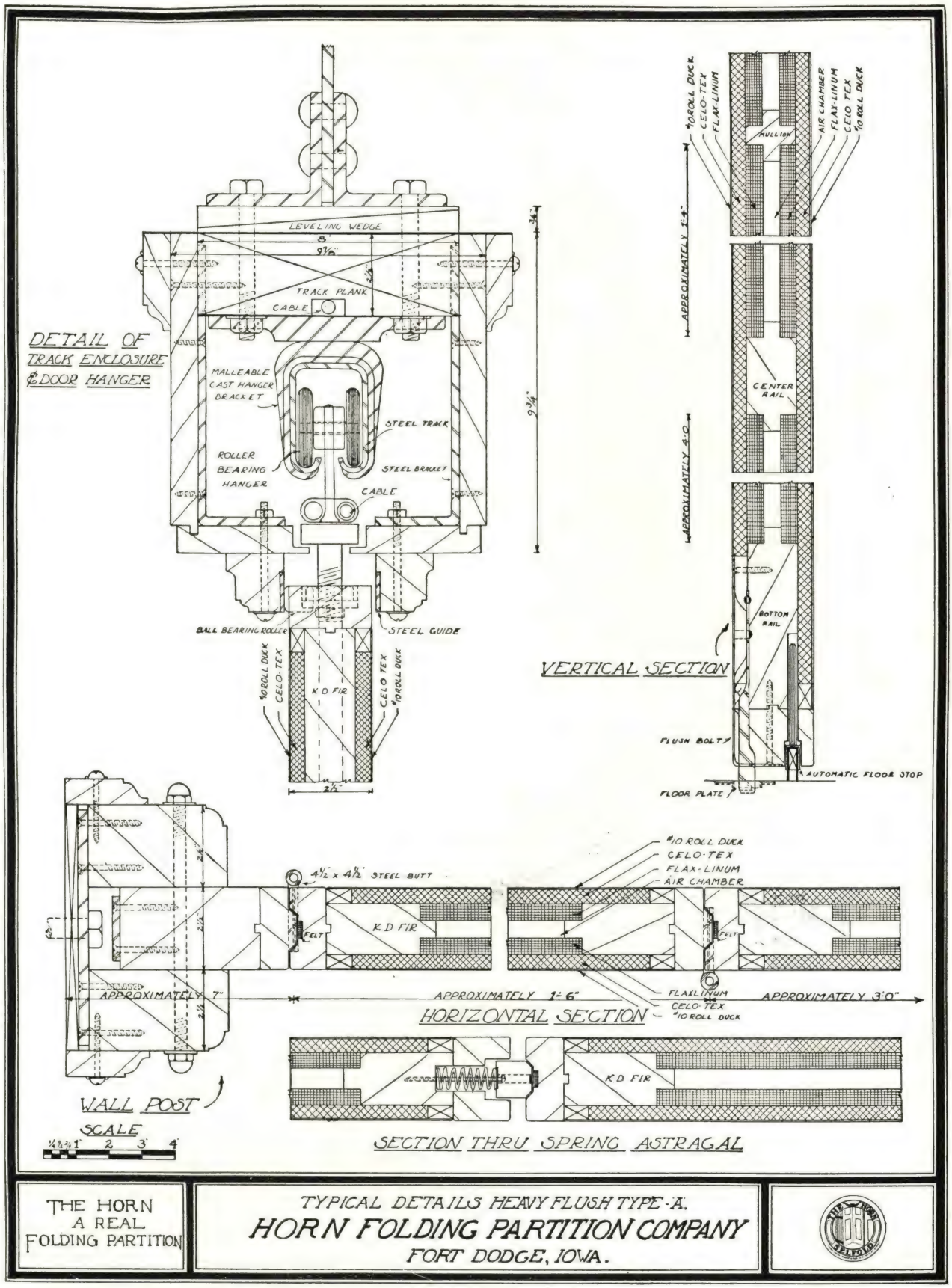
FORT DODGE IOWA

Standard Type A is furnished regularly for partitions less than 20 ft. high.

Note:

Standard Type A Both sides smooth, unpaneled surfaces, covered with roll duck. Projected astragals.
Standard Type AE Same as Type A with continuous blackboard on one side.
Standard Type AEE Same as Type A with continuous blackboard on two sides.

See third following page for details of blackboard construction.



THE HORN
A REAL
FOLDING PARTITION

TYPICAL DETAILS HEAVY FLUSH TYPE-A.

HORN FOLDING PARTITION COMPANY

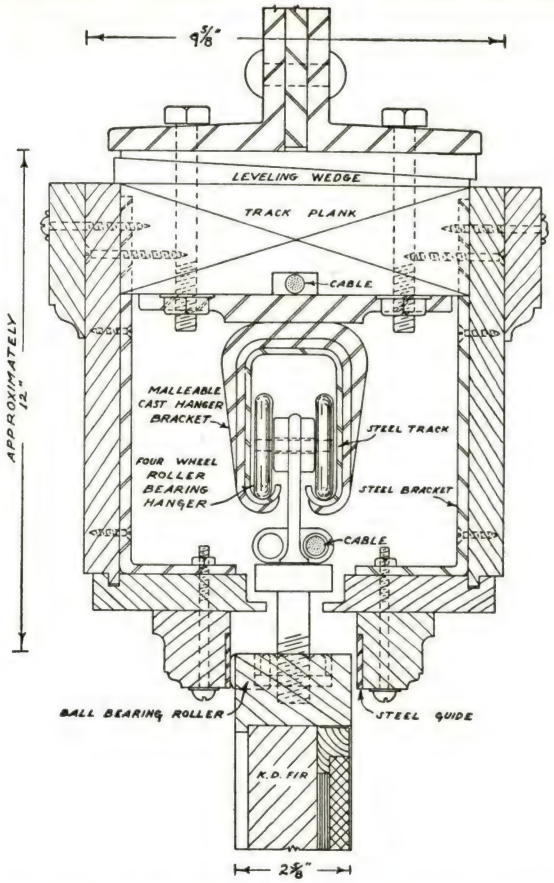
FORT DODGE, IOWA.

Heavy Flush Type A is furnished regularly for partitions 20 ft. or more in height, or as a special for lower heights.

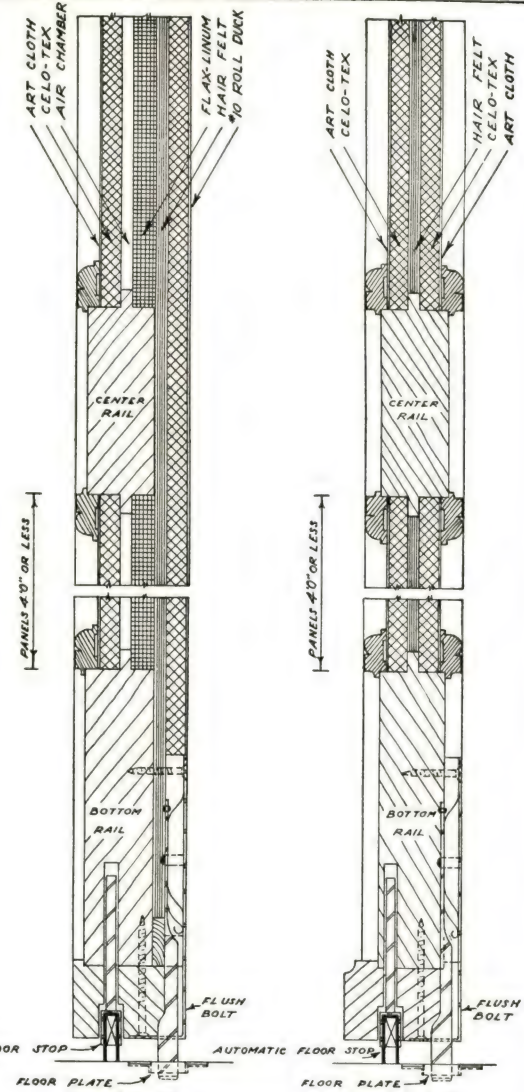
Note:

Heavy Flush Type A **Both sides smooth, unpaneled surfaces, covered with roll duck. Flush astragals.**
Heavy Flush Type AE Same as Type A with continuous blackboard on one side.
Heavy Flush Type AEE Same as Type A with continuous blackboard on two sides.

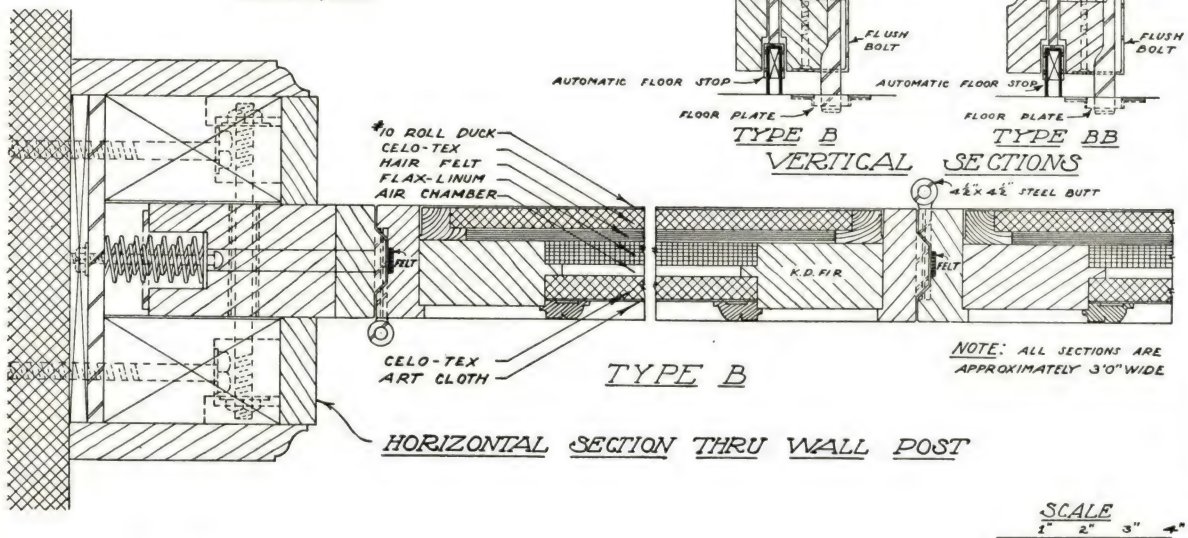
See second following page for details of blackboard construction.



DETAIL OF TRACK ENCLOSURE & DOOR HANGER



TYPE B TYPE BB
VERTICAL SECTIONS



TYPE B

NOTE: ALL SECTIONS ARE APPROXIMATELY 3'0" WIDE

HORIZONTAL SECTION THRU WALL POST

SCALE 1" 2" 3"

THE HORN A REAL FOLDING PARTITION

STANDARD DETAILS OF TYPES B AND BB

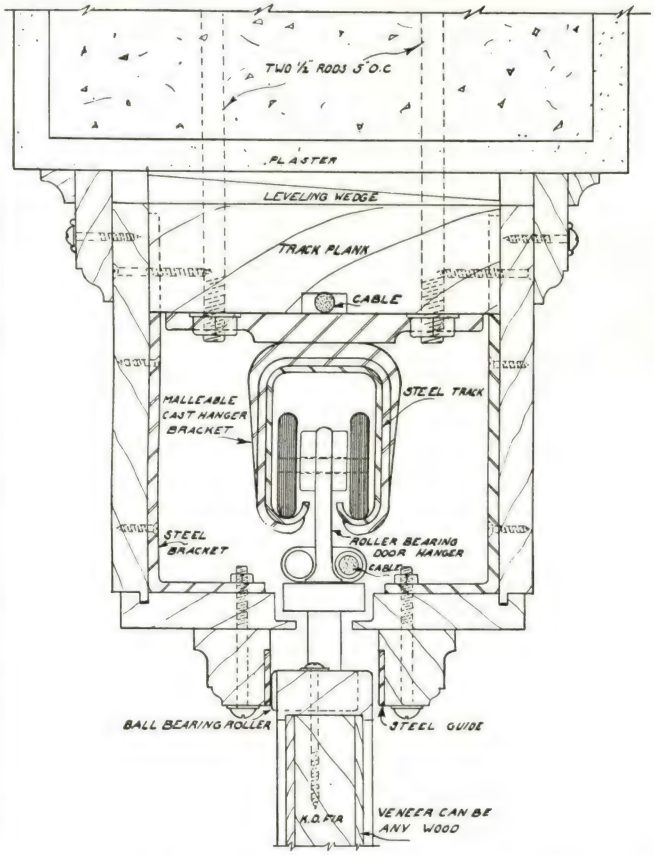
HORN FOLDING PARTITION COMPANY

FORT DODGE, IOWA

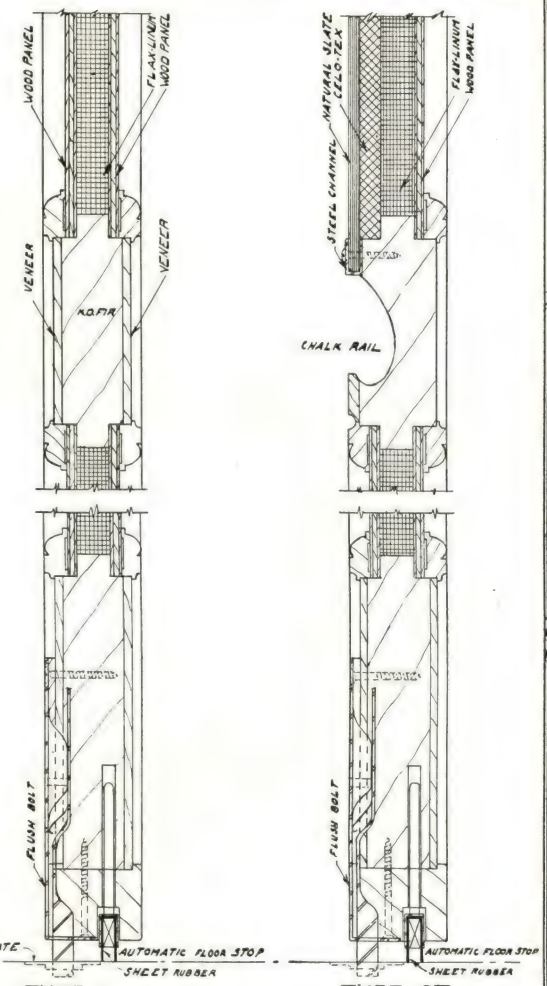
Note:

Type B	One side paneled, unveneered fir stiles and rails, panels covered with art cloth. Other side smooth, unpaneled surface covered with roll duck.
Type BE	Same as Type B with continuous blackboard on one side.
Type BEE	Same as Type B with continuous blackboard on two sides.
Type BB	Both sides paneled, unveneered fir stiles and rails, all panels covered with art cloth.
Type BBE	Same as Type BB with continuous blackboard on one side.
Type BBEE	Same as Type BB with continuous blackboard on two sides.

See next page for details of blackboard construction.



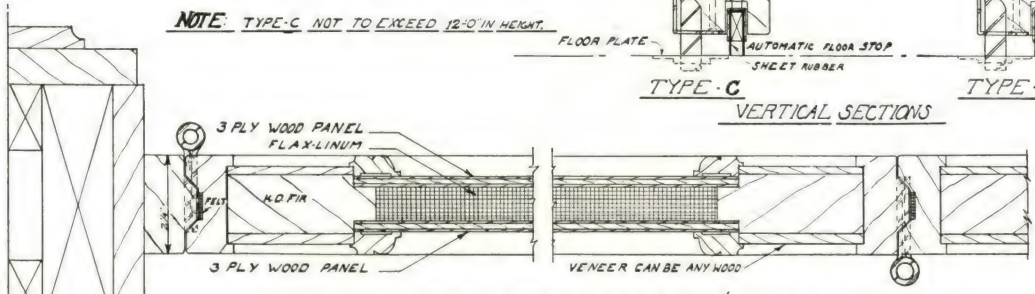
DETAIL OF TRACK ENCLOSURE & DOOR HANGER.



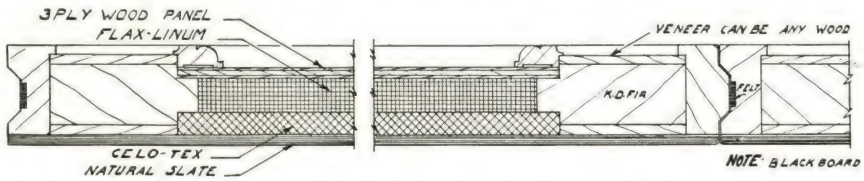
TYPE-C TYPE-CE

VERTICAL SECTIONS

NOTE: TYPE-C NOT TO EXCEED 12'-0" IN HEIGHT.



HORIZONTAL SECTION THRU WALL POST & TYPE-C PARTITION



HORIZONTAL SECTION THRU TYPE C-E PARTITION

NOTE: CONTINUOUS BLACK BOARD CAN BE FURNISHED ON ALL STANDARD TYPES. DETAILS SIMILAR TO THOSE SHOWN ON THIS SHEET.

THE HORN
A REAL
FOLDING PARTITION

TYPICAL DETAILS TYPES **C** AND **CE**

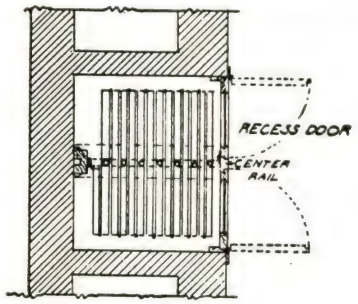
HORN FOLDING PARTITION COMPANY

FORT DODGE IOWA

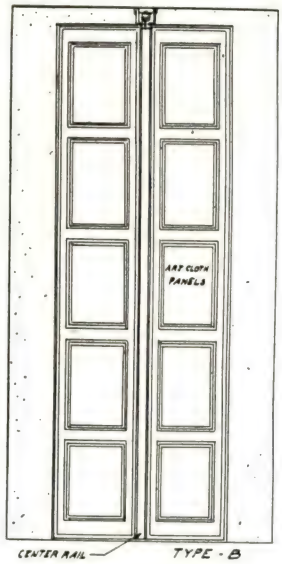
Note:

Type C Both sides paneled, veneered stiles and rails, all panels faced with three-ply wood veneer.
Type CE Same as Type C with continuous blackboard on one side.
Type CEE Same as Type C with continuous blackboard on two sides.

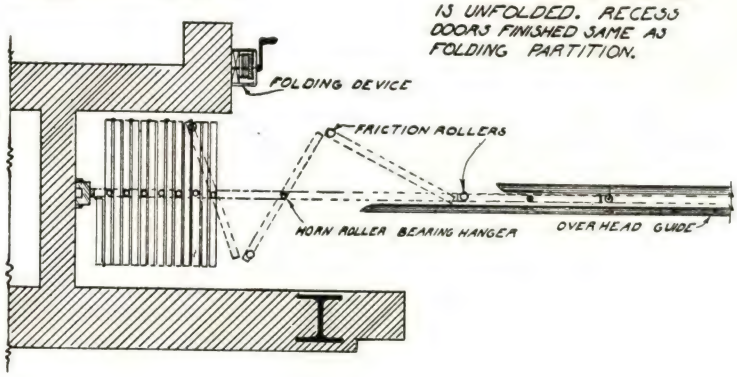
The blackboard details will fit any other type of Horn Partition.



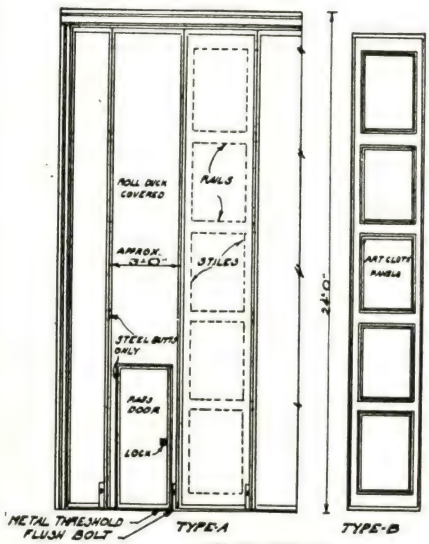
NOTE: CENTER RAIL IS HINGED TO COMPLETELY CLOSE OPENING WHEN PARTITION IS FOLDED AND TO ALLOW RECESS DOORS TO CLOSE WHEN PARTITION IS UNFOLDED. RECESS DOORS FINISHED SAME AS FOLDING PARTITION.



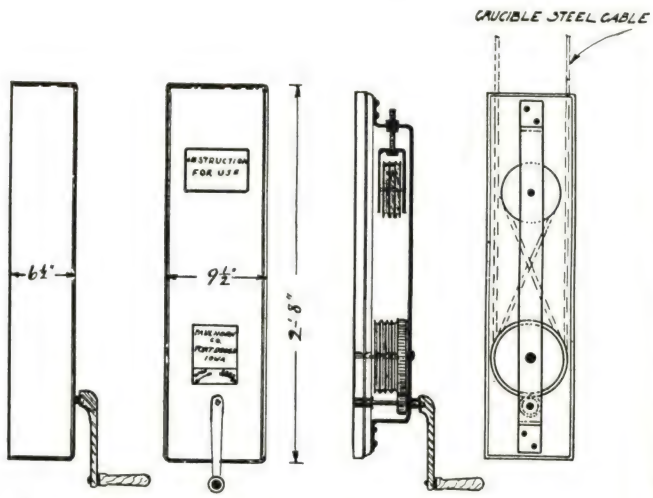
ELEVATION RECESS DOORS







ELEVATION



HORN FOLDING DEVICE

THE HORN A REAL FOLDING PARTITION

MISCELLANEOUS DETAILS

HORN FOLDING PARTITION COMPANY

FORT DODGE, IOWA.

Note:
The Horn Motor Driven Operating Device is controlled by an electric switch, and is as simple, sure and easy to operate as an ordinary electric light in a home. Details furnished on request.

DAY'S CUBICLE CURTAIN EQUIPMENT

Manufactured by
H. L. JUDD COMPANY, INC.
ESTABLISHED 1817

HOSPITAL DIVISION
87 Chambers Street, NEW YORK, N. Y.

Originated, developed and perfected to answer the problem of a flexible and complete ward-screening that is instantly and quietly available without effort or obstruction.

Day's Equipment consists of (1) Specially designed hardware; (2) Day's felt wheel, roller bearing curtain hooks; (3) Day's highly perfected and supershrunk hospital curtains.

Day's Cubicle Curtain Equipment

Specially Designed Hardware—The equipment is suspended from the ceiling, allowing free and unobstructed floor space. By the use of the exclusive fittings, the curtains are easily drawn around corners and past the point of suspension, thereby permitting the complete screening of one bed with one curtain. All angles, curves and supports have been designed to allow smooth and easy operation and rigid construction.

All tubing is 1-in. outside diameter, 14 B&S gauge, solid brass; the fittings are heavy cast bronze, all finely chromium plated.

Day's Felt Wheel, Roller Bearing Curtain Hooks—Hooks are made of brass, chromium plated, with wheels of prepared compressed felt, and insure easy and silent operation of the curtain.

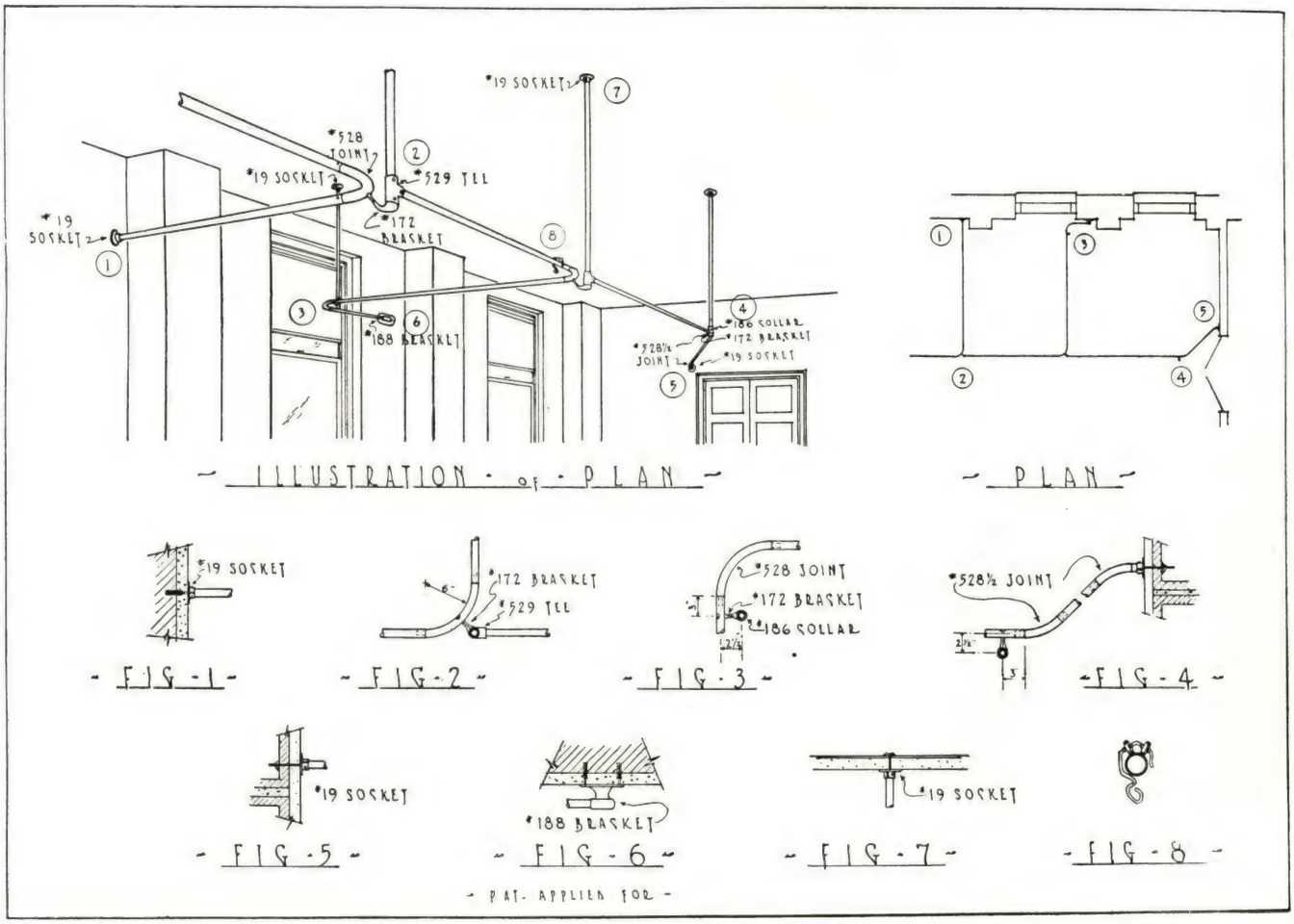
Day's Highly Perfected and Supershrunk Hospital Curtains—The curtains are of specially woven jean cloth, with a count of 104 warp threads and 62 filling threads; all yarns are of selected quality.

The material is supershrunk according to U. S. Navy specifications. Only Indanthrene dyes, which are guaranteed sunfast and tubfast, are used.

The curtain is made with an extra border at the top consisting of a fold of material on both the front and back, forming a hem of triple thickness. All seams are two-needle interlocked. The bottom hem is 1¼ ins. wide.

Specially constructed white metal rustproof grommets machined in the top hem every 6 ins. will not pull out.

Day's Cubicle Curtain Screening Equipment is being specified for modern hospitals. It is used in large wards, semi-private rooms, treatment rooms, dressing rooms, dental units, for enclosing special baths, and for numerous other purposes. The cost averages less than five-eighths of one per cent of the building cost.

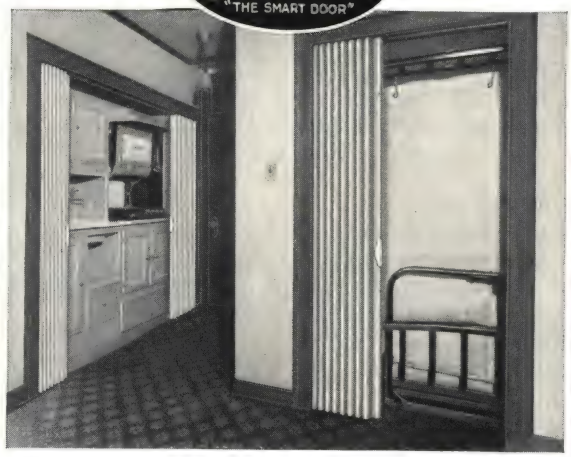


NORDELL LTD.

Manufacturers of Folding Doors

59 East Van Buren Street, CHICAGO, ILL.







NORDELL DRAPEFOLD DOORS

The latest in door design. New in every detail. Nordell Drapefold Doors, through an exclusive patented design are planned to meet the demands of modern interiors and modern conveniences. Revolutionary in their smartness and practicability, they harmonize perfectly with any decorative plan. Can be used equally well in the home, apartment, office, shop or store.

Practical for Any Interior

Nordell Drapefold Doors are appropriate for any type of room. Particularly practical for small apartments in closing off kitchenettes, dinettes, wall beds, dressing closets, etc.

Equally appropriate for the larger home too, for Nordell Drapefold Doors bring a new note of beauty and convenience whether used in the library, living room, dining room, boudoir, closet or hall. Another important feature is the fact that they are easily adaptable to arched doorways.

Stores and shops too, find numerous uses for Nordell Drapefold Doors for fitting rooms, show window backgrounds, cloak and gown cases, etc.

Coverings

Nordell Drapefold Doors can be covered with velour, chintz, velvet, silk, fabricoid—any material to harmonize with the decorative ensemble. The drapes can be detached easily for cleaning or replacing to conform to changing color schemes. The folds of the drape covering are held perfectly in place at all times, whether the door is extended or closed.

Construction Features

The frame of the Nordell Drapefold Door is very simple in design. Steel tubing and multiple cold rolled steel hinges make them both strong and light, their weight being only a fraction of that of a wooden door. Just a slight touch of the finger is sufficient to draw one of these doors across an open doorway—and a lifetime of service is assured. Nordell Drapefold Doors can be hung to any style door frame without any special provisions. *They do not require a track or guide.* The hinges are designed to allow the door to swing as well as fold; if desired, the door can be swung to one side, entirely clear of the opening.

Nordell Drapefold Doors are absolutely silent in operation and will not warp or stick. They remain rigid and upright when extended as well as folded.

These new doors embody all the advantages of wooden doors and, in addition, combine the beauty and grace of lovely drapes. They can be constructed to latch and lock, if desired—also may be made soundproof.

Installation

Nordell Drapefold Doors are simple to install and eliminate the expensive work of hanging wooden doors. Can be installed single or double, depending upon the size of the opening.

Prices and additional information will be gladly furnished on request.



NORDELL FLUTEFOLD DOORS

Nordell Flutefold Doors are designed for clubs, hotels, churches, schools and halls for subdividing large rooms into smaller units.

NORDELL DRAPEFOLD DOOR SIZES

Single Door Sizes			Double Door Sizes		
No.	Opening, in.	Height, ft.	No.	Opening, in.	Height, ft.
4	Up to 21	Up to 10	24	Up to 42	Up to 10
6	Up to 31	Up to 10	26	Up to 62	Up to 10
8	Up to 41	Up to 10	28	Up to 82	Up to 10

NORDELL FLUTEFOLD DOORS FOR LARGE OPENINGS

No.	Open size, ft.	Height, ft.
A	Up to 7	Up to 10
B	Up to 10	Up to 13
C	Up to 20	Up to 25



RICHARDS-WILCOX MANUFACTURING COMPANY

INCORPORATED

Manufacturers of FoldeR-Way Partitions

AURORA, ILL.

Branches in all Principal Cities

For R-W Other Products, see Manufacturers' Index

R-W "FoldeR-Way" Partitions

This equipment, consisting of doors, trim and operating hardware is furnished and installed complete by manufacturer with the exceptions noted in the specifications herein.

Three types of R-W Partitions are here described: No. 535 Folding Partitions in which doors are hinged together in pairs, the weight of the doors being carried on a floor track; No. 237 Folding Partitions which are similar to 535 except that the doors are carried by hangers running in an overhead track; and Sliding Accordion doors which operate on an overhead track and require a half door near the jamb.

Two Types of doors, the key veneered wood door and the Steel Frame, Duck Covered Door are described on page 5.

R-W NO. 535 "FoldeR-Way" PARTITIONS

Description

Doors are hinged together in pairs by butt or invisible hinges. Each pair of doors operated as an independent unit. Designed for large heavy doors, the weight of the doors is carried on the floor track, the upper track serving only to guide the top of doors.

Width of Opening—The width of the opening is immaterial as the method of operation allows for any number of doors to be used.



Two Sets of No. 535 Partition Doors Closed, Completely Isolating One Room from the Remainder of the Space Involved

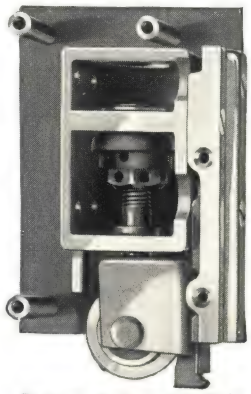
Passage Doors

When the partition doors are small, one door in the opening can be used as a passage door from room to room when the partitions are closed. There should then be an odd number of doors in the opening, the passage door being the odd door. It is not recommended for doors over 9 ft. high.

We recommend that the first or third door from the jamb be made the passage door. It will be necessary to shorten the top door stop on one side of the doors so the end will be far enough from the jamb toward which the doors fold to clear the passage door and permit it to swing.

Door Height and Thickness

Maximum heights of doors recommended for various thicknesses: 1¾ in. thick, 12 ft. high; 2 in. thick, 14 ft. high; 2¼ in. thick, 15 ft. high; 2½ in. thick, 18 ft. high; 2¾ in. thick, 20 ft. high, and 3 in. thick, 25 ft. high. Thicker doors than those recommended above, for the various heights, can be used but the maximum thickness of doors for which standard No. 535 hardware is made is 3 in.



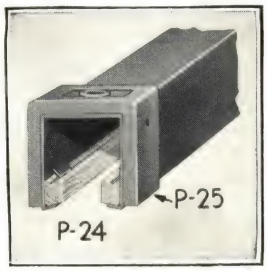
Bottom Roller with Side Plate Removed

Wicket Doors

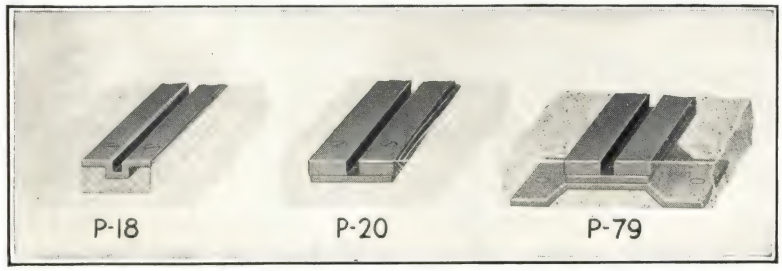
When doors are large, we recommend the use of wicket doors which can be placed in any of the doors except the pivot door.

Spring Plates

When all the doors open to one side between jambs, spring plates for compensating jamb strips are furnished. This strip allows for slight variation in width of doors due to shrinking or swelling. It will always keep the doors pressed tightly together when they are closed. We are also prepared to furnish details for compensating strip (patent pending) at center of opening when doors divide at the center.



P-24 Top Track
P-25 Guide Track Knee



P-18 Bottom Track for Wood Floor

P-20 Bottom Track for Wood Floor

P-79 Bottom Track for Concrete Floor

R-W NO. 535 "FoldeR-Way" PARTITIONS (Cont'd)

Hardware Furnished

No. 535 hardware is furnished in several different classes as follows:

Class A—

The Top Pivots, Bottom Pivots (except base plate) are made of steel, polished and brass plated, brush brass finish. All bottom rollers, top guides, flush bolts and flush pulls are solid brass, polished, brush brass finish. Tracks, jamb springs, guide track knees and base plate of bottom pivot are steel, dead black finish. Furnished with invisible hinges.

Class C—

The Top Pivots, Bottom Pivots, are made of steel, dead black finish. All bottom rollers, top guides, flush bolts, flush pulls are malleable iron, dead black finish. Tracks, jamb springs, guide track knees are steel, dead black finish. Furnished with butt hinges.

Class D—

Same as Class C except has Invisible Hinges instead of butts.

Class E—

Same as Class A except has Surface Hinges with Back Plates instead of invisible hinges.

Class F—

Same as Class C except has Surface Hinges with Back Plates instead of butt hinges.

To Specify

Furnish and install according to the manufacturer's erection details, Richards-Wilcox No. 535 FoldeR-Way Folding Partitions as follows:

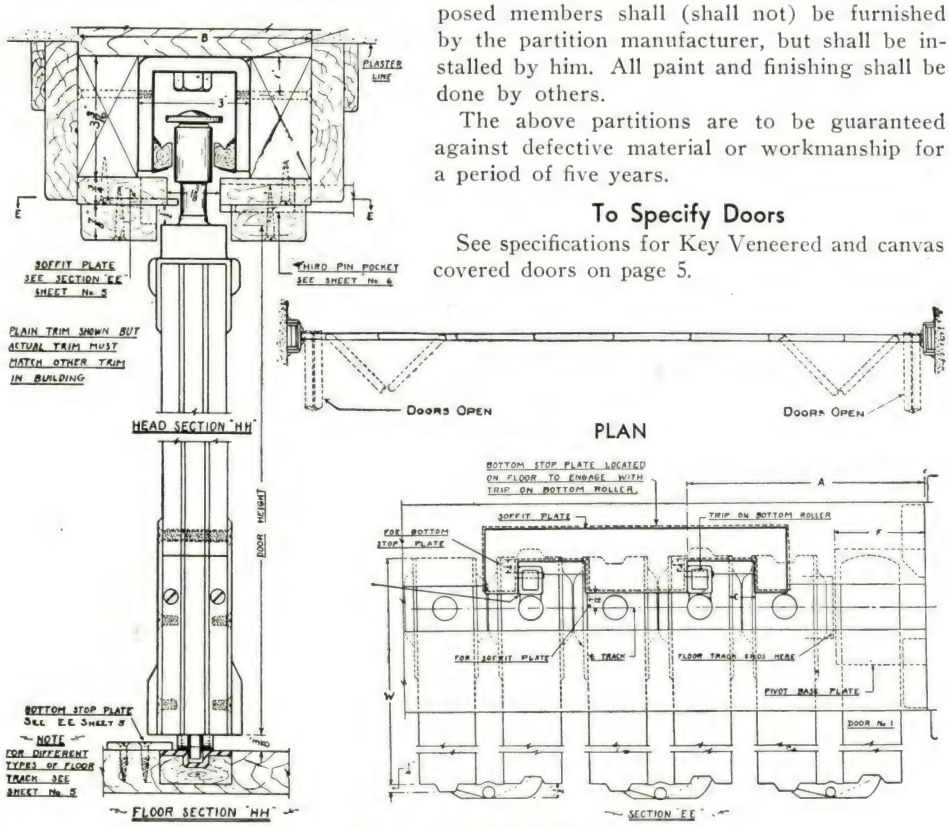
By Manufacturer — Doors shall be hinged together in pairs with invisible hinges (butts) or (invisible hinges) and shall be mounted on double ball bearing flange type rollers running on cold rolled steel track set flush with the floor. Top of doors shall be guided and steadied laterally by ball bearing top guides running in wood-lined metal track. The doors shall be fitted with safety devices which will only permit of their being folded when in the correct position to engage with interlocking plates attached to floor and head jamb. The hardware shall be R-W No. 535.

By Others—The partitions shall be furnished and installed complete by the manufacturer excepting rough bucks at jambs and at head which shall be furnished and installed by the general or carpenter contractor. The contractor shall provide sufficient supports for the floor track which shall be approved by the architect and the partition manufacturer. The trim consisting of soffits, finished jambs, casings and all other exposed members shall (shall not) be furnished by the partition manufacturer, but shall be installed by him. All paint and finishing shall be done by others.

The above partitions are to be guaranteed against defective material or workmanship for a period of five years.

To Specify Doors

See specifications for Key Veneered and canvas covered doors on page 5.



Details of No. 535 Partition

R-W NO. 237 "FoldeR-Way" PARTITIONS

Description

No. 237 doors are hinged together in pairs moving independently as in the case of No. 535 hardware but the weight of the doors is carried by hangers running in a trolley track above the opening. Weights of doors are limited according to the capacity of the overhead track used which is not recommended for doors over 12 ft. high. A floor track and guide is provided to guide the bottom of the doors. Where it is desired to close the doors into a pocket or have them stand behind a projection of the partition wall, each pair of doors may be fitted with hangers at both ends. The plans on the next page give a graphic idea of the various methods of installation to which No. 237 hardware is adaptable.

Width of Opening

The width of opening, as in the case of No. 535 doors, is unlimited due to the method of operation.

Size of Doors

Thickness and weight of doors for each type of track are given in the table below. Doors approximately 3 ft. wide are recommended.

Passage Doors

The same recommendations made with regard to Passage Doors in connection with No. 535 hardware hold true with No. 237 hardware.

Wicket Doors

As in No. 535, wicket doors are recommended when partition doors are large. They can be placed in any one of the partition doors except the pivot door. The minimum width of the door stile beyond the edge of the wicket door should be: 5½ in. for doors 1⅜ in. thick or 6 in. for thicker doors.

Spring Plates

Spring plates for compensating jamb strips to allow for swelling and shrinking of doors are provided similar to that described in No. 535 hardware.

R-W NO. 237 "FoldeR-Way" PARTITIONS (Cont'd)

Hardware Furnished

No. 237 hardware is illustrated in detail below with drawing showing application on doors.

Track and Hangers—Four sizes of overhead track are furnished for various weights of doors as shown in the table. Two or four wheel hangers according to location, may be chosen to fit each size of track. The hangers may be ball bearing or roller bearing.

Floor Guide and Floor Track—Both are illustrated below. The steel track, when set on top of the floor as in the case of 739-3 forms a raised threshold with beveled strip on either side. 739-2 is set into the floor flush. Nos. 739-2 and 739-3 are regularly furnished for doors 1⅜-in. thick and track No. 30½. 739-5 should be put in place before the floor is laid so that it will be flush with the floor.

Bolts and Hinges—One and one-half pairs of hinges and one flush pull are required for every two doors. One No. 237 surface bolt is required for each opening when all doors fold one way, two required for each opening when doors divide at center.

Finish—Hardware is supplied with exposed parts in three finishes as desired: Solid brass, plated and black.

To Specify

Furnish and install according to the manufacturer's erection details, Richards-Wilcox No. 237 Folding Partition Door Hardware as follows:

(Select track number from table according to the weight and thickness of doors to be installed.) Width of opening .....Number of Doors..... Height of Doors ..... Width of Doors ..... Thickness of Doors..... (Two wheel hangers), (Four wheel hangers) with (Ball Bearing), (Roller Bearing) Rollers, Type of Floor Guide (Select number from illustration) Finish of exposed parts (Solid brass), (plated), (black).

Note: *A floor plan of type of operation of doors should accompany specifications.*

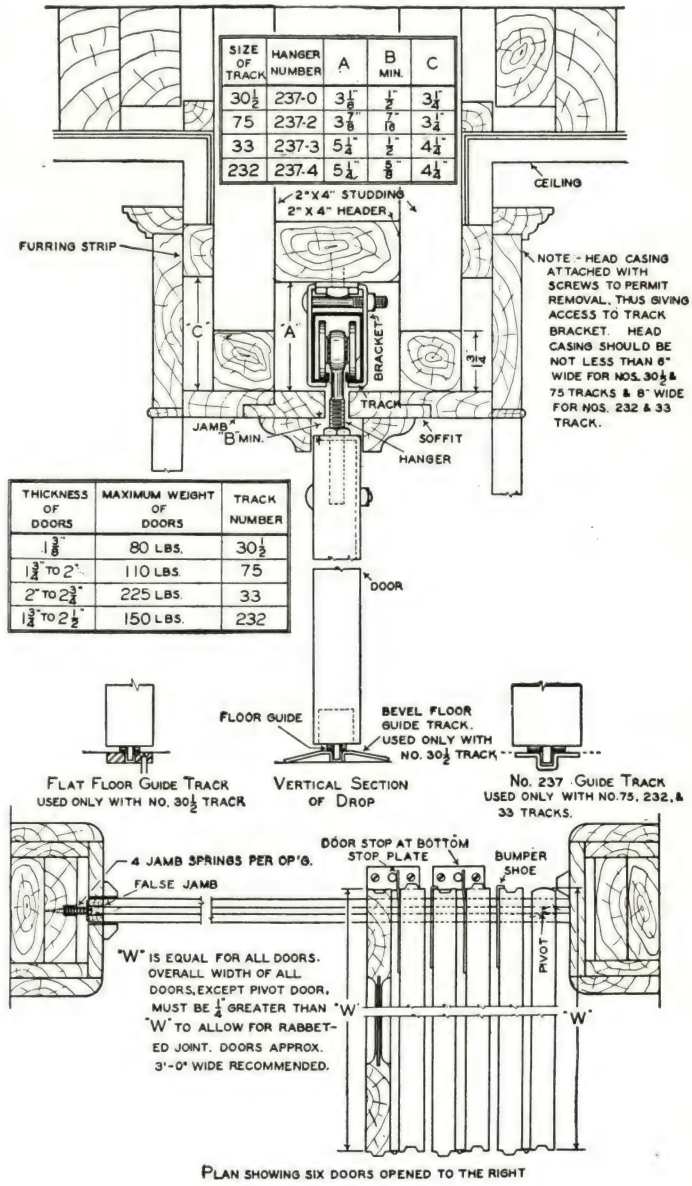
To Specify Doors

See page 5 for specification of Key Veneered Doors.

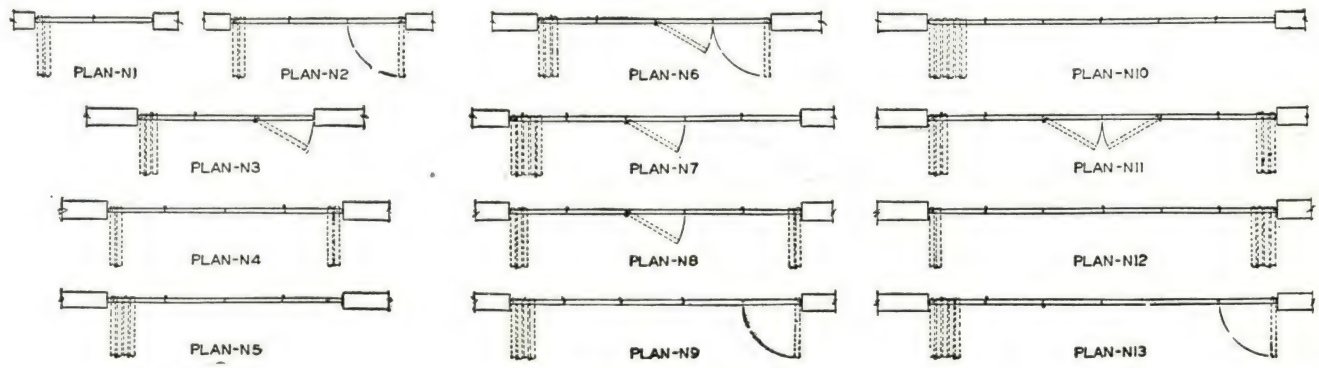
Note: *Top of rail of door should not be less than 5 in. wide.*

No. 237 HARDWARE

Sets for Track No.	Thickness of doors, in.	Maximum weight of doors, lb.	Weight of hardware per door, lb.
30½ 75	1⅜ 1¾ to 2	80 110	13 17
33 232	2 to 2¾ 1¾ to 2½	225 150	30 25



Nº 237 DETAILS AND PLAN



Suggested Door Plans

R-W SLIDING ACCORDION PARTITIONS

Operation—All the doors may be folded to one side or divided at center with half the doors folding to either side. When opened the doors fold compactly against the wall. No pocket required.

Half Doors—A half door is required adjoining the jamb toward which the doors fold. When doors divide and fold toward both sides, two half doors are necessary.

Width of Doors—No door should exceed 3 ft. in width. The exact width of the doors is determined by four conditions. First, the distance from the center of the hinge pin to the edge of the door. Second, by the thickness of the doors. Third, by the number of doors and fourth, by the style of hanger used.

Door Thickness—Doors of any standard thickness may be used, depending on their size and other special conditions.

Tongue and Groove Styles—This type of door is recommended because it will make a much tighter partition.

Butt Hinges—Use 1½ pairs of hinges to each hinge joint. The use of tight pin butts enables the hinge pin in some cases to be set very close to the edge of the doors because it is not necessary to make allowance for removal of hinge pins.

Surface Hinges—Flat surface hinges may be used if desired so long as the size door hanger listed for given thicknesses of doors is followed.

Service Doors—When it is desirable to have passage or service doors between the two rooms divided by the partition, either of the two methods shown in the adjacent plans may be used.

Hardware

Hangers—For accordion doors are of two types, that is, two-wheel and four-wheel hangers. The two-wheel hangers are designed for use on each full size door, but the four-wheel hangers are attached to each alternate door, beginning with the door farthest from the half door.

Track—When all the doors fold to one side, a length of track equal to the width of the opening, less 8 in., is required. The 8-in. space is convenient for inserting or removing the hangers from the track. When doors fold toward both sides of the opening a 1-ft. space may be left at the center between the two runs of track.

Flush Door Bolts and Pulls—A flush door bolt should be used at the bottom of each door to give the required rigidity to the partition. Ordinary flush pulls are not used. If desired, one flush pull may be used in each full sized door, alternating them on opposite sides of the doors. The pull should be on the opposite side from the hinge pin.

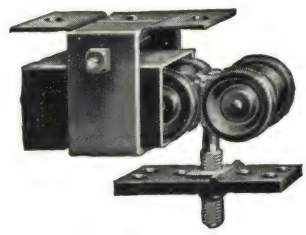
Floor Guides—These serve to steady the doors in operation but are not essential. For illustration of No. 739 floor guides see section on No. 237 folding partition door hardware.

R-W SLIDING ACCORDION FOLDING PARTITION DOOR HARDWARE

Hanger No.	For track No.	Wheels		Thickness of doors, in.	Maximum weight of doors, lb.
		Regular	Bearing		
135–0	30½	Steel	Ball	1¾	80
135–1	75	Steel	Roller	1¾, 2 & 2¼	110
135–2	33	Steel	Roller	2½	225
137–0	30½	Steel	Ball	1⅜	80
137–2	75	Steel	Ball	1¾, 2 & 2¼	110
137–3	33	Steel	Roller	2¼ to 3	225



Sliding Accordion Doors



No. 135 Hanger



No. 137 Hanger

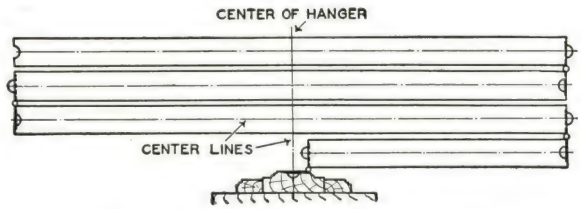
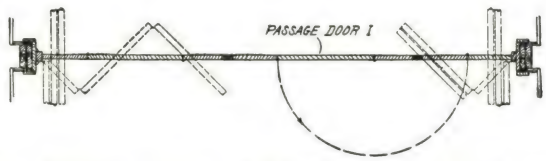
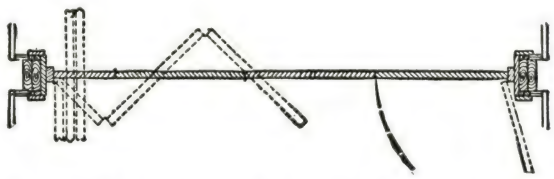


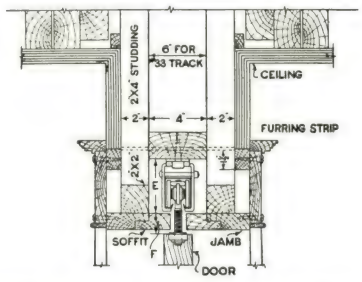
Diagram for Properly Attaching the Hangers



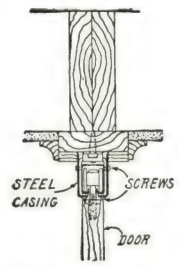
Plan of Partition Having 4 Full Sized Doors and 2 Half Doors



Plan Showing 2 Full Sized and 1 Half Door Folding Toward One Side and a Separate Swing Door Hinged to Opposite Jamb



Cross Section Showing Typical Overhead Construction for Supporting Track



Another Method of Construction Sometimes Used

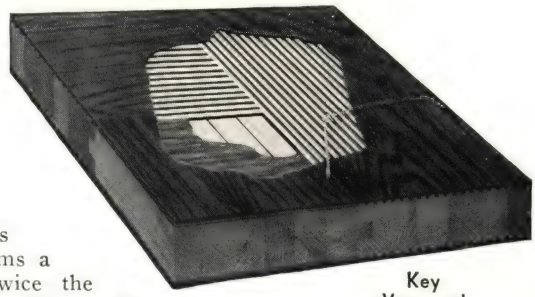
No. 405 Mechanically Operated Partitions

The No. 405 equipment operates in exactly the same manner as the Sliding Accordion partitions described on this page except that movement of the doors is accomplished either by a hand crank or by an electric motor operating a chain device which is attached to the hangers and the track.

R-W PARTITION DOORS

R-W Key Veneered Wood Doors

The doors are of the well known Key Veneered construction manufactured by the Compound and Pyrono Door Company exclusively for the RICHARDS-WILCOX MANUFACTURING CO.



Key Veneered Flush Door Type

Description—Extra heavy sawed veneers are used on stiles and rails. They are keyed to the laminated cores as well as glued to it. This tongue and groove construction forms a tenacious bond besides affording twice the gluing surface possible in flat veneers. The result is a veneer construction of exceptional sturdiness that will last for decades.

Types—These doors are furnished in flush type and in ten standard types of panel arrangement for use with R-W partition door hardware. (See illustrations.)

To Specify Doors—Furnish and install where shown on the plans, Richards-Wilcox partition doors for R-W (here name the hardware selected) Folding Partition Door Hardware as follows:

Note: *Use matter below for flush type.*

All doors so shown shall be made with stiles, rails, and flush panels.

Stiles and rails shall have cores built up of strips of soft-wood not over ⅞-in. thick, with ¾-in. edge strips of the same wood as face veneers. All stile and rail veneers shall be sawed ¼-in. thick to finish $\frac{3}{16}$-in., and shall be tongued and grooved to the core with at least four tongues and four grooves to the inch, and glued with best grade of glue. Tongues and grooves to be cut not less than $\frac{1}{16}$-in. deep. All stile and rail joints to be mortised and tenoned.

Panels shall be made with built-up cores and sawed face veneers and cross banding over the staved core. They shall be the full thickness of the door and shall finish flush with the stile and rail surfaces, with joints well made and glued.

All doors shall be hand or belt smoothed and entirely free from cross-grain sander scratches.

The design and thickness of the doors to be as detailed on the plans.

Note: *Use matter below for panel type.*

The doors shall have stile and rail cores built up of strips of soft-wood not thicker than ⅞ in.; glued together under pressure, with ¾-in. edge strips of same wood as face veneer. All stile and rail veneers shall be sawed ¼ in. thick to finish $\frac{3}{16}$ in. thick and shall be tongued and grooved to the core with at least four tongues and four grooves to the inch, and glued with best grade of glue. Tongues and grooves shall be cut not less than $\frac{1}{16}$ in. deep.

All panels shall be laminated five-ply with grain crossed on alternate plies. All stile and rail joints to be mortise and tenon construction. All doors to be hand or belt smoothed and entirely free from cross grain sander scratches on plane surfaces and from knife marks on mouldings and moulded edges.

The design and thickness of the doors to be as detailed on the plans.

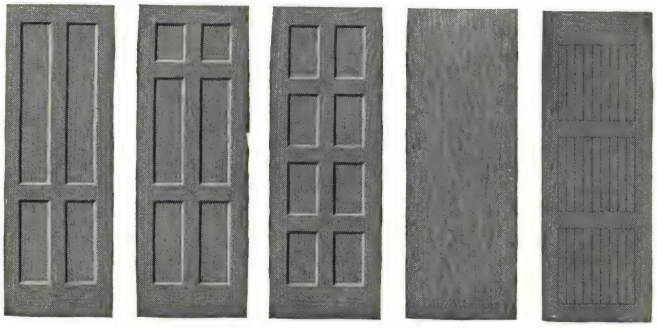
Duck-Covered Sound Proof Partition Door

Where sound proofing is desired, R-W Duck Covered Metal Frame Doors may be specified as part of the partition equipment. These doors are made by the manufacturer to specification. As the drawing below shows, a celotex or insulite panel on both sides of the door, aided by a dead air space between, serves as an effective sound proofing.

A steel or aluminum channel frame makes the partition durable, yet as a whole, it is much lighter than wood. The duck is sized in the shop and can be painted with oil colors.

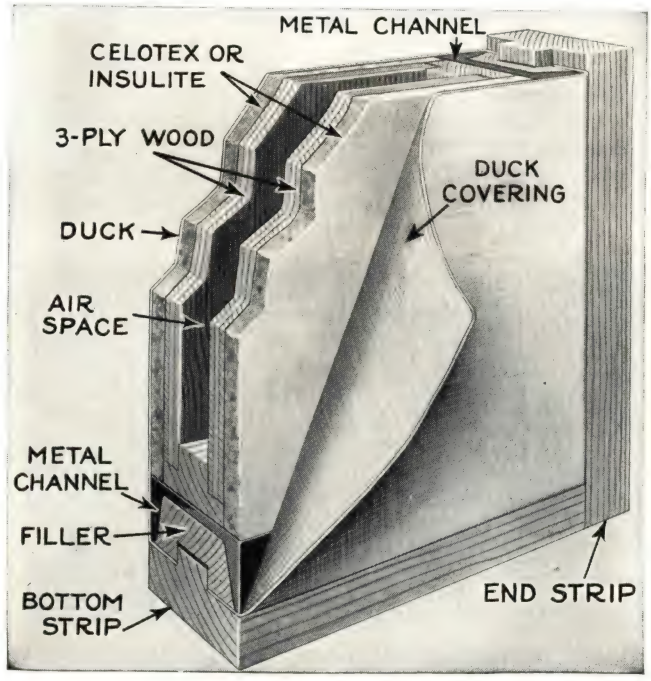


Type 1 Type 2 Type 3 Type 4 Type 5



Type 6 Type 7 Type 8 Type 9 Type 10

Standard Door Types



R-W Sound Proof Partition Door

ESTABLISHED 1876

THE J. G. WILSON CORPORATION

GENERAL OFFICES

11 East 38th Street
NEW YORK, N. Y.

P. O. Box 1194
NORFOLK, VA.

CABLE: "Wilcorp," New York

BRANCH OFFICES

ATLANTA, GA., J. M. Van Harlingen
BOSTON, MASS., The J. G. Wilson Corporation
BUFFALO, N. Y., The J. G. Wilson Corporation
CHICAGO, ILL., H. B. Dodge & Company
HOUSTON, TEX., Walcott-Maisey & Paige
LOS ANGELES, CAL., The J. G. Wilson Corporation
PHILADELPHIA, PA., The J. G. Wilson Corporation
PITTSBURGH, PA., John A. Bricker, Jr.

For Rolling Steel Doors and "Sectionfold" Doors Operating Overhead, see Products Index

WILSON "SECTIONFOLD" PARTITIONS

For the Division of Rooms of Any Size Into Smaller Units

Wilson "Sectionfold" Partitions are a most substantial, convenient and economical means of converting large rooms into smaller ones, or dividing inclosed areas. They are made entirely within the confines of one plant, of first quality materials throughout, by skilled craftsmen. They operate easily and noiselessly.

"Sectionfolds" do not require special overhead trusses or supporting members, since they are carried on the floor and not overhead. The head guide or track is employed only to keep the partition in alignment, preventing lateral movement when it is in a closed position and to provide means of securing the unique locking feature characteristic of "Sectionfolds." The doors operate in pairs, rather than in one large unwieldy unit.

Standard Doors

Doors for "Sectionfolds" are made in various panel designs, with stuck moulds. Loose and raised moulds and special panel treatment, to conform to special design, can always be furnished.

The cores are laminated, of sound kiln dried white pine or redwood, built up with waterproof glue. All stiles and rails are blind mortised and tenoned and glued with waterproof glue. Veneers for stiles and rails are of first quality straight sawn selected stock, milled in our own plant.

Gymnasium Doors

The Wilson Type L door is designed and adapted particularly for use in gymnasiums. It is of particularly rigid construction, capable of withstanding the severe impacts and abuses a gymnasium door receives. There are no protruding mouldings or hardware to cause injury to players or deflect balls in playing.

The Type L door is constructed with the usual stiles and rails, with intermediate rails, blind or visible, depending on the effect desired. Panel space is finished flush with stiles and rails, with $\frac{7}{16}$x1$\frac{7}{8}$ in. V-joint strips. Gymnasium doors are recommended not less than 3 in. in thickness.

Auditorium-Gymnasium Doors

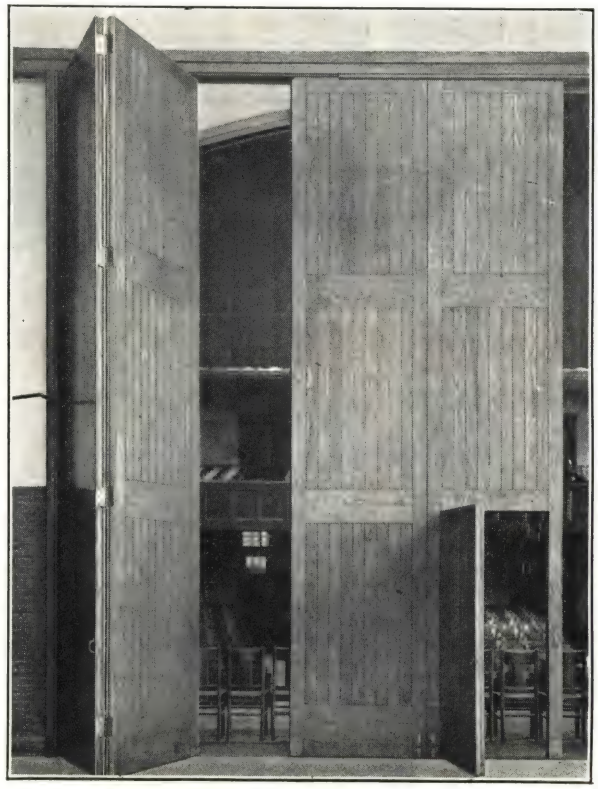
The division of an auditorium and gymnasium calls for a partition possessing solidity, and yet designed to harmonize with the auditorium treatment. This is readily obtained by using the Wilson Type L construction, as explained above, for the gymnasium side of the partition, treating the auditorium side with paneling as desired.

Shuttle or pass doors may be provided in any leaf of a "Sectionfold" Partition.

See detail page following for recommended thickness of doors for various heights and weight per square foot of partition.



"Sectionfold" Partition Dividing Gymnasium, McKinley Technical High School, Washington, D. C. The Doors Are 23 Ft. High



Detail Showing the Large Size of the Doors

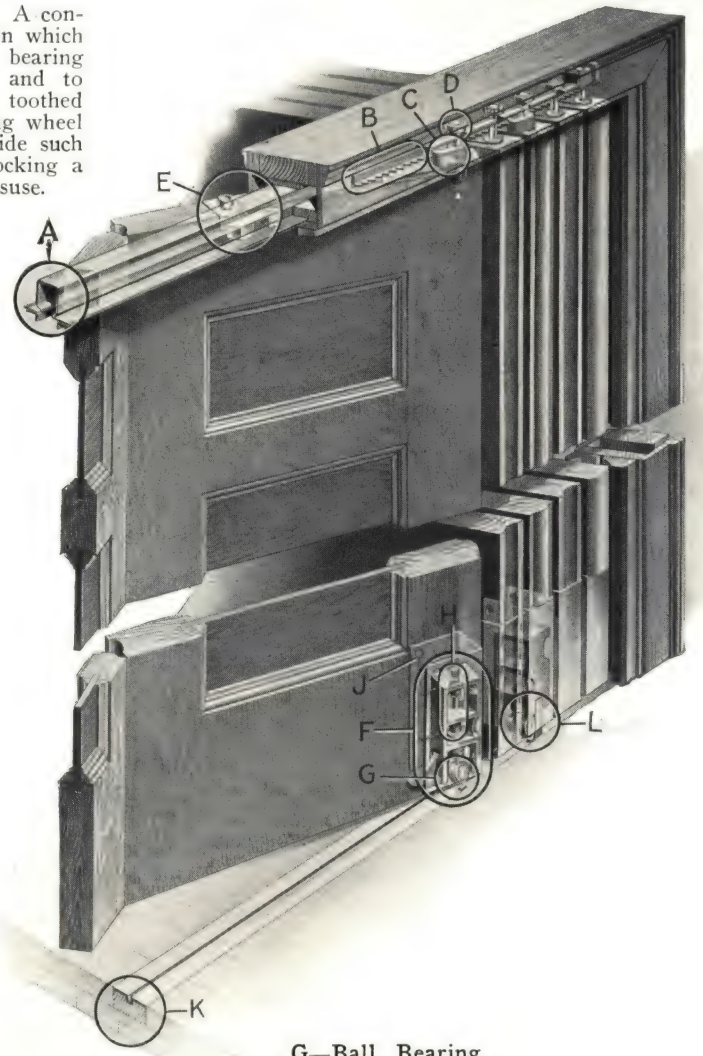
SOME PATENTED FEATURES OF "SECTIONFOLD" PARTITIONS

E—Safety Folding Wheel. Fitted to each pair of doors at the proper point to prevent the doors from being operated at any but the specific point at which the rack and pawl above explained will function and automatically check further lineal movement of the pair. This also insures complete safety, as well as accurate folding, so that each pair will rest snugly against the other.

B—Toothed Rack. An integral part of the overhead guide, forming part of the locking device.

C—Pawl. This is fitted to the lead door of each pair, and is an integral part of the swivel (D). Its function is to engage the toothed rack (B) immediately the pair is broken out, automatically locking the lead door in a definite position. This pawl cannot possibly become disengaged from the toothed rack until the pair of doors is again exactly parallel with the head track.

A—Overhead Guide. A continuous steel member in which the horizontal ball bearing swivels (D) operate and to which is secured the toothed rack and safety folding wheel shoe (E), which provide such effective means for locking a Sectionfold against misuse.



L—Folding Finger Lock and Lug. The folding finger lock (L), a part of the castor assembly, functions at exactly the same time as the rack and pawl at the head, thereby locking the lead door of each pair against improper movement.

J—Bronze Cover Plate. Removable, providing free access to caster mechanism for any necessary adjustments.

H—Vertical Adjusting Screw. Provides ample means of raising and lowering the door to meet any unevenness of the floor and to obtain proper alignment.

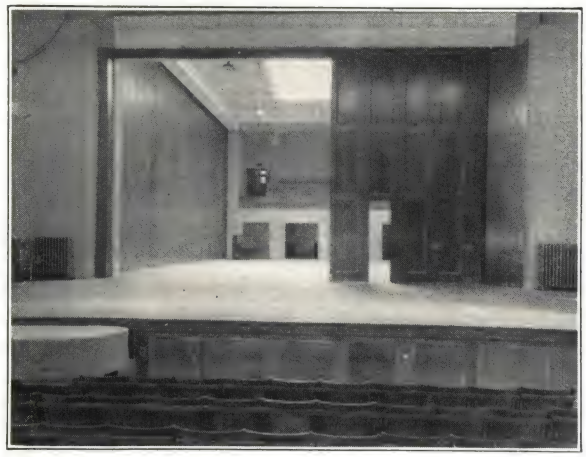
K—Floor Track. The slot in the floor, stage, dance floor, dining hall, ¼ in. deep, which presents no obstacle whatsoever in the gymnasium floor, stage, dance floor, dining hall, etc.

G—Ball Bearing Wheels. Ride on the flat surface of the track (K) on the floor level, and not in the groove. Ball bearing wheels used in Sectionfolds are capable of withstanding weights considerably in excess of the weight of the doors on which they are used.

F—Caster. Consisting of a caster stem and plow, with two ball bearing rollers of case hardened steel, carries the entire weight of the door. The plow is fixed and extends into the slot of the floor track (K). As it does not revolve, it is physically impossible for the plow to disengage itself from its proper position. The plow also serves to clear any accumulated dirt from the track.



Detroit Trust Company, Detroit, Mich.
View of "Sectionfold" Partition dividing directors' room



High School Auditorium, Hyde Park, Boston, Mass.
Showing division of auditorium and gymnasium

Spring Jambs

When six doors, or more, fold to one side of an opening a spring jamb, as shown on following page, is employed. This is constructed and adjusted to compensate for shrinking and swelling of doors due to atmospheric changes. It keeps all joints tight.

Hardware

All standard exposed hardware is solid bronze, polished to a bright finish and lacquered.

The caster, upon which the entire weight of the door is carried, is of thoroughly tested and guaranteed materials. The ball bearing wheels are case hardened both in the outer rim and inner race, and guaranteed to sustain a running load of 1000 lb. per wheel at 100 r.p.m. There are two wheels to each caster.

A vertical adjustment on the caster stem provides means of taking up small unevenness in the floor.

The caster wheels travel on top of the track. The plough extends between the wheels into the floor. The plough is fixed—does not revolve, and positively prevents any lateral movement of the partition.

To the head track in the folding end, or ends, is rigidly secured the tooth rack. The leading door of each pair is fitted with a pawl engaging the rack immediately the pair is broken out, automatically and positively locking the leading doors in a fixed position. This pawl will not disengage the tooth rack until the door is again exactly parallel with the head track. The doors are equipped with a safety folding pin, insuring each pair being folded and locked in its proper position. It is impossible for the doors to be broken out at any point other than the proper end of the track, thus eliminating the hazard attending doors that can be folded at any point.



Gold Room of Hotel President, Waterloo, Iowa
Showing division for ballroom or banquet hall

Extra Equipment

Natural slate blackboard may be introduced either into the panels or on the face of the doors, where partitions are to be used in schools or churches and blackboard space is necessary.

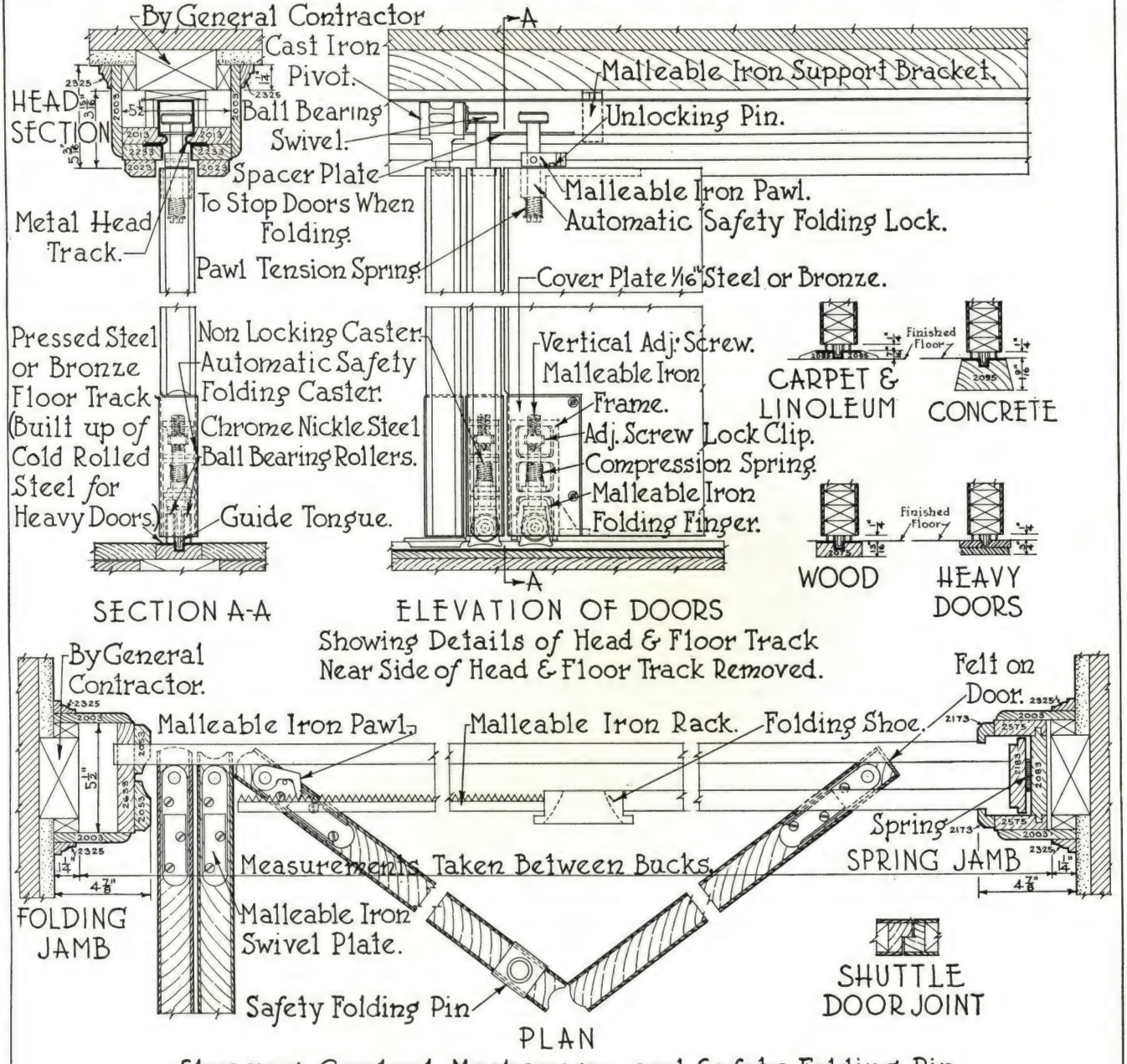
Any panel may be provided to receive glass.





"Sectionfolds" in Open and Closed Positions, Dining Room, University Club, Los Angeles, Calif.

DETAILS OF HARDWARE APPLICATION AND MILLWORK FOR SECTIONFOLD PARTITIONS



Showing Control Mechanism and Safety Folding Pin.

SCHEDULE OF DOOR THICKNESS & WEIGHT.

HEIGHTS.	THICKNESS.	WT. PER SQ. FT.
Up to 11'-0"	1¾"	3 to 4½ Lbs
11'-0" to 13'-0"	2"	3½ " 5¼ "
13'-0" to 15'-0"	2¼"	3¾ " 6 "
15'-0" to 18'-0"	2½"	4 " 6½ "
All over 18'-0"	3"	4¾ " 8 "

Scale 1½" = 1'-0"

Proper support must be provided directly under and parallel to track. Use Schedule of weights to arrive at uniform load (when doors are drawn out) and concentrated load when folded to one or both sides.

ROLLING PARTITIONS AND SHUTTERS

Curtains

The outstanding success of Wilson Rolling Partitions is due to the method of assembling the slats making up the curtain. Continuous steel bands, passing through the slats and anchored in the bottom bar to special spiral anchors, allow for expansion and contraction due to atmospheric conditions, as well as elongation created through the revolving movement. Tension on these springs can be adjusted so that slats will at all times be in close contact.

Shafts

The ease of operation of the horizontal rolling partition is due entirely to the counterbalancing means provided by oil-tempered springs concealed in the shafts, and made for the particular curtains with which they are used. Shafts of commercial black iron pipe, of sufficient diameter to prevent undue deflection, are fitted with self-lubricating bearings revolving on machined journals attached to supporting brackets. No lubrication, other than originally provided, is ever necessary.

On smaller partitions or fronts, flat spiral springs, enclosed in drums or barrels, are employed.

This form of partition is suitable for check rooms, separation of Sunday school rooms, or in any type of building where a large area is to be subdivided economically.

Vertical Partitions

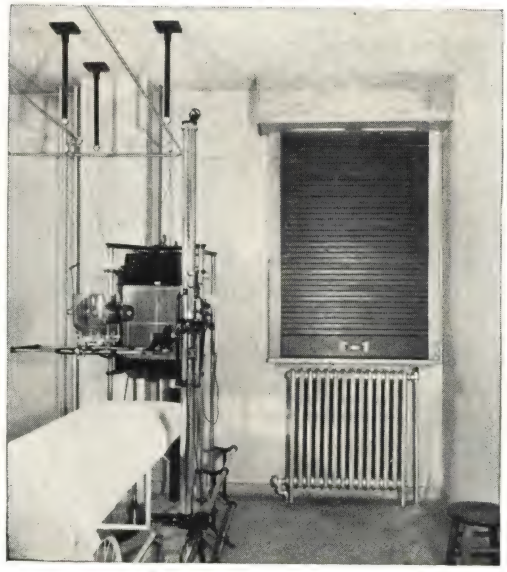
Vertical partitions revolving vertically are not counterbalanced. They coil about a shaft fitted with antifriction bearings. The steel bands on which the slats are strung are of spring steel with sufficient tension to coil the curtain about the shaft properly when it is being coiled up. This tension is not great enough to offer objectionable resistance in uncoiling the partition.



Rolling Partitions, Continuation School, Milwaukee, Wis.

LIGHT RETARDING SHUTTERS

The Wilson Light Retarding Shutter, an adaptation of the horizontal rolling partition, is used extensively on the windows of X-ray and photographic laboratories, auditoriums, lecture halls, etc. Laboratories, especially, are often constructed without windows or other means of ventilating the rooms. With light retarding shutters windows can be provided where desired, and light excluded effectively during such intervals when total darkness is necessary.



This type of shutter is very conveniently adapted to auditoriums where all windows are to be darkened to assist in the use of any type of picture machine. All shutters may be so arranged that they may operate simultaneously from a single station push button control at the speakers' desk. Details of this construction and design will be furnished if data on any particular problem is presented to us.

WILSON WARDROBES

Rolling Front and Disappearing Door

The Disappearing Door Wardrobe, pioneered by THE J. G. WILSON CORPORATION, has established itself as a universal fixture in the construction of school buildings throughout the nation. Its space conservation feature, greatly reducing the total cost of school buildings generally; its ventilating feature, insuring dry wraps and clothing at all times; and its general pleasing appearance, substantial workmanship, ease of operation and perfection in construction and design, are appealing to an increasing number of architects daily.

Wilson Type "F" Wardrobes, with mullions and skeleton or solid divisions; with or without blackboard, or Wilson Type "G" design for continuous blackboard surface, have, and are being used with complete satisfaction.

School authorities quite generally condemn the continuous blackboard feature, since a 4-ft. space available with the Type "F" wardrobe covers the reach of a teacher standing in one position, and because ordinary continuous blackboard surfaces are not protected from being smudged by pupils passing in and out. The Wilson Type "F," with which a continuous slate surface, approximately 4 ft. wide can be obtained, is the most desirable, general all-round equipment.

Built-in units of 2 or 4 ft., the latter accommodating fourteen pupils with ease, occupy a space in the average classroom of but 12 ft. wide, 2 ft. 2 in. deep, with no part thereof encroaching on the aisle space when in a fully open or fully closed position. Doors operate easily in single units on simple but substantial ball bearing hangers, free from complicated mechanism requiring minute adjustments.

Specifications of the Wilson Disappearing Door Wardrobes

Doors are of 5-panel or flush type, or as detailed by architect, of (pine, oak, ash, birch, as otherwise used) in the white (unfinished) 1⅜ in. thick, veneered on built-up cores with ¼ in., 3-ply veneered panels. Doors are hung on Wilson Type "F" hardware, consisting of cast malleable curved tracks, with double ball bearing sheaves on adjustable hangers, provided with means or vertical adjustment; ball bearing floor pivot arm, attached to the door with means of vertical and horizontal adjustments and the Wilson invisible stabilizer hinges and rods.

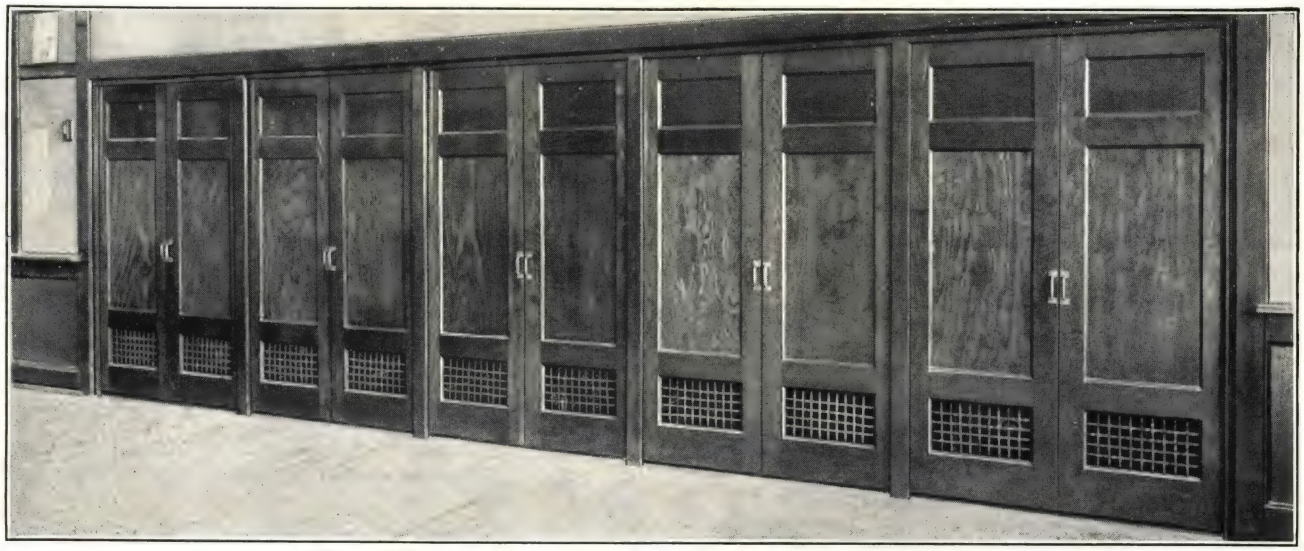
Hardware finish throughout is dull black (polished bronze plated or as otherwise specified).

Each 4-ft. section is provided with one shelf, not less than 14 in. wide and one shelf not less than 8 in. wide, with one hook strip and fourteen three-way coat and hat hooks. (Malleable iron umbrella racks and iron drip pans will be furnished when specified.) (Solid metal tops with connection with fresh air ducts will be furnished when so specified.) Teachers' sections will be furnished with a cupboard of drawers or shelves with coat hooks as required and with divisions and locks. Kind and thickness of slate is optional, but we recommend ¼-in. slate blackboard, with chalk rails as detailed. Blackboard, whether natural or composition, is secured to doors by means of solid bronze Z-bars, top and bottom.

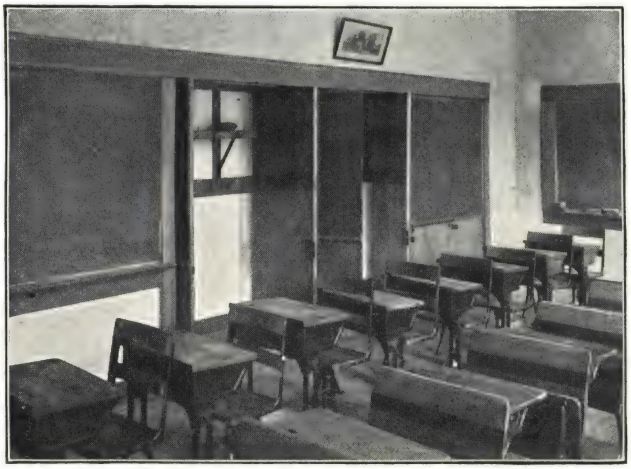
Note: Any wardrobe may be equipped with rolling fronts. For continuous blackboard, specify Wilson Type "G" Wardrobes as above.



St. Vincent's Parochial School, Newport News, Va.
A. BYRON WILLIAMS, Architect
J. W. DAVIS, Contractor
Shows how teacher's small closet may be added



Type "F" Wardrobe, Cheviot Public School, Cincinnati, Ohio



School, East Aurora, N. Y.

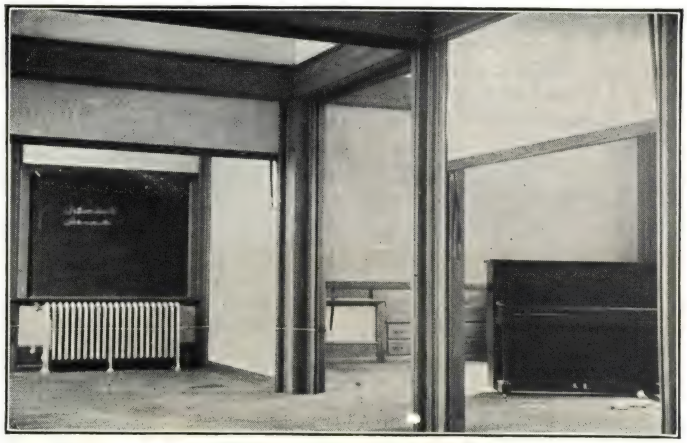
WRIGHT & GAMBER

Sole Manufacturers of the Wright Rolling Canvas Curtain

LEBANON, PA.

Description of the Wright Rolling Canvas Curtain

This curtain is made of strong, wear-resisting double-filled duck, sponged and shrunk. It forms a partition as soundproof as a wooden rolling partition but occupies considerably *less space*. In addition this curtain can be painted to match any interior or harmonize with any woodwork.



The Wright Rolling Canvas Curtain Installed in Sunday School Rooms

Shown in three positions—closed, open and half open

The curtain rolls up out of the way on an all-metal roller encased in a box immediately above the wall opening. This roller is guaranteed for five years. It makes the operation of the curtain so easy that a child can raise or lower the curtain with little effort.

Many leading architects are specifying the Wright Rolling Canvas Curtain for installations where a durable, quietly operating partition at a moderate cost is desired. The fact that many of these curtains have been in use for the past twenty-two years proves their satisfactory performance.

The Wright Curtain is made in any width up to 16 ft., and any height up to 15 ft.

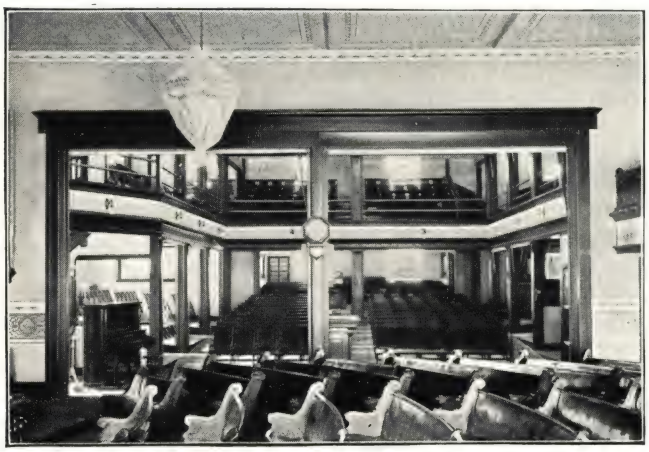
On the opposite page is shown a detail drawing of a typical three-way Wright Curtain installation, where the support or column is only 9¾ by 11 in. This type of support can be used only where there is no heavy overload to carry, as the only part of the column to run to ceiling is the 2x6-in. stud shown on detail. Jambs and casing stop at the bottom of the roller box.

Uses

Because the Wright Rolling Curtain is simple to install and operates easily and quietly, it is ideally suited to installations in Sunday school and other assembly rooms where movable partitions are required.

Installations

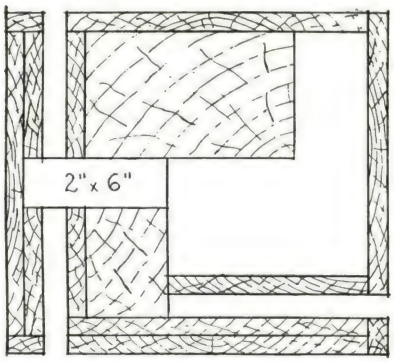
Reformed Church, Washington, D. C.
Lutheran Church, Middletown, Md.
Lutheran Church, Waterloo, Ont.
Fourth United Brethren Church, York, Pa.
Trinity Lutheran Church, York, Pa.
Otterbein United Brethren, Harrisburg, Pa.
Emanuel Lutheran Church, Pottstown, Pa.
St. Peters Lutheran Church, Littlestown, Pa.
St. James Lutheran Church, Gettysburg, Pa.
St. Pauls Reformed Church, Quarryville, Pa.
St. Peters M. E. Church, Reading, Pa.
First Reformed Church, Shoemakersville, Pa.
Memorial Presbyterian Church, Lancaster, Pa.
St. Andrews Reformed Church, Lancaster, Pa.
Trinity Reformed Church, Tower City, Pa.
St. Johns Reformed Church, Sabillasville, Md.



Typical Installations of Wright Rolling Curtains—Curtains Rolled Up



Same Installation with Wright Curtains Drawn to Separate the Class Rooms



SECTION THRU COLUMN

Specifications of Wright Rolling Canvas Curtain

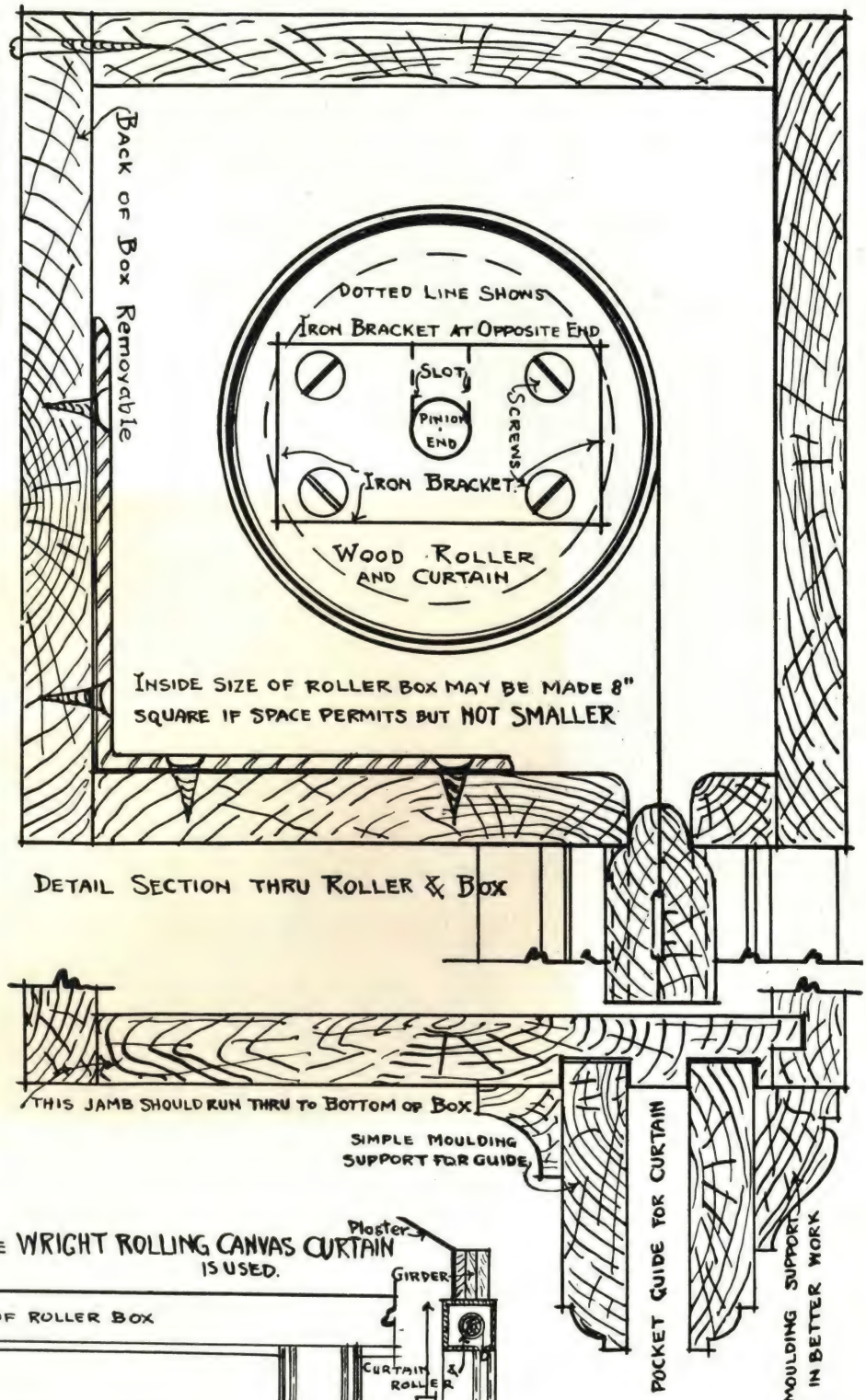
Roller box to be 8 in. square *inside*. (Under certain conditions, it can be reduced to 7 in. inside.)

Guides to be not less than 3 in. deep and full 7/8 in. wide for regular size curtains. For extra large openings, the guides should be 4 in. deep.

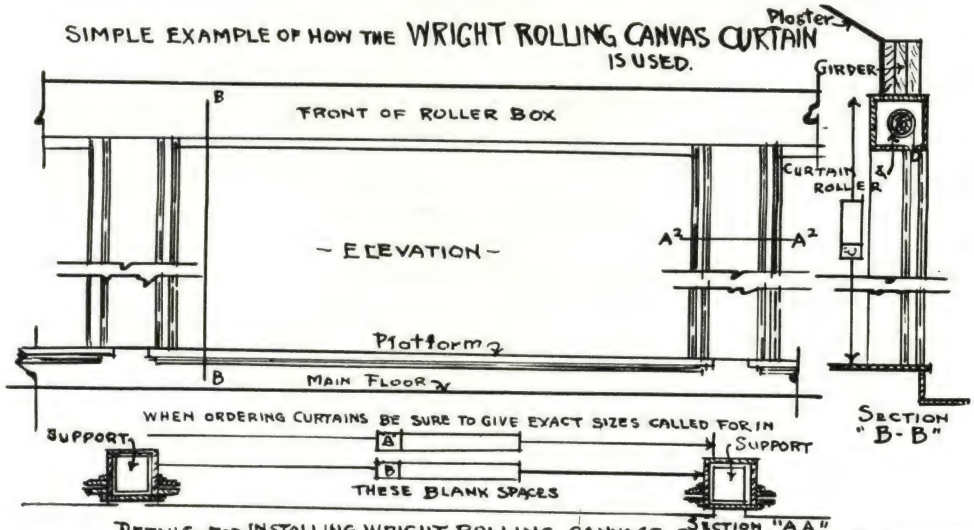
All jambs and casings must stop at bottom of roller box. Bottom, back and front of box will rest on the jambs and casings.

Bottom and back of roller box to be made in one part and braced with strap angle brackets placed about three feet apart.

Guides to be gained into jamb as shown and either type moulding used.



DETAIL SECTION THRU ROLLER & BOX



DETAILS FOR INSTALLING WRIGHT ROLLING CANVASS CURTAINS IN S.S. PARTITIONS

- PLAN -

Detail Section Through Jamb and Curtain Guide

Note: This detail is drawn exactly one-half actual size.

ESTABLISHED 1856

SWEDISH VENETIAN BLIND COMPANY

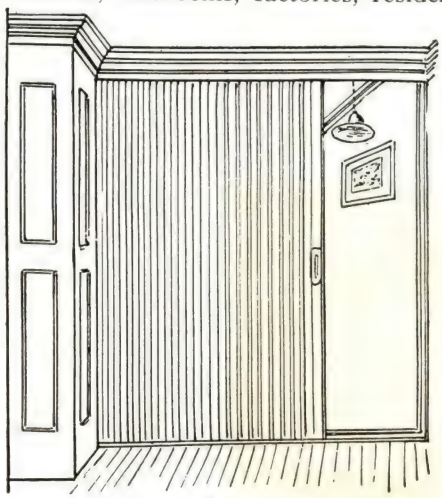
Rolling Wood Partitions and Steel Rolling Doors and Shutters

1265 Broadway
NEW YORK, N. Y.

For our pages on Swedish Venetian Blinds, see Manufacturers' Index

Horizontal and Vertical Rolling Wood Partitions

For all purposes where room division is necessary; schools, churches, clubrooms, factories, residences, etc.



Vertical Partition

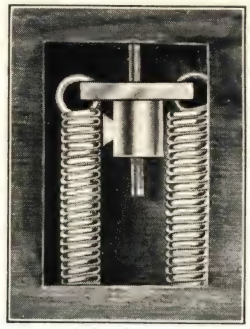
By their use, convenient, economical floor arrangement can be obtained. They dispense with folding and accordion doors.

Made of the best wood obtainable. Slats are 1¾x½ in. and have non-friction joints connected by metal straps.

Improved ball bearing coiling device insures ease of operation and noiselessness. Furnished in any finish desired.

Openings of any width can be closed with one or more partitions. Single partitions should not be over 12 ft. wide.

Detail drawings furnished on request.



Spring in Bottom Bar

DIMENSIONS OF ROLLING WOOD PARTITIONS

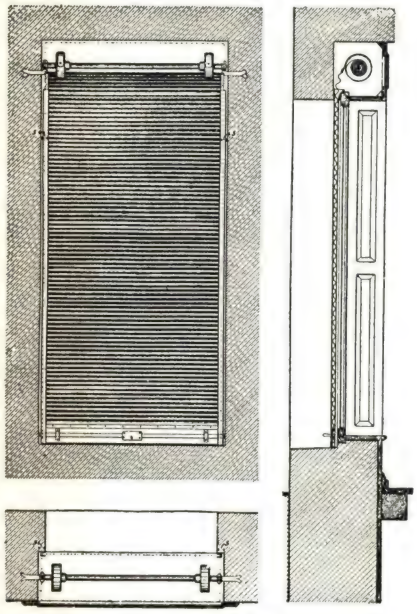
Height, including coil, ft.	Inside of coil box, in. square	Height, including coil, ft.	Inside of coil box, in. square
6	12½	14	14½
8	12	16	15
10	13	18	15½
12	14	20	16

Steel Rolling Doors and Shutters

Made of the best grade of English continuous corrugated steel sheets. Different operating mechanisms furnished to suit varying conditions. Used for all kinds of openings where strength, durability, ease of operation, efficiency and economy of space are required.

Any good mechanic can easily erect our products from details furnished by us.

We have had many years' experience in this line and guarantee a perfect product.



Corrugated Steel Shutter
Hood removed to show operation



Section Through Slats





Typical Installations of Horizontal Rolling Wood Partitions

At left are several sections of rolling wood partitions. For openings wider than 12 ft., movable posts are used as guides between partitions and can be easily detached after partition is coiled away and the two rooms converted into one large space. Spring roller which operates partitions is also shown. At right is the rolling wood partition installed in an assembly room

THE STANDARD TEXTILE PRODUCTS COMPANY

Manufacturers of Sanitas Cloth Wall Covering

320 Broadway
NEW YORK, N. Y.

DISTRIBUTED THROUGH BEST WHOLESALE HOUSES IN THE UNITED STATES

Products

SANITAS CLOTH WALL COVERING, the Original Washable Wall Covering; SANITAS WALL LININGS and PREPARED CANVAS.

SANITAS CLOTH WALL COVERING

Description of Sanitas

Sanitas is a cloth wall covering finished in durable oil colors. The surface is non-absorbent and repels dirt and grease stains. The tensile strength of the finished material is 40 pounds in the warp and 30 pounds in the filling.

Varieties of Sanitas

There are more than 150 styles in plain or printed dull and enamel finishes, suitable for any interior either as a finished decoration or as a ground for glazing, stenciling or decorative mural work. Metallic Brocade effects as well.

Sanitas Scenic Frieze, "Legendary Isle"

An attractive Italian landscape scene, made in three colors, 54 inches high, with a 54-inch repeat. Blue SC 1, Sepia Gray SC 2, and Medium Green SC 3. Write for sample lengths. Particularly fine above a tile base.



Sample of Sanitas in Decorative Flat Finish

Sanitas Wall Linings and Canvas

Put up in 12 or 48-yard rolls. For reinforcing walls and ceilings and to prevent cracking and crazing.

No. 4996 Sanitas Canvas

An oiled filled stiffened sheeting, 50 inches wide, with a slightly roughened surface, giving a good "tooth" for painting. A good foundation material, economically priced. Has sufficient body for satisfactory use over a wall that is not as smooth as could be wished.

No. 4997 Sanitas Prepared Canvas

A very high grade pyroxylin filled stiffened sheeting, 48 inches wide. On account of this pyroxylin coating, it will resist impurities in plaster longer than regular oiled coatings. Will finish well with two coats of paint, and will give a very desirable "weave" effect on the wall. Fine as a ground for murals.

No. 4998 Smooth Sanitas Lining

A high class prepared muslin with a smooth flatted oil finish. Excellent foundation for all kinds of painting and decorating, especially where a rubbed enamel finish is required for paneled effects.

Sanitas Standards of Measurement

Sanitas is made in 12-yard rolls, 48 inches wide, each roll covering 144 square feet or 16 square yards. One roll of Sanitas covers the same area as 4 single rolls of wallpaper.

Advantages of Sanitas

Washable—Dust and finger marks may be easily removed with a sponge or soft damp cloth. Colors will not run.

Protective — The cloth back prevents wall cracks, due to plaster shrinkage, from breaking through Sanitas.

Permanent — There are many instances of Sanitas remaining on walls for 15 or more years, the only cost of upkeep being that of an occasional cleaning.

For All Types of Buildings — The wide range of styles make it possible to use Sanitas in the decoration of walls and ceilings of residential buildings, hotels, schools, offices, hospitals and steamships.

Adaptable — Sanitas has been used successfully in tropical countries and climates where moisture abounds. Sanitas can be applied to any flat surface. Can be used to cover boards or temporary partitions.

Easy to Apply—Sanitas can be hung by any good wallpaper hanger. No special paste required.

Complete Sanitas Sample Book

A sample book showing the entire line of 150 styles will be sent to any architect, free on request.

Some Outstanding Sanitas Installations

Alden Park Manor, Brookline, Mass.; Detroit, Mich.; Philadelphia, Pa.
Battle Creek Sanitarium, Battle Creek, Mich.
Jewish Hospital, Philadelphia, Pa.
Y. M. C. A. buildings all over the country.
Steamers of the Lloyd Sabaudo Line.
Hotels St. George, Brooklyn; New Yorker and Edison, New York, N. Y.
Ritz-Carlton, Shelburne, Brighton, Atlantic City, N. J.
League of Nations Building, Geneva, Switzerland.
Several hundred homes built by Walter A. McClatchy in Philadelphia, Pa.
Model City of United Steel Corp., Morgan Park, Minn.
Masonic Hospital, Elizabethtown, Pa.

FREDERIC BLANK & COMPANY

SALUBRA WALL COVER COMPANY

New York Central Building
NEW YORK, N. Y.

24 North Wabash Avenue
CHICAGO, ILL.

Salubra Is "Oil Paint-by-the-Roll"

Salubra is a wall covering which, *in one operation,* completes and decorates the structure of an interior wall.

Salubra consists of *oil paint* on a tough parchment background—"Oil Paint-by-the-roll," entirely different from any other wall treatment. It is applied to the wall as easily and as speedily as wallpaper. It supplies color and decorative value, yet has all the sanitary and protective qualities of paint and adds to these a durability and washability that make it extremely practical.

Salubra
REG. U. S. PAT. OFF.
won't fade—will wash

Born in the laboratory, Salubra is the result of years of research and experimentation by prominent European scientists. They created this ideal wall covering by combining utility with beauty—perfecting all the favorable features of paint, its protection and sanitation, with the beauty and warmth of wallpaper—without the disadvantages of either.

Protects the Wall Surface

Salubra's strong parchment background offers an additional protection to the plaster, reduces to a minimum the breaks in the plaster surface, and prevents it from crumbling. It acts as a sort of *protective veneer* to the plaster. Salubra eliminates the unsightly appearance of fire cracks so common in painted wall surfaces, whether new or old. It *seals* the pores of the plaster, becomes part of the structure and covers its defects. Unaffected by climatic conditions, Salubra neither peels nor scales. It is a modern method of treating walls.

Because it is not in direct contact with the plaster, Salubra's paint surface not only wears better but gives the wall finish a softer, warmer appearance. For the same reason, the color values of Salubra do not change through the action of ingredients of the plaster.

Durability That Approaches Permanence

When applied to the wall, Salubra is almost as permanent as any structural material you specify. Without losing its original freshness, color or lustre, it will remain there for 10 or 15 years, or as long as you choose to keep it. In thousands of European hotels, hospitals, homes and royal palaces, actual records show that Salubra still retains all its original charm after 15 or more years of continuous service.

Hundreds of Beautiful Designs from Which to Choose

Architects and interior decorators find in Salubra a range of patterns and colors adapted to every type of interior—designs created by leading European artists.

Owing to the uniformity of the texture of its surface and the high quality of its oil colors which are on the base of zinc, a Salubra painted wall radiates a feeling of softness and warmth which is characteristic and possible only through mechanically perfect workmanship.

Salubra *dresses* the wall. It creates a new luxury in interiors, which permits the architect to complement the interior in complete harmony with the entire structure.

Selection of color or design "in the roll" permits the architect to visualize the finished surface of the wall while the project is still in plan form.

Thousands of distinctive and colorful patterns await your choice.



Scrubbing with Soap and Water Cleans Salubra

Salubra Cannot Fade

The oil colors of Salubra have been specially compounded to resist the action of light and climate. They are unaffected by strong sunlight, artificial light, heat, cold, moisture or dryness. Salubra may be used anywhere and is being used in the tropics, mountain resorts, at seashore hotels, in cities where smoke and soot abound, and in country homes.

The durability of Salubra, combined with its fadelessness, is *insurance against depreciation.* It keeps the walls for a number of years as you planned them and saves your client considerable money and inconvenience through the elimination of periodic redecorations.

Salubra Is Easily Cleaned

Salubra's non-porous, non-absorbent surface simplifies its upkeep. After a certain length of service, scrubbing with a brush, soap and water restores the room to its original freshness and beauty. Cleaning the Salubra-decorated walls is a simple, easy process even for the unskilled.

SALUBRA–"OIL PAINT-BY-THE-ROLL"–IS UNIQUE—DIFFERENT FROM ANY OTHER WALL TREATMENT—A SPECIALTY

(1)

Has all the protective and sanitary advantages of paint.

(2)

Has all the favorable features of the finest wallpaper in colorful and distinctive designs—thousands from which to choose.

(3)

Is non-porous, waterproof, and resists the absorption of dust, soot and odors.

(4)

Unaffected by heat, cold, moisture or dryness.

(5)

Upkeep is the simplest. Scrubbing with brush, soap and water removes spots and restores all the original beauty of coloring and design.



Sample to Show Character, Texture and Quality of Oil Colors

Thousands of decorative patterns available

(6)

Cannot fade under exposure to sun or artificial light—permanent oil colors on waterproof parchment paper.

(7)

Verminproof—hygienic. Sanitary properties have been attested by Institute of Hygiene of London and University of Basle, Switzerland.

(8)

Saves time. Completes the structure of the wall and decorates it in one operation.

(9)

Saves money. Initial cost no more than other good wall treatments. Eliminates need for periodic redecoration—reduces cost of wall maintenance. Figured on cost-per-year basis Salubra saves 75%.

This ease of cleaning is due to the composition of Salubra—the fact that it is non-porous and non-absorbent. Dirt and dust remain on the surface. Since Salubra is waterproof, liquids do not penetrate it. The coloring that causes stains stays on the surface and is removed by washing. Stains that ruin ordinary wall finishes do not affect Salubra. Local spots are removed without injury by applying corresponding dissolvents. Any cleansers that do not contain chemical bleaches and are harmless to textiles (linen) can safely be used in removing spots from Salubra. This washability of Salubra makes for unsurpassed economy of maintenance.

Salubra Is Sanitary

Salubra contains no arsenic or other health-impairing chemicals. Its characteristic surface provides minimum opportunity for germ growth or dust absorption. It does not retain smoke or odors. Exhaustive tests conducted by the University of Basle, Switzerland, have proved that vermin and household insects cannot live on Salubra. Salubra may be washed with many disinfectants without injury.

The exceptional sanitary features of Salubra won for it the *Certificate of the Institute of Hygiene of London.* It is used extensively in many leading European hospitals and sanitariums.

Easily and Quickly Applied

Salubra, though a permanent decoration, can be handled and hung in the same manner as good wallpapers. Any good paperhanger can do the work.

Reduces Final Costs of Wall Decoration

Salubra typifies "the economy of quality." Salubra's initial cost is not higher than good wallpaper or paint and its long life makes its final cost a great deal less.

The average wall is redecorated every two and a half years. For comparison, suppose we consider only ten years as the life of Salubra. In that time an ordinary room would need redecorating four times as compared with once for the Salubra-decorated room. On this basis, Salubra (1) saves the cost of three additional wallpaper or paint bills; (2) saves the cost of three expensive labor charges; and (3) saves the annoyance and inconvenience of redecoration, as well as lost revenue where rooms are rented and must be vacated during redecoration.

But—ten years is by no means the maximum life of Salubra as our records show many instances where Salubra is still in service after fifteen and even twenty years and more. Considering this and the low maintenance cost, the economy of Salubra is almost beyond comparison.

Unique Features Adapt It to All Types of Buildings

Salubra's beauty, the distinctive atmosphere it creates, its economy, its permanence and the speed with which it is applied adapt it to every type of building. Among its users are hotels, clubs, apartments and apartment hotels, restaurants, institutions, hospitals, offices and residences. Each finds in Salubra advantages combined in no other one wall decorating medium.

Co-operation with Architects

In almost every city are Salubra installations which may be seen. Our showrooms are at your disposal for the selection of patterns. You are invited to submit your problems; in solving them, we place at your disposal the *practical experience gathered during nearly forty years in wall decorating problems under the most varied conditions in all parts of the world.* References and endorsements of users will gladly be furnished on request.

A Few of Thousands of Salubra Installations

Hotel Biltmore, New York, N. Y.
Yale Club, New York, N. Y.
Presbyterian Hospital, Medical Center, New York, N. Y.
Elks Club, Lodge No. 22, Brooklyn, N. Y.
Palmer House, Chicago, Ill.
Union League Club, New York, N. Y.
Empire State Club, New York, N. Y.
Eldorado Apts., New York, N. Y.
Edgewater Beach Hotel, Chicago, Ill.
Ritz-Carlton, Boston, Mass.
Chalfonte-Haddon Hall, Atlantic City, N. J.
Hotel Sinton, Cincinnati, Ohio
Hotel Hollenden, Cleveland, Ohio
St. Charles Hotel, New Orleans, La.
Mayflower Hotel, Los Angeles, Cal.
Cliff Towers, Dallas, Tex.
Genessee Valley Trust Co., Rochester, N. Y.
N. Y. Telephone Co., Brooklyn, N. Y.
Ruth Sanitarium, El Monte, Cal.

And hundreds of other prominent installations. Names on request.

COLUMBUS COATED FABRICS CORPORATION

Manufacturers of Wall-Tex, Decorative Oil Coated Fabric Wall Coverings and Oil Coated Fabric Wall Linings

COLUMBUS, OHIO

WALL-TEX—FABRIC WALL COVERINGS OF ENDURING BEAUTY

"The Result of 33 Years' Experience in Making Fine Coated Fabrics"

What Is Wall-Tex?

Wall-Tex is a durable fabric wall covering impregnated with the finest quality oils and pigments.

Wall-Tex is offered in patterns to meet *every* interior decorating plan and, also, plain-colored *lining cloths* as a foundation for further decoration.

What Are the Advantages of Wall-Tex?

Wall-Tex is *durable.* It is *washable.* The *strength* of Wall-Tex helps prevent the ordinary plaster cracks and hides them if they do occur—stretching slightly where necessary. Wall-Tex is *decorative*—and the *fabric texture* enhances the beauty of the many patterns. The surface is *not easily marred.* The finest raw materials, oils and pigments are especially selected for durability. Wall-Tex patterns retain their fresh original colors for years—even after repeated washings. These advantages combine to make Wall-Tex low in cost. Years of service prove its wise economy.

Where Is Wall-Tex Used?

The many patterns make Wall-Tex adaptable to any type of room. Architects and decorators specify Wall-Tex for *homes, apartments, schools, hospitals, churches, offices* and *public buildings*—because Wall-Tex combines washability, durability and economy with the decorative effect wanted.

What Is the Cost of Wall-Tex?

Prices on Wall-Tex vary slightly for different patterns and also vary in different sections of the country. However, the cost of the regular dull-print and smooth-glaze patterns will approximate 75¢ per sq. yd. *put on the wall complete* (this includes cost of material and cost of hanging at the *retail price*).

See your wholesale decorator or decorating contractor for *exact* prices on certain numbers. Although the first cost of Wall-Tex is more than that of ordinary wall coverings, its economy becomes more apparent the longer it is in use.

The Wall-Tex Line

The new line of Wall-Tex washable fabric wall coverings is an exposition of rare charm and beauty. It includes many beautiful patterns, in both dull and glazed finishes—patterns that take their inspiration from old world sources, stimulating modernistic designs of impressive character—a wide variety expressing today's thought in interior decoration.

Wall-Tex designs are adaptable to any room. There are colors, bright and subdued. Soft two-toned patterns. Solid colors and modern pastel tints.

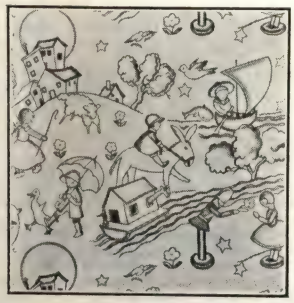
And there are warm colors to brighten cold and gloomy corners in rooms which may have a northern exposure—cool and neutral shades to lend ideal comfort in summer rooms or porches.

As a Foundation for Further Decorating

Wall-Tex has another remarkable advantage. It may at times become desirable to change the wall covering to harmonize with changes in furnishings or decorative schemes. Even after years of service, Wall-Tex provides a perfect foundation for further decorating and painting. Highly artistic effects are obtainable over it.

Easy to Hang

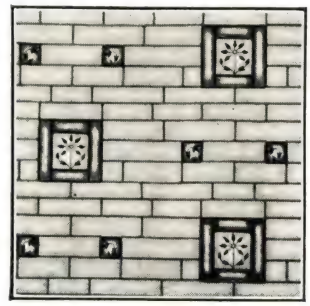
Wall-Tex is hung the same way as wallpaper. New walls should be sized to stop suction. Previously painted or calcimined walls should be thoroughly washed and then similarly sized. Wall-Tex is hung with any good quality paperhanger's paste. The edges are butted together and then rolled with a felt roller.



Decorative Wall-Tex No. 3254
Wall-Tex offers this cheerful nursery pattern in a pleasing color combination



Decorative Wall-Tex No. 3258
A gay and colorful floral bedroom pattern



Decorative Wall-Tex No. 3922
A smooth glaze pattern for kitchen or bath which may be used as an all-over pattern or above a plain-colored Wall-Tex wainscoting



Decorative Wall-Tex No. 3283A

An attractive Wall-Tex scenic pattern in dull-embossed finish and various gold print shadings. Especially good for panel work in halls, living rooms and dining rooms



Satinesque Wall-Tex No. 803

Note the closely woven fabric and fine surface embossing of this pattern. For halls, living rooms and dining rooms; for theatres and hotels



Decorative Wall-Tex No. 3414A

A multicolor, modern floral pattern in colorful tones. For use in breakfast rooms, bedrooms, kitchens or baths

Quantities Required

Wall-Tex rolls are 12 yds. long and 48 ins. wide. This is 16 sq. yds. of material, equal to four single rolls of wallpaper. The number of rolls required may be ascertained by measuring the distance around the room in feet, multiplying it by the height of the room in feet, deducting 20 sq. ft. for each ordinary sized opening, and dividing the net result by 128. For the ceiling, multiply the length by the width in feet and divide by 128. Where borders are desired, the yardage necessary is determined by dividing the distance around the room by 3.

Send for Complete Sample Book

We shall be glad to send the latest sample book of new Wall-Tex patterns to those interested and to supply any desired information incident to the use of this decorative and washable fabric wall covering.

Wall-Tex Lining Cloths

These high-grade coated fabrics provide an even, unbroken background for paint work and give the effect of painted canvas at very low cost. Wall-Tex Lining Cloths are hung the same as Wall-Tex decorative patterns, as explained on previous page.

No. 3099—A three-coat foundation for further paint work. Especially adaptable where paint coat must exactly match shades in woodwork. An ideal foundation for plastic paint and rough plaster finishes.

No. 3098—A dull-smooth white cloth especially desirable for paint work, tiffany finishes and stenciled paneling.

No. 3000—A dull-embossed white cloth that can be used without further decorating or, as a base for any kind of painted finish, will give a slightly rougher texture than No. 3098.

No. 3097—A stiffened canvas that makes a splendid foundation for paint with a result that looks like a stipple or canvas effect. See sample on right.

Rolls Required for Average Sized Rooms

This chart tells how many Wall-Tex rolls, 48 ins. wide and 12 yds. long, are needed for some ordinary sized rooms.

Size of room, ft.	Rolls required in rooms having the following ceiling heights:					Rolls required for ceilings	Yards of border needed
	7 ft.	8 ft.	9 ft.	10 ft.	11 ft.		
8 x 12	2¼	2½	3	3¼	3½	¾	14
8 x 14	2½	2¾	3¼	3½	4	1	15
10 x 10	2¼	2½	3	3¼	3½	1	14
10 x 12	2½	2¾	3¼	3½	4	1	15
10 x 14	2¾	3	3½	3¾	4¼	1¼	16
10 x 16	3	3¼	3¾	4¼	4½	1½	18
12 x 12	2¾	3	3½	3¾	4¼	1¼	16
12 x 14	3	3¼	3¾	4¼	4½	1½	18
12 x 16	3¼	3½	4	4½	5	1¾	19
12 x 18	3½	3¾	4¼	4¾	5¼	1¾	20
14 x 14	3¼	3½	4	4½	5	1¾	19
14 x 16	3½	3¾	4¼	4¾	5¼	2	20
14 x 18	3½	4	4½	5	5½	2	22
16 x 16	3½	4	4½	5	5½	2¼	22



Wall-Tex Stiffened Canvas No. 3097

Wall-Tex stiffened canvas makes a perfect foundation for further painting and decorating. A rough decorative canvas effect is the result

Wall-Tex Is the Result of 33 Years' Experience in Making Fine Coated Fabrics

KENT-COSTIKYAN

Importers of Antique and Modern Rugs from Persia, India, China and Bulgaria, Seamless Carpets in Solid Colors, Rugs Woven to Order in Europe and the Orient

TELEPHONE
MUrray Hill 2-0113

485 Fifth Avenue, Second Floor
(Opposite Public Library)
NEW YORK, N. Y.

BRANCH OFFICES

BOSTON, MASS., 420 Boylston Street
CHICAGO, ILL., 1811 Heyworth Building
PHILADELPHIA, PA., 1616 Walnut Street
LOS ANGELES, CAL., 816 South Figueroa Street
SAN FRANCISCO, CAL., Hotel Granada (Resident Representative)

SAMPLE CASES

CLEVELAND, OHIO, Architects Exhibit Inc., Hanna Building and Building Arts Exhibit, Builders Exchange Building
BUFFALO, N. Y., Architects and Builders Exhibit Inc., One Niagara Square
NEW YORK, N. Y., Architects' Samples Corp., 101 Park Avenue
DETROIT, MICH., Architects Exhibit Inc., Barlum Tower
LOS ANGELES, CAL., Architects Building Material Exhibit, 5th and Figueroa Streets

The House of Kent-Costikyan

The firm of Kent-Costykyan is one of the oldest exclusive Rug Importing Houses in New York today. Since 1886, we have been fitting the finest homes and institutions of America with hand-woven floor coverings. This experience of over forty years, largely in co-operation with the most artistic men and women in the architectural and decorative professions, qualifies us, as probably no other firm, to meet the most exacting requirements of service, and to find most expeditiously the rugs or carpets appropriate in design, color, price and quality to any particular decorative scheme submitted.

TRADE-MARK

During this time we have fitted all conceivable types of rooms with high grade artistic floor coverings—sometimes with rugs furnished from stock, sometimes with rugs made to order, sometimes with plain carpets cut from rolls. These spaces include club and lodge rooms; directors' rooms and officers' platforms of banks; lobbies and lounges of hotels and apartment houses; reception rooms and executive offices; automobile and piano salesrooms; and fine private residences throughout in all types of decoration and color schemes. Suffice it to say that, given a reasonable time, we can solve any floor-covering problem in a manner that will give lasting satisfaction.

Rug Contracts

Rug contracts are usually let as a part of the decorating contract since they comprise an important part of the interior. Under such an arrangement the architect may be assured of Kent-Costikyan floor coverings being used by making this a condition under which the decorating contract is awarded. Architects and general contractors, however, are coming more to making the rug contract and other background elements such as paneling and lighting fixtures separate from the decorating contract with a view of furnishing the decorator or owner with a background on which to assemble the various interior furnishings. In such a case, we are prepared to quote direct to the general contractor or owner and can guarantee the same satisfactory artistic result under the direction of the architect as we do when working in co-operation with an interior decorator.

Form for Specifying Kent-Costikyan Rugs or Carpets

"Rugs and Carpets of Kent-Costikyan Weave in the qualities specified are to be ordered sufficiently in advance so that delivery can be made before ..... (Give approximate date of completion of building.)

Room	Quality	Main Color	Size of Rug or Carpet	Approx. sq. yd.	Floor Margin
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....

"Colored designs are to be prepared in accordance with the architectural period style of the above rooms under the supervision of the architect and submitted to the architect and owner for final approval together with quality sample of the weaves specified and wool color tufts."

Specifications should be accompanied with full set of blueprints and elevations of rooms to be covered.

SCHEDULE OF SPECIAL ORDER QUALITIES

Type	Qualities	Pile and texture	Best adapted to designs of	Price range (list per sq. yd.)	Delivery (N. Y.)	Maximum seamless width, ft. (no limit to length)	Where made
Spanish Handtuft	Pollensa Sierra, Seville, Oporto, Corsica	Medium and high pile, rough dull texture, chiseled design	Plain, Two-tone All-over, Spanish, French Floral	$27 to $63	4 to 6 months	48	Spain
Oriental Spanish	Hispano, Kentshah, VI, Kentshah Super	Medium and high pile, smooth lustrous texture	Spanish	$45 to $90	4 to 8 months	40	In the Orient
European Handtuft	Tyrol	High pile, pebbly texture	Plain with figured borders, Hooked Rug effects, Spanish	$30 to $36	4 to 6 months	40	Germany and Austria
European Handtuft	Alsatian	High pile, smooth dull texture	French Floral, Period Rugs	$37 to $90	4 to 6 months	40	Germany and Austria
Modern Art	Alsatian and Kentshah Moderne	Medium or high pile, dull smooth or lustrous texture	Modern art effects	$54 to $70	4 to 8 months	40	Europe and the Orient
Chinese	Mongol	Medium or high pile, smooth lustrous texture	Plain, Chinese and Floral effects	$24 to $90	6 to 8 months	40	China
Oriental	Kentshah	Medium or high pile, smooth lustrous texture	Two-tone All-over, Karabagh, Sarouk, Floral Savonneries, Ispahan	$54 to $135	6 to 8 months	40	In the Orient
Oriental	Kashanoor and Kerman	Low pile, fine weave, dull antique or lustrous texture	Kerman, Sarouk, Fereghan and Ispahan	$72 to $180	6 to 12 months	40	In the Orient
Antique Reproductions	Ispahan and Fereghan	Fine weave, low pile, dull antique texture	Lavehr Kerman, Fereghan, Ispahan, Kuba	$72 to $180	12 to 18 months	30	In the Orient
French Aubusson	Cressy	Tapestry weave	French Period Types	$90 to $240	6 to 8 months	45	France
French Savonnerie	Orleans	High pile, fine dull texture, blended	French Period Types	$82 to $500	6 to 8 months	45	France
Savonnerie Reproductions	Floral Spanish, Alsatian and Kentshah	Medium or high pile, chiseled design, dull or lustrous texture	French Period Types	$36 to $120	4 to 10 months	30	Europe and the Orient
American Hooked	Gloucester, St. John	Low pile, pebbly antique texture	Early American	$30 to $81	3 to 6 months	15x12	Canada

Designs

During our many years in business some of the finest rugs of all times have gone through our establishment, and in our design volumes will be found beautiful color sketches of the choicest of these rugs. These sketches, of which we have accumulated several thousand during our forty years in business, are the foundation from which the rug to be made to order is started. Our clients select one that they feel most appropriate, and then our designer changes or modifies this in color or design to fit the exact taste of decorator and owner. The line of qualities carried and the range of possibilities in this department are so great that they can only be appreciated by a visit to our floor, where all designs and quality samples can be inspected. For those who find this impossible, however, these pages, supplemented by quality samples as orders come up, will be found adequate in most cases.

Samples

Samples suitable to show to prospective customers, complete in colors and qualities carried, will be sent upon request. Our samples are made in a standard size, 3x2 ft., and after serving their use as samples can fit very well in doorways, alcoves, etc. Samples are expensive to make up, and we are obliged to make a charge for them, if not returned within 30 days. However, we are willing to refund payments on all samples at any time, provided not damaged. We recommend that only samples be ordered in the types of merchandise for which it is felt there is a call in your own territory. Prices for 3x2 samples equal one-third of the list square yard price on each quality.

Specially Designed and Emblem Rugs

For Clubs, Fraternities, Lodges, Banks and Hotels
(Not Sold for Private Homes)

Types—Alsatian E—High pile, pebbly texture.
Alsatian EE—High pile, smooth texture.
Spanish E—Medium pile, rough texture.
Spanish EE—High pile, rough texture.
Kentshah E—High pile, Oriental weave, dull finish.
Kentshah EE—High pile, Oriental weave, lustrous finish.
Deliveries—4 to 10 months, according to size.
Color Range—Made in any design or color, with emblem woven in.
Size Range—Unlimited seamless.
Price Range—$18 to $36 per sq. yd. (On contract.)
Samples—(With emblems) 3x2 ft., $10.00 each.

YARDAGE CALCULATOR

Width in feet	Length in feet																										
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
3	2	2.3	2.7	3	3.3	3.7	4	4.3	4.7	5	5.3	5.7	6	6.3	6.7	7	7.3	7.7	8	8.3	8.7	9	9.3	9.7	10	10.3	10.7
4	2.7	3.1	3.5	4	4.4	4.9	5.3	5.8	6.2	6.7	7.1	7.5	8	8.4	8.9	9.3	9.8	10.2	10.7	11.1	11.5	12	12.4	12.9	13.3	13.8	14.2
5	3.3	3.9	4.4	5	5.5	6.1	6.7	7.2	7.8	8.3	8.9	9.4	10	10.5	11.1	11.7	12.2	12.8	13.3	13.9	14.4	15	15.5	16.1	16.7	17.2	17.8
6	4	4.7	5.3	6	6.7	7.3	8	8.7	9.3	10	10.7	11.3	12	12.7	13.3	14	14.7	15.3	16	16.7	17.3	18	18.7	19.3	20	20.7	21.3
7	4.7	5.4	6.2	7	7.8	8.5	9.3	10.1	10.9	11.7	12.4	13.2	14	14.8	15.5	16.3	17.1	17.9	18.7	19.4	20.2	21	21.8	22.5	23.3	24.1	24.9
8	5.3	6.2	7.1	8	8.9	9.8	10.7	11.5	12.4	13.3	14.2	15.1	16	16.9	17.8	18.7	19.5	20.4	21.3	22.2	23.1	24	24.9	25.8	26.7	27.5	28.4
9	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
10	6.7	7.8	8.9	10	11.1	12.2	13.3	14.4	15.5	16.7	17.8	18.9	20	21.1	22.2	23.3	24.4	25.5	26.7	27.8	28.9	30	31.1	32.2	33.3	34.4	35.5
11	7.3	8.5	9.8	11	12.2	13.4	14.7	15.9	17.1	18.3	19.5	20.8	22	23.2	24.4	25.7	26.9	28.1	29.3	30.5	31.8	33	34.2	35.4	36.7	37.9	39.1
12	8	9.3	10.7	12	13.3	14.7	16	17.3	18.7	20	21.3	22.7	24	25.3	26.7	28	29.3	30.7	32	33.3	34.7	36	37.3	38.7	40	41.3	42.7
13	8.7	10.1	11.5	13	14.4	15.9	17.3	18.8	20.2	21.7	23.1	24.5	26	27.4	28.9	30.3	31.8	33.2	34.7	36.1	37.5	39	40.4	41.9	43.3	44.8	46.2
14	9.3	10.9	12.4	14	15.5	17.1	18.7	20.2	21.8	23.3	24.9	26.4	28	29.5	31.1	32.7	34.2	35.8	37.3	38.9	40.4	42	43.5	45.1	46.7	48.2	49.8
15	10	11.7	13.3	15	16.7	18.3	20	21.7	23.3	25	26.7	28.3	30	31.7	33.3	35	36.7	38.3	40	41.7	43.3	45	46.7	48.3	50	51.7	53.3
16	10.7	12.4	14.2	16	17.8	19.5	21.3	23.1	24.9	26.7	28.4	30.2	32	33.8	35.5	37.3	39.1	40.9	42.7	44.4	46.2	48	49.8	51.5	53.3	55.1	56.9
17	11.3	13.2	15.1	17	18.9	20.8	22.7	24.5	26.4	28.3	30.2	32.1	34	35.9	37.8	39.7	41.5	43.4	45.3	47.2	49.1	51	52.9	54.8	56.7	58.5	60.4
18	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64
19	12.7	14.8	16.9	19	21.1	23.2	25.3	27.4	29.5	31.7	33.8	35.9	38	40.1	42.2	44.3	46.4	48.5	50.7	52.8	54.9	57	59.1	61.2	63.3	65.4	67.5
20	13.3	15.5	17.8	20	22.2	24.4	26.7	28.9	31.1	33.3	35.5	37.8	40	42.2	44.4	46.7	48.9	51.1	53.3	55.5	57.8	60	62.2	64.4	66.7	68.9	71.1
21	14	16.3	18.7	21	23.3	25.7	28	30.3	32.7	35	37.3	39.7	42	44.3	46.7	49	51.3	53.7	56	58.3	60.7	63	65.3	67.7	70	72.3	74.7

Width in feet	Length in feet																										
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55				
3	11	11.3	11.7	12	12.3	12.7	13	13.3	13.7	14	14.3	14.7	15	15.3	15.7	16	16.3	16.7	17	17.3	17.7	18	18.3				
4	14.7	15.1	15.5	16	16.4	16.9	17.3	17.8	18.2	18.7	19.1	19.6	20	20.4	20.9	21.3	21.8	22.2	22.7	23.1	23.6	24	24.4				
5	18.3	18.9	19.4	20	20.6	21.1	21.7	22.2	22.8	23.3	23.9	24.4	25	25.6	26.1	26.7	27.2	27.8	28.3	28.9	29.4	30	30.6				
6	22	22.7	23.3	24	24.7	25.3	26	26.7	27.3	28	28.7	29.3	30	30.7	31.3	32	32.7	33.3	34	34.7	35.3	36	36.7				
7	25.7	26.4	27.2	28	28.8	29.6	30.3	31.1	31.9	32.7	33.4	34.1	35	35.8	36.6	37.3	38.1	38.9	39.7	40.4	41.1	42	42.8				
8	29.3	30.2	31.1	32	32.9	33.8	34.7	35.6	36.4	37.3	38.2	39.1	40	40.9	41.8	42.7	43.6	44.4	45.3	46.2	47.1	48	48.9				
9	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55				
10	36.7	37.8	38.9	40	41.1	42.2	43.3	44.4	45.6	46.7	47.8	48.9	50	51.1	52.2	53.3	54.4	55.6	56.7	57.8	58.9	60	61.1				
11	40.3	41.5	42.8	44	45.2	46.4	47.7	48.9	50.1	51.3	52.6	53.8	55	56.2	57.4	58.7	59.9	61.1	62.3	63.6	64.8	66	67.2				
12	44	45.3	46.7	48	49.3	50.7	52	53.3	54.7	56	57.3	58.7	60	61.3	62.7	64	65.3	66.7	68	69.3	70.7	72	73.3				
13	47.7	49.1	50.5	52	53.4	54.9	56.3	57.8	59.2	60.7	62.1	63.6	65	66.4	67.9	69.3	70.8	72.2	73.7	75.1	76.6	78	79.4				
14	51.3	52.9	54.4	56	57.6	59.1	60.7	62.2	63.8	65.3	66.9	68.4	70	71.6	73.1	74.7	76.2	77.8	79.3	80.9	82.4	84	88.6				
15	55	56.7	58.3	60	61.7	63.3	65	66.7	68.3	70	71.7	73.3	75	76.7	78.3	80	81.7	83.3	85	86.7	88.3	90	91.7				
16	58.7	60.4	62.2	64	65.8	67.6	69.3	71.1	72.9	74.7	76.4	78.2	80	81.8	83.6	85.3	87.1	88.9	90.7	92.4	94.2	96	97.8				
17	62.3	64.2	66.1	68	69.9	71.8	73.7	75.6	77.4	79.3	81.2	83.1	85	86.9	88.8	90.7	92.6	94.4	96.3	98.2	100.1	102	103.9				
18	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110				
19	69.7	71.8	73.9	76	78.1	80.2	82.3	84.4	86.6	88.7	90.8	92.9	95	97.1	99.2	101.3	103.4	105.6	107.7	109.8	111.9	114	116.1				
20	73.3	75.5	77.8	80	82.2	84.4	86.7	88.9	91.1	93.3	95.6	97.8	100	102.2	104.4	106.7	108.9	111.1	113.3	115.6	117.8	120	122.2				
21	77	79.3	81.7	84	86.3	88.7	91	93.3	95.7	98	100.3	102.7	105	107.3	109.7	112	114.3	116.7	119	121.3	123.7	126	128.3				

Note: To estimate approximate square yards, take length of rug or carpet in feet in top line and width in extreme left column; the cross reference figure gives the number of square yards (carried out to one decimal). On length or width count 6 in. or more as next higher foot; 5 in. or less as next lower. Remember waste must be calculated in figuring for seamless plain carpets.

TYPES OF RUGS SUITABLE FOR DIFFERENT ROOMS

We take the utmost care to have any rugs we place fit their surroundings in perfect harmony. Oriental rugs, however, come in such great variety and the tastes of individual home owners are so different, that it is impossible to say definitely that a particular kind of rug will fit some special type of decoration and satisfy those who are to live with it. The following suggestions are therefore given only with a view of being helpful and saving time for those who are looking for coverings to furnish their homes.

To attain color harmony it is well to carry a fair sized sample of the draperies or the predominating color of the room. This can then be thrown on the various rugs or samples that are shown. If there is a blue print, this should be brought too. The following information will also be helpful in selecting the proper rugs—exact size of room, with allowance for fireplace, radiators, etc., kind of floor and woodwork, and type of furniture in the room.

The most practical way to attain perfect results in the furnishing of any room is to secure the floor covering in advance of any decorations, as it is comparatively simple to select fabrics and draperies and furniture coverings to harmonize with a rug, while it involves a much greater task to select a rug that may harmonize in every respect with the fabrics that have been purchased in advance.

Living Rooms—Being the most used, should have the best rugs. Warmth, rest and dignity are usually wanted, and the rug selected should give this feeling. In a Jacobean or Elizabethan living room or study, Oriental rugs in small repeat, all-over patterns, such as the Fereghan, Khorassan, Joshaghan, Serebend and some Bidjar weaves, are very appropriate. In living rooms done in Spanish or Italian style, rugs of bolder pattern, such as Ispahans, Oushaks, Cabistans, Kubas, or reproductions of the old Spanish rugs can be used. With the more delicate furniture of the Georgian Period, Sarouk, Kerman and Kashan Carpets are used a great deal, and if carefully selected are always beautiful and effective.

Dining Rooms—Need a durable, practical rug. A medallion rug in balance with the center table can often be used. Chinese rugs have improved wonderfully in quality during the last few years, have a cheerful tone, and fit with many types of dining room furniture, such as Chippendale or Duncan-Fyfe pieces, and in fact with any type of furniture in which simple lines predominate. In rooms more elaborately decorated, Kerman rugs, which are very graceful in pattern, can be used if not too expensive for the appropriation.

Rooms Done in French Style—Require rugs of light colors and graceful and charming designs. Many types of Orientals are unsuitable for such rooms, but Kerman rugs, which are the perfection in grace and beauty, and in which floral designs and decorative colors are a feature, can be placed with excellent effect. It is difficult to find a selection of European rugs in stock to fit such rooms, so our firm has perfected an organization whereby such rugs in Aubusson (tapestry weave) or Savonnerie (high pile weave) or any other handtuft floor covering can be woven to order in their native country in four months' time. We strongly recommend, where customers want European rugs, that they have these made to order, as it is very difficult to get satisfactory results in any other way.

Colonial Rooms—Done in early American Style require floor coverings that are simple in design. For this reason we often recommend Chinese rugs which give the plain effect combined with delightful motifs and rich colors. Plain carpets are of course ideal for such rooms. It should not be felt, however, that Persian rugs will never fit Colonial rooms. Kerman rugs, with their wonderful adaptability to almost any scheme of decoration, will very often make a beautiful setting in a living or dining room, and in the lighter tones many other Oriental rugs can be found that will look very well in an early American room. For bedrooms of this period with old maple, pine or cherry furniture nothing is more appropriate or charming on the floor than antique hooked rugs, of which we have a carefully selected stock.

Hall Rug—Should be bought to stand wear. As a hall is often dark and the rug is called upon to get more than the usual share of dust, a strong pattern (panel or medallion) is effective. The color and design should strike a note of welcome. Consideration need not be given to rugs in adjoining rooms unless they lay very close to the hall rug. Variety usually lends charm to a home, and each room can be treated in a different way, provided some unity is manitained. Among the rugs suited for halls are the Kurdistan rugs, the Bidjar rugs, the Afghan, Beshir and Bokhara rugs, and Chinese rugs.

Rooms Done in Modern Art—Usually Sun Porches, Dens, Boudoirs or Bedrooms—For these we offer a choice of three distinctive floor coverings which adapt themselves to the background of this style of decorating in a most perfect manner. Our Kentshah Hand-woven carpet, deep napped, lustrous in texture in subtly restrained colors, is available for immediate delivery. Seamless to 21 ft. wide.

For a more colorful background, our modern art carpet in a mellow mixture of blue, rose, green and gold is available.

For special decorative effects we weave to order rugs carrying out in each detail the motifs and colors characteristic of the surroundings. We take particular pains to get the texture and color shadings perfect for rooms of this character.

Bedrooms—Usually require light colored rugs. The types generally chosen for this purpose are Chinese rugs in light pastel shades, Kerman and other Persian rugs in light floral, artistic patterns, and European rugs. Plain carpets are used a great deal, and our Kentshah plain hand-woven carpet, in softness and richness, is unsurpassed for this use.

Very often small choice Orientals can be laid over a plain carpet background in a bedroom with beautiful artistic effect.

Use of Scatter Rugs—Small scatter rugs have the advantage of being very easy to handle, and if placed carefully can be made very effective. They are also reasonable in price. It is important they should be placed properly and made full use of, i.e., parallel to the walls and not covered up by furniture. On a high polished floor, du Pont rug anchor will hold them flat in place. A more satisfactory method, used by many decorators, is to put plain carpet down as a background, and then add the touches of color with small choice Orientals. Scatter rugs can be used effectively in ranch homes and on tile floors.

Miscellaneous Rooms—For porches, light colored rugs in coarse texture are the best, and Chinese or Spanish rugs fill this requirement. For dens, we often sell rugs of the Afghan and Bokhara types, in dark, rich red colors and virile designs. These rugs are favored particularly by men, and are very appropriate for men's rooms.

Advantages of Hand-woven Floor Coverings

Our Oriental rugs and hand-woven plain carpets, while more expensive than machine-made domestic floor coverings, have certain advantages.

(1) They give a home atmosphere of hospitality that is impossible to get with other floor coverings.

(2) They excel in durability and investment value. It is a fact, proven by many rugs sent to us by estates of former clients, that a good Oriental will last a lifetime in the home and for ten years at least under condition of heavy hotel wear. It is also well known that in the liquidation of estates the Oriental rugs bring a larger per cent of their original cost than any other property.

(3) They can be readily repaired without detection, native weavers in America simply restoring damaged spots by hand in the original weave.

(4) Their texture is the most attractive and shows no footprints, an objection often raised to chenille and other machine-made carpet.

(5) They can be made seamless to fit exactly any decorative scheme and in perfect sizes.

Rugs Made to Order for Period Rooms

The majority of home builders, architects and decorators do not realize the wonderful decorative results now possible in having practically any type of hand-made rugs, including Orientals, made to order. All with decorative experience will admit that the floor covering is a most important part of the foundation scheme of a room (which should be given consideration at the same time that the walls and ceilings are planned), yet the tendency is to let the selection of rugs, which are fully as much a background as the walls, remain until the very last even after furniture and draperies have been selected. The final artistic result under such a plan of decorating is very likely to be disappointing. The ideal rugs for the room will more than likely be the wrong size or the wrong color or inappropriate in design or too high in price and the unhappy decorator will spend many vexatious months hunting the market for something suitable. All these difficulties can be overcome by meeting this problem when it should be met—viz: immediately on completion of the blue prints. There will then be time to carefully plan the rugs for the important rooms in the same manner that the fixtures and other parts of the background have been planned.

The success of such work lies largely in the hands of the architect, since he alone can visualize the various rooms as they will appear on completion and he is therefore in the best position to make the proper selection from the various designs and samples submitted. Moreover, the architect is probably the only adviser the owner has to see at the time of completing the blue prints—and if the best results are to be attained the rugs must be planned then. The architect will be well repaid for his efforts in controlling the selection of floor coverings, as the spirit of the home, so often spoiled after the architect has completed the construction, will be carried out to include the interior furnishings. The rugs will be perfect in size, harmonious in design and color, and of a style and texture suited to the home and room which is being planned.

In order to make our suggestions we must be supplied with a set of blue prints including elevations, with the approximate appropriation for rugs and with the predominating colors desired. We then submit colored designs, quality samples and very often small rugs which can be modified to suit the owner's, architect's and decorator's taste exactly. The final approved sketch made up by our designers is sent to our looms in Persia, India, China or Europe, and within the time specified the completed rug will arrive in New York. In case the time available is not sufficient we loan suitable temporary rugs without extra charge pending final delivery. Rugs made to order in this manner having no carrying charge are reasonable in price, and the owner is assured of something unique without duplication.

PLAIN CARPET DEPARTMENT

(Including Kentshah Acoustical Carpet)

Price Range—$9.00 to $48.00 per Sq. Yd.

Kentico Seamless Chenille

A durable carpet of artistic pebbly texture, suitable for homes and offices.

Delivery—Immediate.

Range of Colors in Stock—Beige,* sand glow, faun, mellow gold,* walnut,* taupe lake,* taupe, rose taupe, briar, henna,* raisin, jade green,* nile green,* green,* peach,* rose,* blue,* orchid. Any color can be specially matched on 6 weeks' delivery.

Widths in Stock—9, 12, 15 ft. (all stock colors) and 18 ft. (starred colors only.)

Cut Order Price—$11.00 per sq. yd. (waste included). No extra charge for 15 and 18 ft. widths. Binding extra.

Seamless Chenille Rugs Made to Order

Delivery—2 to 14 weeks.

Range of Colors—Faun, taupe, rose taupe, taupe lake, peach, gold, ashes of roses, Burma rose, crimson, Castillian red, mulberry, burgundy, copper, briar, raisin, orchid, blue, torquoise blue, French blue, antique blue, jade green, sage green, forest green, black.

Maximum Width—30 ft.

Price Range—$12.00 to $58.00 per sq. yd.

Qualities (from Cheapest to Most Expensive)—Ayre, medium pile; Shetland, medium pile; Sutherland, low pile; Essex, high pile; Tudor, medium pile; Orkney, medium pile; Argyle, medium pile; Kentico, medium pile; Wight, high pile.

Patterns Available—

Plain—Entirely plain rugs in any color.

Band Borders—Entirely plain centers, with any arrangement of plain lines or band borders in any color combination.

Two-tone Effects—Simple two-tone designs with lines, band or simple figured border. Repeat of design limited to 4½ in. For special designs there is an extra charge of $50.00.

Type K—More elaborate designs, with designs of repeats up to 9 in. Any color variety can be used. For special designs there is an extra charge of $125.00.

Designs of more elaborate nature than Type K can also be made, but they should be submitted to us for special estimate.

Borders and All-over Effects for Seamless Plain Carpets

Block print borders or all-over effects have the great advantage over woven-in borders of quick delivery; the artistic effect is equal, if not superior, and we guarantee absolute satisfaction as to wearing qualities and fastness of color.

Delivery—Block print borders or all-over designs, 3 weeks; woven-in borders or all-over designs, 3 to 6 months.

Range of Colors and Qualities—Kentico Seamless Chenille in beige, sand glow, faun, mellow gold, walnut, taupe lake, taupe, rose taupe, briar, henna, raisin, jade green, Nile green, green, peach, rose, blue, orchid; Kentshah Seamless Plain Hand-woven Carpet in beige, camel, taupe or beaver.

Special colors made to match sample, in Kentshah quality $8.00 extra per sq. yd. 5 weeks delivery.

Widths in Stock—Kentico Chenille, 9, 12, 15, 18 and 24 ft.; Kentshah carpet, 9, 12, 15, 18 and 21 ft. (Wider than above must be made to order.)

Price Range—For borders $5.00 to $10.00 per lin. yd. in addition to price of carpet. For all-over pattern $5.00 to $10.00 per sq. yd. in addition to price of carpet.

Flat extra charge for special designs; one or two colors $50.00; three or four colors $100.00.

Kentshah Hand-woven Carpet

In addition to Chenille, to meet the large demand for plain floor coverings and still retain the quality in texture and durability of Orientals, we have perfected our Kentshah Plain Seamless Hand-woven Carpet. This we carry in stock for 2 to 5-week delivery in widths of 9, 12, 15, 18 and 21 ft., in four standard neutral shades. This goods, unlike machine-made carpet, can be dyed in the piece to any other color desired, and its texture blends perfectly with Orientals adjoining. It has a delicate sheen that enhances with wear and shows footprints less than any other plain fabric. It can be cut in exact sizes desired, in either dull (unwashed) finish or silky (washed) finish, with or without fringe. Special colors can be matched.

Acoustical Properties of Kentshah Carpet

Laboratory tests conducted under the supervision of the Western Electric Company and Professor Floyd Rowe Watson prove that Kentshah carpet, when used in conjunction with Ozite lining, is greatly superior to ordinary carpet in both depth and uniformity of sound absorption. Under practical working conditions Kentshah carpet has been found to give the most perfect reception of music or speaking, eliminating, as far as the floor is concerned, echoes and reverberations. These properties make this carpet ideal for installation in theatres, auditoriums, broadcasting rooms, or in music and organ rooms of private residences. The results of these tests with absorption coefficients are given below.

Illustrated booklet "S" of rug installations will gladly be sent on request.

FLOYD ROWE WATSON
705 South Lincoln Avenue
URBANA, ILLINOIS
PROFESSOR OF EXPERIMENTAL PHYSICS
UNIVERSITY OF ILLINOIS
Consultant on Acoustics

November 15, 1930

Mr. Kent. R. Costikyan,
485 Fifth Avenue,
New York, N. Y.

Dear Mr. Costikyan:

The report of our Acoustical Absorption tests follow:

Acoustical Absorption Coefficients per Pitch of Sound

Pitch of Sound	256	512	1024	2048
Ordinary carpet and Ozite.	.13	.35	.60	.65
Kentshah carpet and Ozite.	.35	.37	.43	.47

The plain carpet with Ozite has a low coefficient for the low pitch and high coefficients for the high pitch, whereas the Kentshah carpet with Ozite has a fairly uniform absorption over the four pitches. This uniformity is very desirable, and is preferred over the unequal absorption of the plain carpet. For broadcasting rooms, for example, the uniform absorption is desired; also, in music studios and auditoriums generally, a uniform absorption that acts on the low pitches with about the same efficiency as on the high pitches will be chosen over the unequal absorption.

In my opinion your Kentshah carpet, particularly with the Ozite lining, will give a satisfactory absorption in rooms, and its efficiency is considerably greater than the values usually assigned to carpets.

Let me know if you have any further directions.

Sincerely,
F. R. Watson
(Signed)

ELECTRICAL RESEARCH PRODUCTS INC.
SUBSIDIARY OF
WESTERN ELECTRIC COMPANY
250 West 57th Street
NEW YORK
ACOUSTICAL CONSULTING DEPARTMENT

June 16, 1931

REPORT OF ACOUSTIC ABSORPTION TESTS ON KENTSHAH CARPET

This report covers the results of acoustic absorption measurements on Kentshah Carpet laid flat on the floor and over ¼" and ½" Ozite Carpet Cushion. Tests were conducted by the standard reverberation chamber method and measurements of reverberation time in the sound chamber were made by an electrical method. The test was made with 100 square feet of carpet.

Coefficients of absorption were obtained as follows:

Absorption Coefficients

Frequency cycles per second	Flat	Over ¼ in. Ozite	Over ½ in. Ozite
70	.15	.10	.19
125	.11	.07	.19
250	.08	.41	.45
500	.27	.40	.41
1000	.54	.53	.55
2000	.58	.63	.65
4000	.65	.66	.66

ELECTRICAL RESEARCH PRODUCTS INC.
By S. K. Wolf
(Signed)
Acoustical Consulting Manager

AMERICAN PIANO COMPANY
NEW YORK CITY
RESEARCH LABORATORY
29 West Fifty-seventh Street

June 27th, 1928

Mr. Kent R. Costikyan,
485 Fifth Avenue,
New York, N. Y.

Dear Mr. Costikyan:

It gives me a great deal of pleasure to answer your letter of June 23rd in which you ask me how the Kentshah carpet, which you sold me, proved out acoustically.

This carpet is in our Music Room and has given marvelous results especially for piano music. In our business we have numerous rooms which are carpeted in different ways, but none is a comparison to my home where this carpet is used. I cannot say enough in favor of it.

With kindest regards, I am
Cordially yours,
AMERICAN PIANO COMPANY,
C. F. Stoddard
(Signed)
Research Laboratory

MOHAWK CARPET MILLS

MILLS AT
AMSTERDAM, N. Y.

GENERAL SALES OFFICES: 295 Fifth Avenue, NEW YORK, N. Y.

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SEATTLE, WASH.

THE ARCHITECT'S INCREASING INTEREST IN FLOOR COVERINGS

Every year, architects are taking more interest in the selection of rugs and carpets to be used in the buildings they have created. This is probably due to two factors: the client's desire to take advantage of the architect's knowledge of decorative principles; and the architect's desire to prevent his creations from being impaired by the use of floor coverings that are unsuitable in color, design or quality.

There has developed a growing appreciation of the fact that a careless choice of furnishings may spoil the effect of the finest interior architecture and surely no one is better fitted to assist in the choice of furnishings that will reflect the spirit of a fine building than the architect who created it.

Therefore the architect's advice in the selection of floor coverings has come to be valued as it is in the choice of hardware, lighting equipment and other elements of a room.

Selection of Carpets and Rugs

In the selection of floor coverings, five major factors must be taken into consideration.

(1) Design—If a figured carpet or rug is desired, the design must be in scale with the size and architectural treatment of the room.

(2) Color—This is a matter of individual taste. Attention is directed to the fact that special colors other than stock patterns are obtainable in quantities of 75 yards or more.

(3) Wearing Quality—The factor of wearing quality is vitally important. In lobbies of hotels, clubs and theatres, greater durability is required than in living rooms and bedrooms. In the latter, less expensive fabrics may be used. Suggested fabrics for various uses will be found in the table on the fifth following page.

(4) Price—It obviously is the architect's duty to buy economically, which implies that he will specify for each use carpetings of a quality that will insure long and satisfactory wear. There is no economy in inferior fabrics. The architect should insist upon quality in floor coverings in keeping with the other furnishings.

(5) Reliability of Manufacture—The selection of a reliable manufacturer is especially important when the buyer is unfamiliar with the many technicalities of carpet and rug construction. The reputation of the MOHAWK CARPET MILLS is founded upon more than 50 years' experience in the manufacture of rugs and carpets which are giving lasting service and satisfaction in hundreds of America's leading institutions.

Only when a company has complete control over the quality of its products from the raw materials through all manufacturing stages, can it be absolutely sure of their quality. The MOHAWK CARPET MILLS, controlling the entire manufacturing process of its rugs and carpets, including the production of its own yarns and the building of its looms, can—and does—guarantee its products against defects in material and workmanship.

Types of Domestic Carpets and Rugs

There are five main types of weaves made and sold in the United States—Chenille, Wilton, Oriental Type, Axminster and Velvet.

The MOHAWK CARPET MILLS produces all these weaves in a wide variety of grades and maintains extensive design departments that can meet any requirements as to pattern and color.

On the following pages, we explain in detail the advantages of, and major differences between, the above mentioned types.

Mohawk Service for Architects

Because the selection of suitable rugs and carpets involves many technical problems, the architect will find it advisable, whenever a large yardage is being considered, to consult a carpet specialist.

Upon request the MOHAWK CARPET MILLS will send, without obligation, a trained expert to go over your plans and advise types of floor coverings best suited for each particular requirement. He will submit samples of various fabrics, estimate yardages required and the cost. You will be shown a wide assortment of stock patterns and, if necessary, the Mohawk design departments will prepare special designs, harmonizing in motif and color with the interior architecture and decoration.

Prices quoted will be based on production costs as low as those of any American mill. Delivery dates will be clearly specified and strictly adhered to, subject of course, to conditions beyond our control.

This service is rendered in co-operation with local dealers or contract supply houses whose services are also available at no additional cost to you.

CHENILLE

A Domestic Floor Covering of Unlimited Possibilities

The decorative value of fine rugs and carpets in large interiors has not been fully appreciated until within the last few years. Lately, however, this feature has been amply demonstrated by the gigantic Chenille rugs which the MOHAWK CARPET MILLS has produced on special order for some of the largest theatres in the country.

In design, color scheme, shape and size, Chenille is the most adaptable of all woven floor coverings.

It is the only floor covering which is woven to special order and not in quantity, except in plain colors as roll goods for cut orders. It is also the only fabric in which the pattern is made by the weft or cross motion of the loom.

Chenille can be woven in a wide range of qualities and made to order, in a comparatively short time, to fulfill any special requirement of shape, size, color and pattern.

Any cherished motif, coat of arms, trade-mark or other insignia may be used in a Chenille design. Chenille can be woven to duplicate the contour of any room without cutting, fitting around alcoves, bay windows, fireplaces and other irregularities. It can even be woven to fit spiral or winding staircases.

Without restrictions as to shape, size, coloring or design and with a possible depth of pile of an inch or more, Chenille is indeed the aristocrat of woven floor coverings.



Mohawk Chenille Carpeting
Illustrating how it may be woven to fit irregular floor outlines and winding staircases

Recommended Use

Architects and interior decorators familiar with the possibilities of Chenille recommend its use in hotels, theatres, public buildings, club houses, offices and homes.

Aside from the inherent beauty of the fabric, it completely solves the problem of securing the proper coloring in floor coverings to harmonize with the decorative scheme of any interior, since any color or shade may be accurately produced.

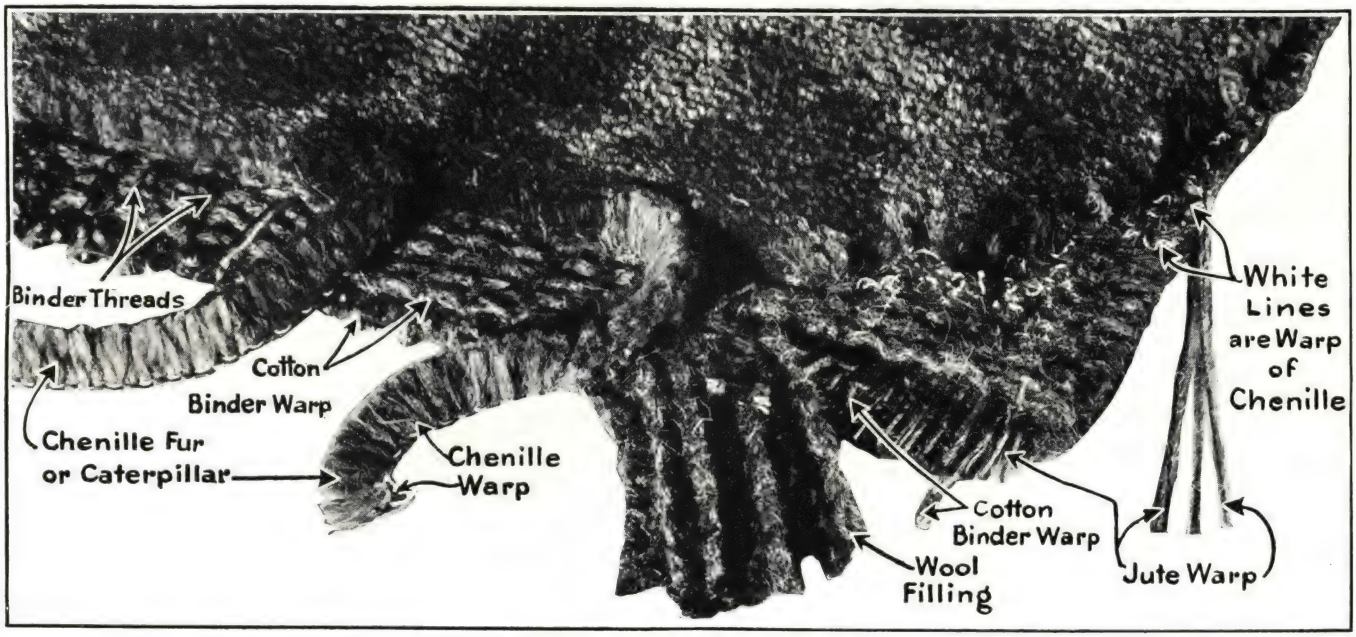
A large proportion of the Chenille business continues to be in response to the demand for plain floor coverings.

There is no doubt at all that the genuine worth of the fabric, the rich delicacy of the colors and the sheen of the silky finish on the deep pile has gone far toward maintaining its favor.

Chenille is a luxury fabric, especially appreciated by those who really know fine rugs. It is recommended for use wherever distinctive charm, quality and the expression of personality in floor coverings are primary considerations.

The MOHAWK CARPET MILLS is prepared to render prompt service in submitting sketches for Chenille design in harmony with any style of decoration.

Let our carpet experts help you with your Chenille problems.



Chenille Construction—Actual Size

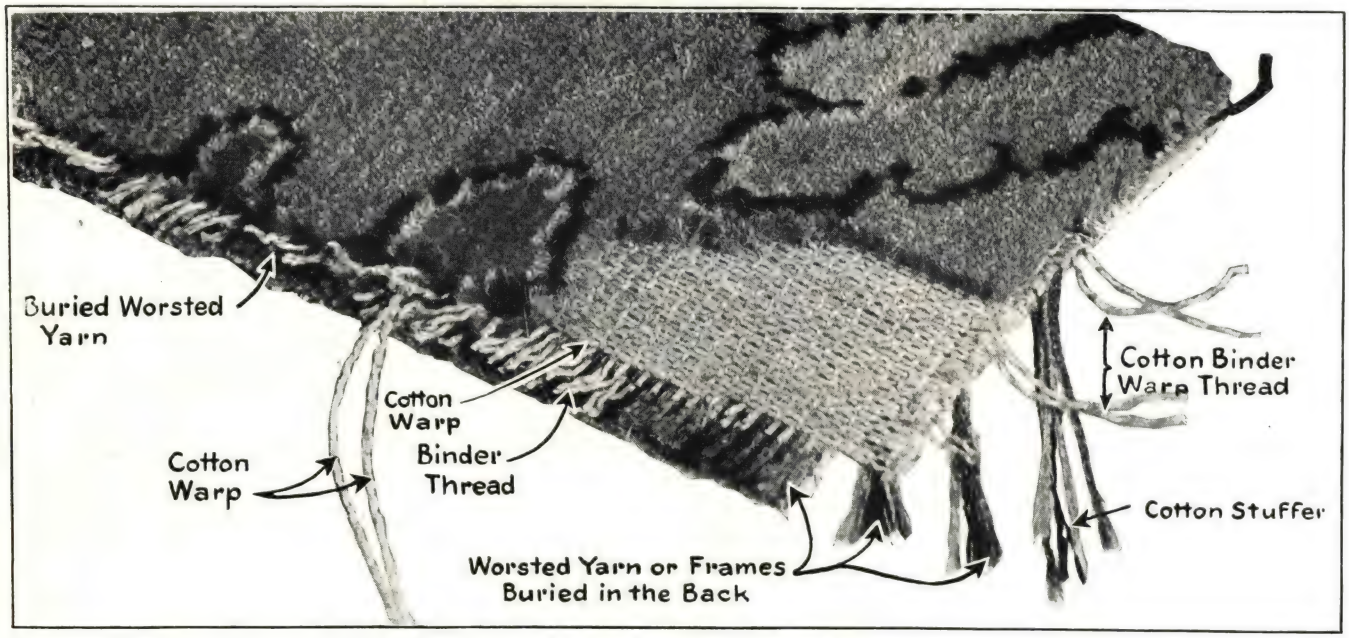
WILTON

A Carpet of Assured Quality—Worsted or Wool

Next to Chenille, Wilton is the highest weave in regard to quality and price. This is the weave which is commonly said to have a buried or hidden value. By this is meant that a portion of the yarn used in the fabric is buried in the back, insuring resiliency and long wear.

Wilton is woven in a manner similar to the old Brussels weave, now seldom made or used. In the better grades, the Wilton is regarded by many as the best of all machine-made carpets. It can be made very fine in texture, the higher grades of Wilton having from 95 to 128 tufts per sq. in. This makes the fabric very durable and allows delicate detail in design.

The Wilton weave is made in two types, the Worsted Wilton and the Wool Wilton. The Worsted Wilton offers the greatest possibilities as to fineness of design and texture, whereas the Wool Wilton is more luxurious and softer under foot, due to its greater depth of pile.



Worsted Wilton Construction—Actual Size

The Worsted Wilton

The Worsted Wilton has a pile about $\frac{3}{16}$ in. high and contains about 90 tufts to the square inch. Some qualities are made deeper in pile and up to 128 tufts to the inch. A very deep pile cannot be made in worsted yarn as the fibres are stiff and brittle, causing them to break off if the pile is made too high. The tufts are very resilient and stand up straight as is shown in the illustration, giving the fabric the appearance of velvet. It is on account of this stiffness that it is possible to use a fine quality worsted yarn and produce fine detail in the design. The back of the Worsted Wilton is also much stiffer and tighter than in the Wool Wilton.

Wiltons can be recognized by the buried yarn which shows through on the back.



Brocade Wilton Carpet, Luncheon Club of the Empire State Building, New York, N. Y.

The Wool Wilton

This weave is made in several grades and depths of pile. The highest quality is the Loom Tufted, which has a pile $\frac{5}{8}$ in. deep.

Another good grade is the Saxony Wool Wilton, which has a pile $\frac{3}{8}$ in. deep. The woolen yarn from which the pile is made is much softer than the worsted yarn and does not have as much resiliency. The yarn is not twisted as tightly and the tufts are larger and coarser. The design is of necessity slightly coarser in detail than the Worsted Wilton, depending on the size of the yarn used.

The construction of the Saxony Wilton is heavier, especially in the back, as the wool yarn used is much heavier in size. The back shows the buried yarn as in the Worsted Wilton.

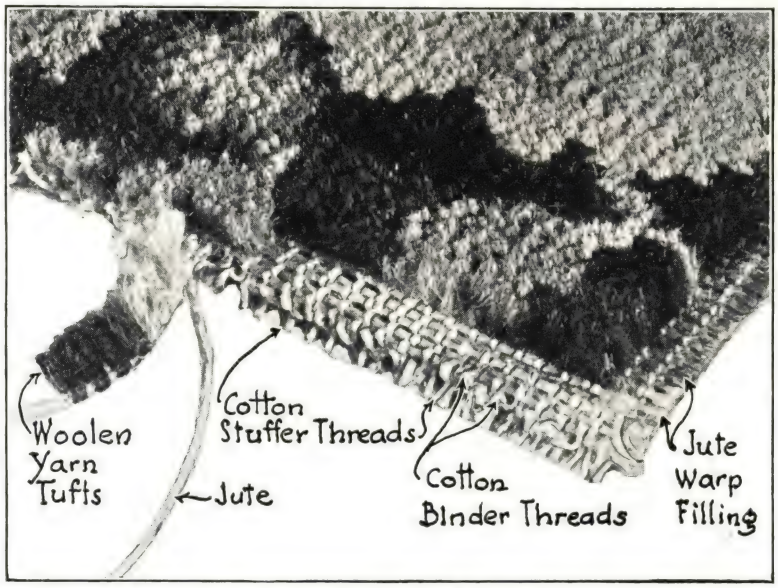
AXMINSTER

A Carpet of Sturdy Weave and Wide Popularity

The Axminster weave has a greater yardage production than any other weave in America. It is woven today up to 12 ft. wide, seamless, and may be woven wider in the future.

An Axminster fabric is easily distinguished from any other weave because it can be rolled lengthwise, but it is the only one which cannot be rolled crosswise. This is due to the stiff jute back construction.

Axminster bears the closest resemblance to a hand-knotted carpet in its structure in that both types are tufted, but in the Axminster the tufts of wool are inserted mechanically in rows and bound down in the weft, but are unknotted. Each tuft shows on the surface and forms part of the design. None of the tuft yarn is buried in the back of the fabric, as it is in the Wilton weave, other than what is required for attachment to the weft.



Axminster Construction—Actual Size

In the accompanying photograph, showing the general construction, the two threads of the chain warp, holding one row of tufts, are shown pulled out from the body of the fabric. The upper thread is shown at the left, passing through the centre of the tufts. The lower thread, which is directly under the other in the fabric construction, helping to hold the tufts, is pulled apart to the right. The jute weft shot binds them in securely.

The preparation of the yarns for weaving Axminster is a process requiring weeks of work, while the actual weaving requires only about one-tenth of the entire time of manufacturing.

The Preparation

In the process of preparing the yarns, each color to be used in the rug is first wound on 6-in. spools. The color pattern for each line of tufts is then used to arrange the spools on a delivery table so that each color will conform to the tuft square in the color pattern. The yarns are then wound on spools 27 to 36 inches wide, following the pattern for a predetermined yardage of that row of tufts.

The number of these large spools for each row of tufts depends on the width of the carpet being woven.

A set of the wide spools is required for every row of tufts required to make the complete repeat of the pattern.

Weaving

The spools are placed in steel frames and hung in a continuous sprocket chain, in the loom, and the chain being motor operated, carries the spools forward in proper succession to steel arms. These arms lift a row of spools from the chain and bring the yarn ends down into the upper chain warp. They are then bound into the fabric with a weft shot, the ends are turned up and cut off by broad knives and the spools return to the chain.

The arms then reach for the next row and repeat the process.

Backs of Axminster Rugs

The back of an Axminster is distinctive on account of the jute weft and cotton warp yarns. The wires, or rows, can be easily measured and counted in the number of double jute strands in the back. Seven rows wide to the inch is generally standard for the medium grade. The comparative qualities of the same manufacturer can be judged by the character of the yarn, the thickness of the fabric and the number of shots to the inch in the weave.

The most important item in judging quality is the reputation of the manufacturer making the goods.

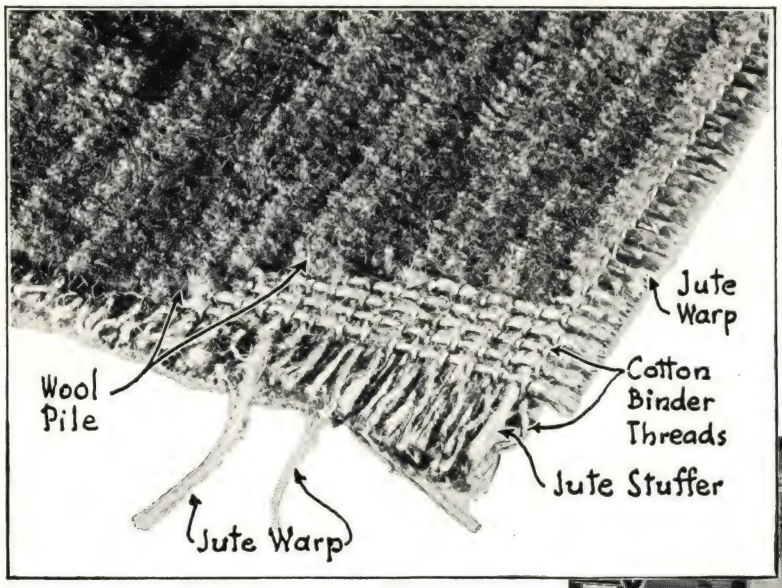


Mohawk Aristo Axminster Carpet, Bedroom of the Governor Hotel, Olympia, Wash.

VELVET

A Carpet Recommended Where Service and Price Are Deciding Factors

Velvet, in the better qualities, resembles Wilton in appearance, but has more possibilities in color. It does not have the structural quality of the Wilton as there is no buried wool in the jute back, and it is not made on a Jacquard loom. Only one kind of surface yarn is used but this has to be of good quality and of the same grade throughout in order to take the various dyes properly.



Velvet Construction—Actual Size

The natural yarn is wound 330 turns around a large drum 38 ft. in circumference. Strips of pattern paper are given to a printer who follows a vertical line of squares on the pattern. The first square may call for a green and the drum is set in the No. 1 stop on the brass rim of the drum. Then he releases a car of aniline dye, in wheat flour paste, which prints a stripe of green across all the threads on the drum. Following the pattern, he prints strips of this same color on the yarns across the drum wherever required by the little squares on the paper. Changing the car for each color, he prints all the colors required for each square of the pattern.

For a carpet 9 ft. wide, 380 yarns may be needed, which will require the printing of the drum 380 times, and may take 8 weeks to do the work. Velvets can be woven seamless to 15 ft. wide, requiring proportionately more yarns.

The yarn is removed from the drum, the dye is set by steam and the flour paste is washed out. Each yarn is wound on a separate spool and arranged in its proper order on a creel and drawn between two tapestry setters. They set the yarn every few feet and the pattern can actually be seen on the surface. The pattern as seen is elongated over three times its actual length in the finished fabric, as it is shortened by the pile wires in the weaving.

Jute yarn, which has been sized, is used for weight and strength as a stuffer in this weave. It is also generally stained on the back. Although Velvet is the cheapest of the five popular weaves, it requires the use of a high quality of yarn and the better grades give excellent service.



Mohawk Scotia Velvet Carpet, Lobby of Warner Theater, Morgantown, Pa.

MOHAWK "CAPITAL" BROADLOOM CARPET

Mohawk "Capital" Broadloom Carpets are contributing their charm, and service to very many interiors of distinction. They are made in eight widths, from 27 inches to 15 feet, and in 23 various shades and colors.

With this wide range of fabrics it is possible to cover any floor in beautiful single-tone, seamless carpeting from wall to wall. Mohawk "Capital" Broadloom Carpet is a durable, deep-piled fabric made from a twisted yarn which gives it great resiliency.

It is offered in a range of colors wide enough to insure harmony with any decorative scheme and it forms an ideal foundation for tasteful decoration in any room. Capital carpet is used in many of the finest homes, clubs, hotels, offices and theatres in the country.

Widths are 2 ft. 3 in.; 3 ft.; 4 ft. 6 in.; 9 ft.; 10 ft. 6 in.; 12 ft. and 15 ft.

Colors are—taupe, natural, fawn, peach, Burma, rose, briar, Castilian red, taupe lake, heather rust, rose taupe, prima, jade green, blue, raisin, orchid, gray taupe, plum, black, forest green, mulberry, burgundy, ashes of roses and turquoise blue.

MOHAWK ORIENTAL TYPE OF RUGS

In America, the Oriental type of rug is a comparatively new development in domestic floor coverings. The rug is woven of wool or worsted yarn and with a soft cotton back.

It is then thoroughly washed and brushed in a chemical solution to bring out the lustre or sheen. This chemical treatment is a most severe test of colors. The dyes in a rug of this type must, therefore, be fast to washing as well as to light.

Architects whose plans require the charm of Oriental pattern and the silky lustre and softness peculiar to the Oriental rug will find in the *Royal* Caliph and Viceroy, rugs to meet every decorative need and every budget requirement.

These rugs are especially effective when used like Oriental rugs, laid here and there over a large area of plain carpet to add special interest to various groups of furniture.



The Royal Caliph

This rug is woven of all worsted yarn and has a deep, rich pile and an incomparable lustre, which will endure for the life of the rug. Included in the range of *Royal* Caliph patterns are 30 faithful reproductions of priceless museum rugs.

They are available in scatter sizes 27x54 and 36x63 ins. and in room sizes 8 ft. 3 in. x 10 ft. 6 in., and 9x12 ft.

The Viceroy

The Viceroy is a beautiful Oriental type of rug at the remarkably low price of about $100, and is available in a choice of 20 color combinations and patterns, each inspired by a museum masterpiece.

It is a seamless rug, woven of heavy wool, and has a deep, rich pile. Sizes are the same as for the *Royal* Caliph.

The American Beauty

In the American Beauty, the MOHAWK CARPET MILLS has produced a lustrous, Oriental type of rug, that can be bought for considerably less than $100.

It is an Axminster weave of good quality and sturdy construction. The authentic Oriental patterns are woven through to the back of the rug, as in the finest imported fabrics.

TYPES AND QUALITIES OF CARPETS SUGGESTED FOR VARIOUS SERVICES

The Carpets Are Arranged in Groups According to Quality

Location	1st Quality	2nd Quality	3rd Quality
Banks and Business Offices			
Director's room	Chenille	Saxony, Rockton Broadloom Wilton	Capital
Private offices	Chenille	Saxony, Rockton Broadloom Wilton	Capital
Churches			
Aisles	Braeside Wool Wilton	Madison Wool Wilton	Broadalbin
Meeting rooms	Braeside Wool Wilton	Madison Wool Wilton	Broadalbin
Hotels and Clubs			
Bedrooms	Kenmore Worsted Wilton	Madison Wool Wilton	Hard Service Axminster
Corridors	Saxony	Braeside Wool Wilton	Aristo Axminster
Dining rooms	Saxony	Braeside Wool Wilton	Aristo Axminster
Lobby	Loom Tufted	Saxony	Braeside Wool Wilton
Public spaces	Saxony	Braeside Wool Wilton	Aristo Axminster
Institutions			
Bedrooms	Kilmarnock Worsted Wilton	Kenmore Worsted Wilton	Kinross Worsted Wilton
Corridors	Saxony	Braeside Wool Wilton	Aristo Axminster
Dining rooms	Saxony	Braeside Wool Wilton	Aristo Axminster
Main entrance hall	Loom Tufted	Saxony	Braeside Wool Wilton
Stairs	Gordon Wool Wilton	Brentmore Wool Wilton	Madison Wool Wilton
Railroads	Kilmarnock Worsted Wilton	Kenmore Worsted Wilton	Kinross Worsted Wilton
Residences			
Bedrooms	Stock Chenille	Capital Broadloom, Montroyal Wool	Broadalbin
Dining room	Special Design Chenille	Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Halls	Special Design Chenille	Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Living room	Special Design Chenille	Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Music room	Special Design Chenille	Saxony, Kilmarnock Worsted Wilton, Mohawk Imperial Axminster	Madison Wool Wilton, Tampa Axminster
Servants' rooms	Hard Service Axminster	Broadalbin	Baltic
Service stairs	Capital Heather	Broadalbin	Baltic
Stairs	Special Design Chenille	Saxony, Kilmarnock Worsted Wilton, Kenmore Worsted Wilton	Madison Wool Wilton, Capital
Steamships			
Cabins			
Deluxe	Brocade Wool Wilton	Kenmore Worsted Wilton	Kinross Worsted Wilton
1st Class	Kenmore Worsted Wilton	Kinross Worsted Wilton	Madison Wool Wilton
2nd Class	Kinross Worsted Wilton	Madison Wool Wilton	Tampa Axminster
3rd Class	Madison Wool Wilton	Tampa Axminster	Hard Service Axminster
Companionways and corridors	Mohawk Saxony	Gordon Wool Wilton	Catskill Axminster Mohawk Imperial Axminster
Dining salons	Saxony	Braeside Wool Wilton	Brentmore Wool Wilton
Lounge	Mohawk Saxony	Glenburn Wool Wilton	Braeside Wool Wilton
Main salon	Saxony	Glenburn Wool Wilton	Braeside Wool Wilton
Smoking rooms	Capital Broadloom	Broadalbin	Baltic
Theaters			
Auditorium	Saxony	Scotia Velvet	Aristo Axminster
Lobby	Special Design Chenille	Saxony	Braeside Wool Wilton
Lounge, dressing rooms, etc.	Saxony	Tampa Axminster	Baltic
Stairs	Saxony	Gordon Wool Wilton	Scotia Velvet

THE MOLLOY-SKELLY CARPET CO., INC.

Carpets—Broadloom; Linoleum—Rubber Tile
Oriental and Domestic Rugs

330 Fifth Avenue
NEW YORK, N. Y.

A Complete Floor Covering Service

Architects and interior decorators are invited to avail themselves of Molloy-Skelly service, which they will find of unusual assistance in solving their floor covering problems; this is unique in that it covers *every* flooring need of the hotel, apartment house, fine residence, institution, executive office, etc.: It ranges from the selection and delivery of specially designed Oriental and Chinese rugs, for the most exacting, right down to the comparatively simple rubber tile or linoleum requirements of the kitchen, office or hospital floor. Many years of close co-operation with leading architects and interior decorators is represented in Molloy-Skelly complete service.

Oriental and Chinese Rugs

We are direct importers of Oriental and Chinese rugs and are prepared to supply rugs made in China, India or Europe, woven to order in special sizes, designs and colors. This makes it possible for the architect to provide floor coverings that will be perfect in size and harmonious in design and color for the various locations that are being planned. The weaving to delivery of special sized rugs in special designs and colors requires from three months to one year or more, dependent upon the fabric and designs. Our stock of Oriental and Chinese rugs provides a wide range of selection of pieces for immediate delivery.



The Molloy-Skelly Carpet Showroom

Domestic Rugs and Carpets

We are selling agents for the largest manufacturers of Broadloom carpet—Wilton and Axminsters in plain and figured goods and Chenilles to special order.

Figured carpet and domestic rugs are available in all types of weave, pattern and color in conformity to present style trends in the domestic carpet market.

Broadloom Carpet

Broadloom carpet in Wilton-Velvet weave can be furnished in any desired width seamless up to 18 feet and in full range of manufacturers' latest colors.

Chenille Carpet

Chenille Broadloom carpet of regular standard colors is supplied from our stock for immediate delivery in all widths up to 18 feet. Chenille of domestic manufacture can be made up in stock colors up to 30 feet wide in approximately two weeks.

Chenille of special colors, patterns or designs can be made up of domestic manufacture in from 4 to 6 weeks and European manufacture in from 8 to 10 weeks.

Chenille Rugs

Seamless Chenille rugs can be furnished to the most exacting requirements, as any given color can be dyed and made up to special order in widths up to 33 feet. They can also be made in any type of pattern—plain with band borders, two-color effect of pattern and ground work, and in elaborate color effects in special designs.

Wilton, Axminster and Saxony Weaves

Special designs and colors can be woven in Wilton fabrics for a quantity of not less than 150 yards and in Axminster fabrics for a quantity of 600 yards or more.

Domestic rugs in Saxony and Wilton Weaves can be furnished in current stock patterns up to 11 ft. 3 in. x 18 ft. size from stock for immediate delivery. Special sizes and patterns can be made up in any selected design or coloring in accordance with your order, provided it aggregates over 150 carpet yards.

Rubber Tile

Rubber tile can be supplied in ¼ and ⅜ in. thicknesses in a full range of plain and marbleized color effects.

Linoleum

Linoleum can be supplied in all standard thicknesses of plain goods. Also embossed, moulded inlaid, and straight line inlaid lineoleum, in all standard gauges.

Special patterns may be had, but large stocks provide for immediate delivery of a wide range of materials.

A Few Representative Installations

Downtown Athletic Club, New York, N. Y.
General Motors Corp., New York, N. Y.
National Broadcasting Co., New York, N. Y.
Standard Brands, Inc., New York, N. Y.
Industrial Trust Co., Providence, R. I.
Harmanus Bleeker Hall, Albany, N. Y.
Union Trust Co., Providence, R. I.

GENERAL EQUIPMENT

ESTABLISHED 1898

GARDEN CITY PLATING & MFG. CO.

Manufacturers of Adjustable Shelving Devices and Garment Carriers

1430 South Talman Avenue, CHICAGO, ILL.

NEW YORK OFFICE AND WAREHOUSE, 133 Wooster Street
REPRESENTATIVES IN PRINCIPAL CITIES

Products

"GARCY" HARDWARE for adjustable shelving; "GARCY" PULLOUT GARMENT CARRIERS for closets.

Also Keyhole Standards and Brackets for adjustable glass shelves.

GARCY
TRADE MARK REG.

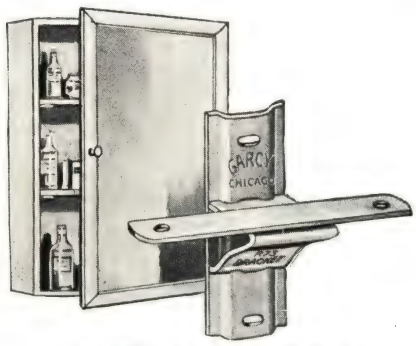
For our pages on Ornamental Metal Work, Display Case Frames, Grilles, Wickets, Bank Counter Screens, Bank Vaults, Cage Metal Work, and Lighting Reflectors, see Manufacturers' Index.

Hardware for Adjustable Shelving

Where Used—Wherever shelving can be used, "Garcy" Pilaster Strips and adjustable brackets provide easy and economical installation, and permit the utilization of space that is ordinarily wasted with stationary shelves.

Features—Shelves are easily and quickly moved up or down. Brackets snap in and out easily, yet cannot be budged under a load. They are tested up to 600 lb. The slots in the pilaster strips are numbered, making it easy to line up shelves.

Free Sampes—Samples will be sent on request.



No. R73. For Narrow Shelves

Cross arm joined to No. P73 bracket. Requires but one pilaster strip instead of the usual two, at each end of shelves



Actual size

Finishes in Stock—Steel, white nickelplated is standard. This is a double plated, unusually durable nickel finish. The nickel is applied over a protective coating of copper.

Steel, statuary bronze plated also furnished from stock.

Nos. K73 and A73 are carried in stock in solid brass ready for finishing.

Nos. K73 and T73 are stocked in alchrom, a white, rust and tarnish proof aluminum alloy.

Adjustable Brackets—Nos. A73, T73, P73. Any bracket can be used with any standard.

PILASTER STANDARDS

No.	Width, in.	For adjustment, every	Stock lengths, feet
K73	7/8	1/2 in.	3, 4, 6, 12
H73	1 1/8	1/2 in.	12
B73	7/8	1/4 in.	12

Packed with nails. Screws furnished at same price.



Easily Adjusted—Always Secure

"Garcy" Pullout Clothes Closet Garment Carriers

Service—To permit the construction of orderly and space saving wardrobes in homes, apartments, hotels, clubs, etc.

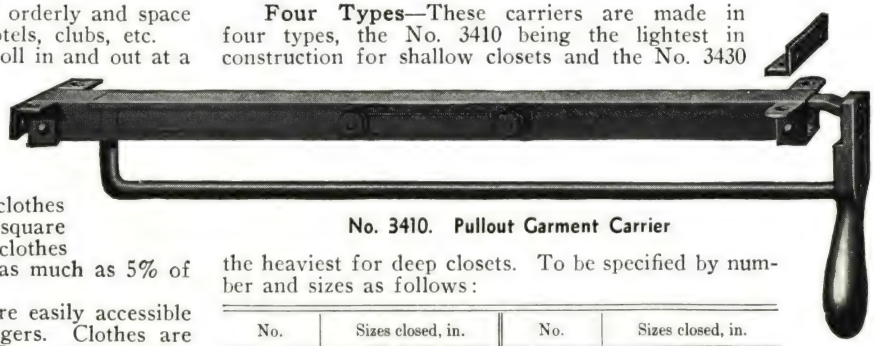
Construction Features—The carriers roll in and out at a touch smoothly and silently. They fasten with screws, either under the shelf or to the floor casing and rear wall.

Finish—Standard finish is statuary bronze. Nickelplated or other finishes can be furnished.

Advantages—"Garcy" pull out equipped clothes closets require only about half the space of square clothes closets, yet provide twice the clothes capacity. This saving in space amounts to as much as 5% of an entire building.

Garments are kept in good condition, are easily accessible and quickly found on their individual hangers. Clothes are selected in the light and air of the room. No need of groping for garments in a stuffy, dark clothes closet. Eliminates wiring for lights in closets.

Four Types—These carriers are made in four types, the No. 3410 being the lightest in construction for shallow closets and the No. 3430 the heaviest for deep closets. To be specified by number and sizes as follows:



No. 3410. Pullout Garment Carrier

No.	Sizes closed, in.	No.	Sizes closed, in.
3410	15, 16, 18, 20, 22, 24	3428	22, 24, 27, 30, 33
3402	27, 30	3430	30, 32, 36, 42, 48

HOEGGER, INC.

Manufacturers of Solid Brass Fittings for Clothes Closets

TELEPHONE
Palisade 6-8100

MAIN OFFICE AND FACTORY
532 Gregory Avenue, WEEHAWKEN, N. J.

NEW YORK, N. Y., Architects Samples Corporation, 101 Park Avenue

For Hoegger Bathroom Accessories, see Manufacturers' Index

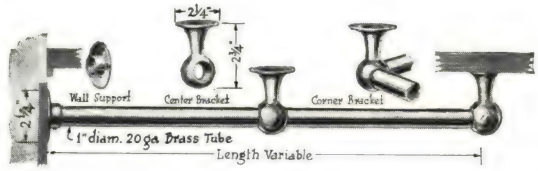
SLIDING GARMENT CARRIERS AND CLOTHES POLES

(Patent applied for)

HOEGGER Garment Carriers are made of solid brass, finished in the non-tarnishable Crodon. They are of sturdy construction and exemplify HOEGGER workmanship.

Clothes Poles, Sliding Garment Carriers, Shoe and Tie Racks are made any desired length to suit the requirements and arrangements of any type closet construction.

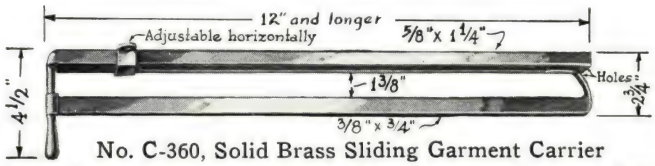
Complete details of these fixtures for any job will be sent on request by our Service Department.



Solid Brass 1-in. Round Clothes Pole and Fittings

1 in. Tubing	No. C-366, 20 gauge, per ft	$0.95
	No. C-367, 16 gauge, per ft	1.10
No. C-364, Wall Supports, per pair		1.60
Brackets	No. C-368, End, each	2.40
	No. C-369, Center, each	2.40
	No. C-370, Corner, each	2.50

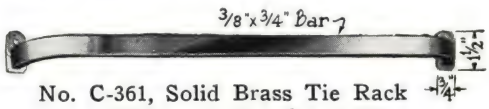
Note: Center brackets are only required for spans over 4 ft.



No. C-360, Solid Brass Sliding Garment Carrier

12 in. long	$6.20	20 in. long	$ 9.40
16 in. long	7.80	24 in. long	11.00

Other lengths furnished on order.

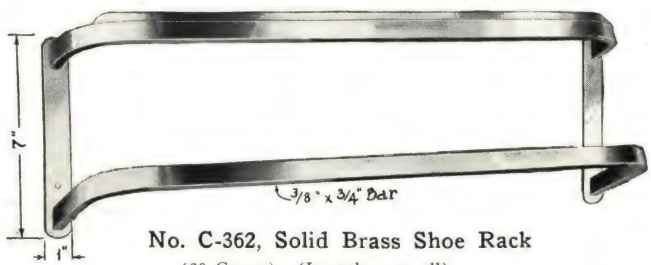


No. C-361, Solid Brass Tie Rack

(20 Gauge)—(Length over all)

16 in. long	$1.90	22 in. long	$2.35
20 in. long	2.20	24 in. long	2.50

Other lengths furnished on order.

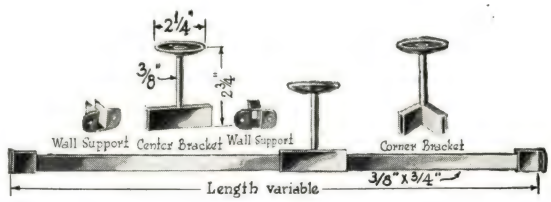


No. C-362, Solid Brass Shoe Rack

(20 Gauge)—(Length over all)

18 in. long	$4.80	24 in. long	$5.70
22 in. long	5.40	30 in. long	6.60

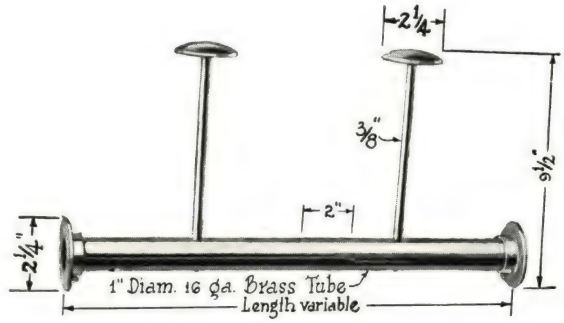
Other lengths furnished on order.



Solid Brass ⅜x¾-in., 20 Gauge Rectangular Clothes Pole and Fittings

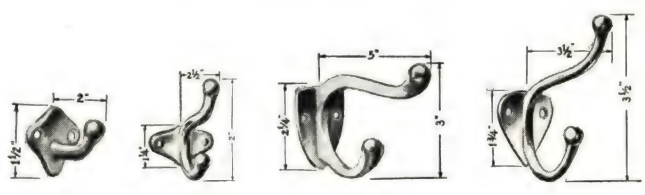
No. C-371, ⅜x¾-in. Tubing, per ft		$0.95
No. C-372, Wall Supports, per pair		.65
Brackets	No. C-373, Center, each	1.60
	No. C-374, Corner, each	1.90

Note: Center brackets are only required for spans over 4 ft.



1-in. Round Clothes Pole with Hat Holders

No. C-363, 1-in. Tubing, drilled, per ft	$1.90
No. C-364, Wall Supports, per pair	1.60
No. C-365, Hat Holder Pins, each	2.50



C-10 C-9 C-5 C-6

Crodon Hooks

No. C-10	$0.50	No. C-5	$1.60
No. C-9	.70	No. C-6	.70

KNAPE & VOGT MFG CO.

Shelf Supports; Frameless Glass Door Hardware; Sliding Door Sheaves; Garment Hangers

MAIN OFFICE

1579 Muskegon Avenue, GRAND RAPIDS, MICH.

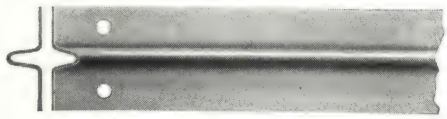
BRANCH SALES OFFICES

BOSTON, MASS., 104 Hanover Street
BUFFALO, N. Y., 305 Delaware Avenue
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DENVER, COLO., 522 Jacobson Building
DETROIT, MICH., 602 American Radiator Building
EL PASO, TEX., Box 1303
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NEW YORK, N. Y., 119 E. 27th Street
PORTLAND, ORE., 443 Sherlocke Building
SAN FRANCISCO, CALIF., 180 New Montgomery Street

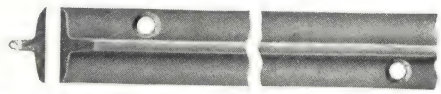
Products

ADJUSTABLE SHELF SUPPORTS.
BALL BEARING SHEAVES and STEEL TRACK for Sliding Doors.
K-V TRACK and CARRIER for Sliding Frameless Glass Doors.
BALL BEARING DRAWER SLIDES.
LOCKS for Frameless Glass Doors.
K-VENIENCE GARMENT CARRIERS and CLOTHES CLOSET CONVENIENCES.





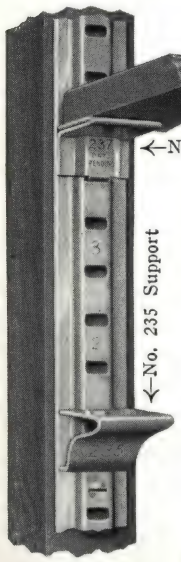
No. 452-X Wrought Brass
Width, $\frac{13}{16}$ in.



No. 462 Steel, Plain; No. 462C Steel, Coppered

Adjustable Shelf Supports

These patented devices are used for supporting shelving in closets, cabinets, wall cases, etc., without grooving the wood. Slots in the standard (No. 233) permit adjustment of shelving every ½ in. in perfect alignment. The standards are $\frac{13}{16}$ in. wide and are numbered every inch. They are supplied in stock lengths of 24, 30, 36, 48, 60, 72 and up to 144 in., with special screwhead nails for fastening. Made of cold rolled steel, both standards and supports are regularly supplied in nickelplated finish or statuary bronze if desired. Other finishes to order. Each support tested to 700-lb. weight.

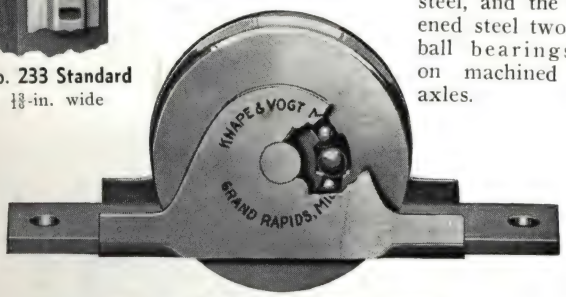


No. 233 Standard
$\frac{13}{16}$-in. wide

Ball Bearing Sheaves for Sliding Doors

These patented sheaves are suitable for use in bookcases, china cabinets, linen cabinets, cupboards, and all sliding doors weighing up to, and including 75 lbs.

Frames and wheels are made of cold rolled steel, and the hardened steel two-point ball bearings run on machined steel axles.



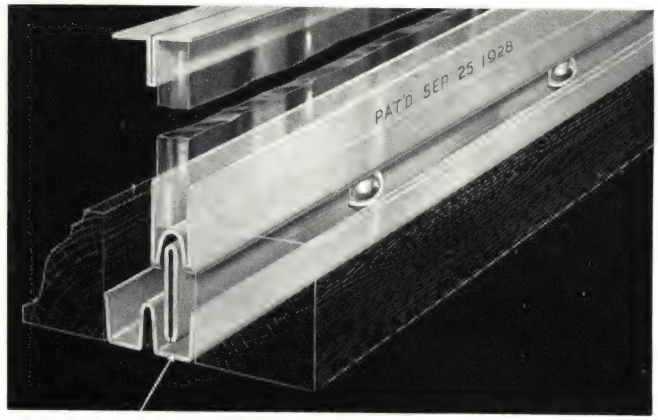
No. 430 Ball Bearing Sheaves
Frame, 2¾ x $\frac{13}{16}$ in. Wheel, 1⅜ in. in diameter

Tracks for Sheaves on Light Sliding Doors

For use in connection with K-V ball bearing sheaves. Supplied in 8, 10 and 12-ft. lengths. Special nails are furnished for fastening.

K-V Track and Carrier for Sliding Frameless Glass Doors

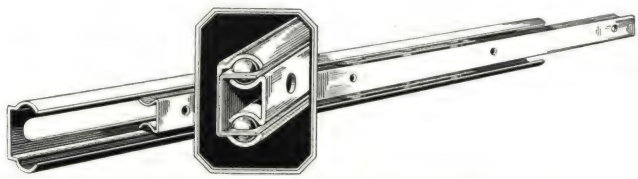
Positive in operation at all times, smooth and silent running. This new K-V track consists of four members, an upper T guide, a metal shoe which contacts the plate glass, a ball bearing carrier and a lower track. The metal shoe rides on the ball bearings of the carrier which in turn roll upon the upper edges of the lower track. All members are made of stamped steel and are finished in statuary bronze.



K-V Track and Carrier for Sliding Frameless Glass Doors

Ball Bearing Drawer Slides

Designed for use in connection with large built-in drawers where quick response to a slight pull is desirable regardless of the weight of the drawer or its contents. Permits opening drawer to full depth.



No. 1400 Ball Bearing Drawer Slides

KNAPE & VOGT CLOTHES CLOSET FIXTURES

For Homes, Apartment Buildings, Clubs, Hotels, Industrial and Educational Institutions, Etc.

K-VenienceS



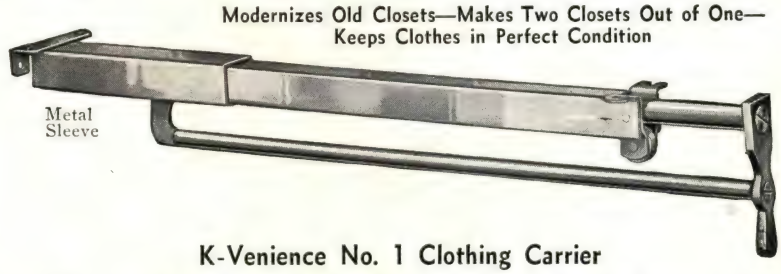






K-V Clothing Carriers Fit Any Room

Modernizes Old Closets—Makes Two Closets Out of One—Keeps Clothes in Perfect Condition



K-Venience No. 1 Clothing Carrier

No electric lighting is needed in K-Venience Clothing Carrier equipped closets. A slight pull on the Carrier brings the whole wardrobe out into the light and air of the room—a sure protection against moths. Does away with rummaging and fumbling around in the dark. Makes clothing accessible for quick selection. Considered to be a great improvement over so-called modern lighted closets with hooks and hook rails which waste space and eat up room which can be used for other purposes.

Closets of every shape and size can be properly fitted with K-V Clothing Carriers as they are made in several lengths and answer all requirements.

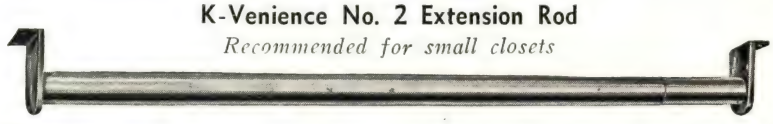
Size	Adjusts to Fit a Closet	Size	Adjusts to Fit a Closet
12 in.	12 to 16 in. deep	30 in.	30 to 36 in. deep
16 in.	16 to 20 in. deep	36 in.	36 to 42 in. deep
20 in.	20 to 24 in. deep	42 in.	42 to 48 in. deep
24 in.	24 to 30 in. deep		

A new feature of K-V Clothing Carriers is the metal sleeve in the rear of the Carrier which permits the Extension Rod to run in and out of it to the full extent of the closet space.

K-V Clothing Carriers are made of cold rolled steel, cast brass handles, heavily nickeled, are roller bearing and operate easily on a telescoping slide that brings the whole wardrobe out into the room with a slight touch and rolls back just as easily. Comes complete with screws for installation.

K-Venience No. 2 Extension Rod

Recommended for small closets



Recommended as an economical and practical installation which can be made in small, narrow confined closets where K-Venience Clothing Carriers can not be used to advantage. Made in three sizes:

18-in. adjustable in length to fit closets 18 to 30 in. wide;
30-in. adjustable in length to fit closets 30 to 48 in. wide;
48-in. adjustable in length to fit closets 48 to 78 in. wide.

Fashioned out of cold rolled steel, heavy nickel-plated finish. Comes complete with screws and nails for quick and easy installation with either.

K-Venience No. 3 Stationary Garment Bracket

This Garment Bracket is particularly adapted for use in closets where side walls are not parallel or where the closet is very narrow. In such closets, particularly in dressing room closets, Garment Brackets provide maximum carrying capacity for all dresses, coats, suits, overcoats, cloaks, etc., as several brackets may be put side by side the entire length of the closet.

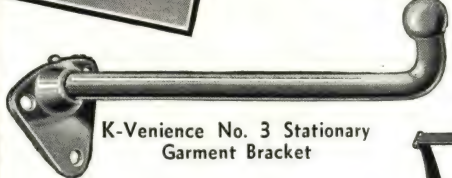
Each bracket holds six garments with ample space between to prevent crowding. They are strongly built, holding heaviest of overcoats. Can be quickly installed in all kinds of closets, back halls, storage rooms, offices, dormitories, check rooms, etc.

Comes in one size, 10 in. long. Made in ½-in. solid metal rod, supported by cast brass flange. Has attractive rust-proof silvery finish. Comes complete with necessary screws for installation.

K-Venience No. 4 Shoe Rack

Architects are specifying and making provision for installation of these K-Venience Shoe Racks in homes, apartment buildings, college dormitories, fraternity and sorority houses, etc. They are easily fastened to baseboards, walls or closet doors—and come in 20, 24, 30 and 36-in. length to meet all requirements.

Made of cold rolled steel, with rust-proof silvery finish. Complete with screws ready to put in any desirable place.

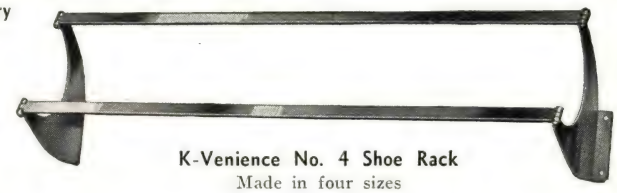


K-Venience No. 3 Stationary Garment Bracket

Other K-Venience Products

Other items in the K-Venience Line are:

K-V No. 5 Trouser Hangers
K-V No. 6 Hat Holders
K-V No. 7 Tie Racks



K-Venience No. 4 Shoe Rack
Made in four sizes

LAWSON-MILWAUKEE GARMENT HANGERS

MANUFACTURED BY

MILWAUKEE STAMPING COMPANY

GENERAL SALES OFFICES AND FACTORY

MILWAUKEE, WIS.

TELEPHONE
Greenfield 2400

CHICAGO OFFICE AND WAREHOUSE, 150 No. Wacker Drive
Telephone, Randolph 4227-28
NEW YORK OFFICE AND WAREHOUSE, 416 Broadway
Telephone, CAnal 6-1131
SEATTLE OFFICE AND WAREHOUSE, R. F. Bevers, 521 Thirtieth Avenue, So.
Telephone, Beacon 5187
LOS ANGELES OFFICE AND WAREHOUSE, F. W. Jonas, 320 East Third Street
Telephone, Faber 5519
BOSTON OFFICE AND WAREHOUSE, C. E. Harris Co., 120 Pearl Street
Telephone, Hancock 7966
DENVER OFFICE, Petersen Sales Co., 1921 Blake Street
Telephone, Tabor 1979
ATLANTA OFFICE, Thomas G. Perry, 406 Southeastern Trust Co. Bldg.
Telephone, Main 0716
DALLAS OFFICE, John H. North, 1002 Woodlawn Avenue
Telephone, 6-6398
NEW ORLEANS OFFICE, Fred J. Allen, 1009 Broadway
Telephone, Walnut 3659
MONTREAL, QUE., C. J. Walker, Ltd., 507 Coristine Bldg.
Telephone, Marquette 1501
TORONTO, ONT., T. Mortimer & Co., 64 Wellington Street West
Telephone, Elgin 2789

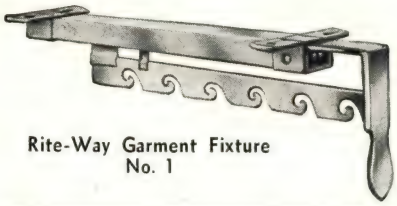
For Lawson-Milwaukee Hinges, Toilet Partitions, Showers and Doors, see Manufacturers' Index

RITE-WAY GARMENT FIXTURES

The Rite-Way Garment Fixture is an ideal device for the purpose of accommodating clothes hangers. It is constructed with a sliding bar to allow all clothes hangers to be simply drawn forward, permitting removal or rehanging of garments without disturbing other garments.

Rite-Way Fixtures are made of nickelplated steel and are equipped with fiber rollers, making them noiseless and easy to operate. Furnished with screws. Doubles the closet space and keeps garments in good condition.

Where there is no shelf and closet ceiling is too high, it can be attached to a board fastened between rear wall of closet and inside of door frame.

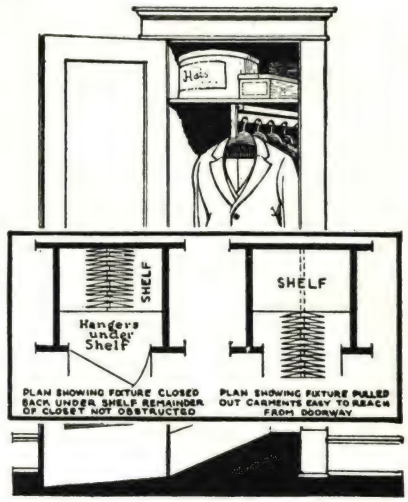


Rite-Way Garment Fixture
No. 1

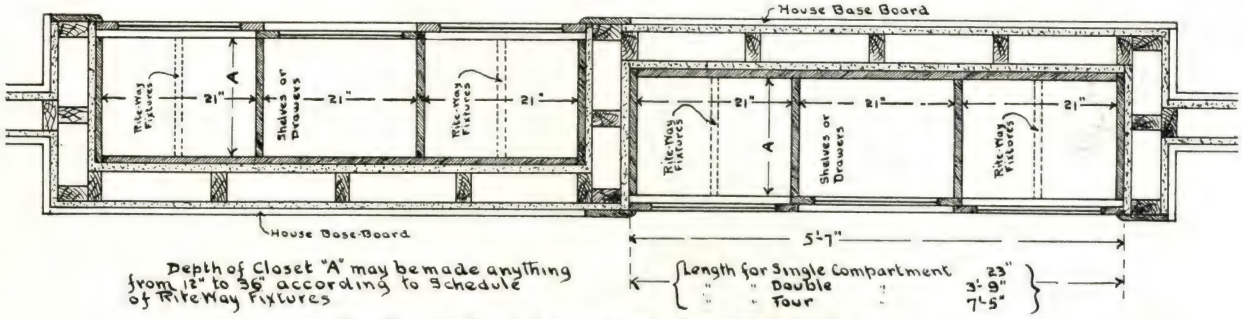
Special Features

An important feature of the Rite-Way Garment Fixture is the absolute spacing of the hangers which keeps garments from crowding each other. Any one garment can be removed without disturbing the others. Each hanger has its place and the Rite-Way holds it firm.

Length closed.....in.	12	14	16	20	24	28	32	36
Number of hangers.....	6	7	8	10	12	14	16	18

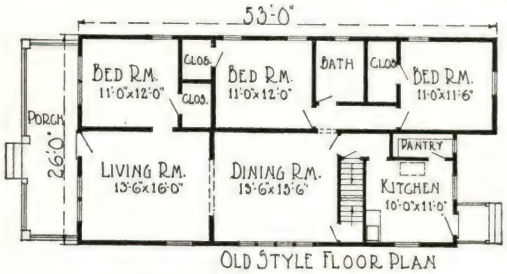


Sketch and Plans of Rite-Way Fixture in Square Closets



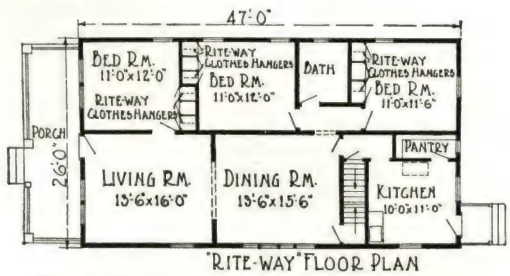
Plan Showing Closet Arrangement for Two Adjoining Bedrooms

With closets built for 16-in. fixtures, the projection of the closets into the room is only 9½ in.



OLD STYLE FLOOR PLAN

Plan with Ordinary Closets



"RITE-WAY" FLOOR PLAN

Closets Planned for Rite-Way Garment Fixtures

Length of house reduced by 6 ft.

Typical Floor Plan I

These floor plans show advantages of adopting Rite-Way Garment Fixture methods of saving building space and reducing building cost. Where a saving in first cost is not so important, actual size of living rooms can be increased by planning closet space for Rite-Way Garment Fixtures

FRANCIS KEIL & SON, INC.

Manufacturers of Apartment House Mail Boxes

401-425 East 163rd Street
NEW YORK, N. Y.

For Keil Burglarproof Cylinder Locks, see Manufacturers' Index

Description

"Keilson" Government Approved Apartment House Mail Boxes are neat and artistic in design and are made of heavy wrought brass. They insure safety of the mail and are convenient for the carrier.

They are built in accordance with United States Post Office Department Order No. 3979.

"Keilson" Boxes have been also improved by increased receptacle space, and are entirely free from all obstructions in the way of mechanical construction, yet retaining economy of wall space.

Specification Details

Made of heavy wrought brass with steel receptacles. Individual boxes require a rough opening 15¼ in. high, 3½ in. wide and 4¼ in. deep. Face plates overlap rough opening 1 in. on all sides. Boxes take mail up to 15x3¼ in. Visitor's card slot, 2¼ in. Tenant locks have 3 tumblers and have 60 changes.

Master lock applied with special patent machine screws for the convenience of the post office authorities in replacing damaged locks without defacing or marring either the master door or name plate.

Surface of boxes entirely flush and without any screws or fastenings showing to mar their appearance.

Finishes

Finished in "Sprayed Brass" Finish only, except to order at extra charge, as follows: Sprayed Antique Copper; Sprayed Verde Antique; Sprayed Statuary Bronze; Sprayed Colonial Iron. Also other standard finishes imitated by spraying process.

These finishes are best preserved by simply washing the surface with soap and water.

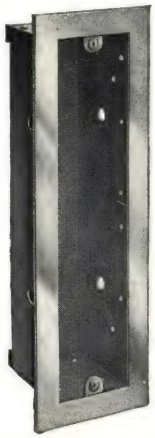
Telephone Equipment to Fit "Keilson" Boxes

Manufacturers of telephone units will furnish their telephone equipment to fit our standardized "Keilson" Combined Receptacles and Frames.

These match up with "Keilson" Letter Boxes and may be placed either alongside or amongst the letter box groups that are placed in single rows or may be placed entirely separate therefrom.

When used in combination with single row letter box groups, all sizes specified there can be used together, however, with the sizes specified below to accommodate the selected "Receptacle and Frame" for the telephone unit.

"Keilson" Combined Receptacle and Frame Sizes to Accommodate Telephone Units



"Keilson" Combined Receptacle and Frame for Accommodating Telephone Units

The size required must be determined by the make of telephone unit and the number of push buttons required. Frames are made of wrought brass, receptacles of steel (see Finishes).

When telephone units (or extra button units) are used in combination with letter boxes mounted in *double rows,* we give no plans for letter box groupings, nor mention sizes for wall cut-outs, as the telephone or the push button units affect the general grouping of *double rows* of letter boxes and as there are so many possible layouts for telephone units, extra push button units and the letter boxes, we respectfully ask prospective purchasers to submit wall space available and the plan of desired layout (if any decided upon), whereupon we shall furnish the wall cut-out size if requested and a plan if desired.



Information

"Keilson" Receptacles and Frames are also utilized for push button and panel layouts for use in vestibules, and these can also be made in combination with loud speaker to order.

"Keilson" Receptacles and Frames overlap the specified wall openings (1) inch all around.

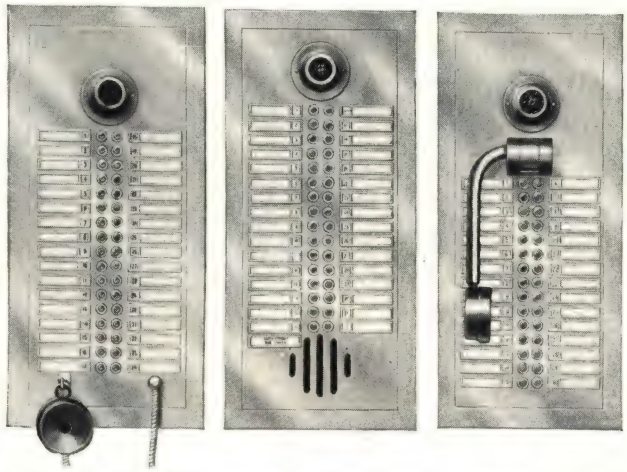
"Keilson" Receptacles and Frames are fastened to the wall in the same manner as "Keilson" Letter Boxes.

"Keilson" Receptacles and Frames are made in the same finishes as "Keilson" Letter Boxes. Telephone Units may be sent us for matching up the finishes of the letter boxes.

All packed in double cartons to assure safe delivery to distant points.

Literature

Separate pamphlet showing all our types and complete information as to sizes, furnished on request.



Armored Cord Receiver Type
Not loud speaking

Cordless Receiver Type
Loud speaking

Swinging Arm Receiver Type
Not loud speaking

Types of Telephone Units Commonly Used with "Keilson" Boxes

Note: We will also mount telephone units and assemble them together with "Keilson' Letter Boxes within one framework.

DIMENSIONS OF "KEILSON" COMBINED RECEPTACLE AND FRAMES

Outside sizes of "Keilson" Receptacles and Frames, in.	Size of telephone plates required to fit "Keilson" Receptacles and Frames. Being equivalent to 1, 2, 3 and 4 single "Keilson" Letter Box Units as specified, in.	Add to width of wall cut-out when placed alongside or between "Keilson" Single Row Boxes	Make wall cut-out when used entirely separate from the letter boxes, in.
No. 1 17¼ high x 5½ wide	15⅛ high x 3½ wide	5½ in.	15¼ high x 4 wide x 4¼ deep
No. 2 17¼ high x 9 wide	15⅛ high x 7 wide	9 in.	15¼ high x 7½ wide x 4¼ deep
No. 3 17¼ high x 12½ wide	15⅛ high x 10½ wide	12½ in.	15¼ high x 11 wide x 4¼ deep
No. 4 17¼ high x 16 wide	15⅛ high x 14 wide	16 in.	15¼ high x 14½ wide x 4¼ deep

Thickness of metal required for all .060. Templates for screwholes furnished.
Push button vertical plates also furnished for use with these boxes.

ACME METAL PRODUCTS CORPORATION

Manufacturers of Majestic All-steel Kitchen Units

4217-4223 Belle Plaine Avenue
CHICAGO, ILL.

For Majestic Bathroom Cabinets and Access Panels, see Manufacturers' Index

MAJESTIC ALL-STEEL KITCHEN UNITS

Majestic Kitchen Units are made in one of the largest steel product factories in the United States. Every facility for reliable economical production is there to protect the architect who must depend upon deliveries at his specified time. Majestic Products are not assembled. They are designed, constructed and finished in one plant. In this way Majestic Quality is assured in all materials and throughout every stage of production. Architects can always depend upon the willingness and the ability of the ACME METAL PRODUCTS CORPORATION to co-operate with them in every possible way.

Construction—Constructed throughout of 20 and 22 United States gauge full cold rolled, pickled stretcher leveled No. 1 furniture steel, with all corners and edges electric spot-welded and brazed.

Doors—All doors and drawer fronts are equipped with dual acting frictionless suspension slides and are equipped with drawer stops. All sink-front doors have eight ventilating louvers. Doors and drawers are inset to close flush with cabinet frame.

Hardware—Hinges are of the bullet type designed exclusively for Majestic units. They are die cut from No. 1 rustproof steel, chromium plated. Flanges are concealed inside of doors and frames. Doors have automatic spring catches. Door and drawer knobs are machine turned and chromium plated.

Shelves—Cupboard shelves are carefully spaced to provide ample storage room; front edges rounded.

Refrigerator—The Majestic Refrigerator is constructed by the ACME METAL PRODUCTS CORPORATION. It is thoroughly insulated with Dry Zero and can be furnished either enamel lined or porcelain lined. It is equipped with bolts for installing a mechanical refrigerating unit.



Majestic Combination Set No. 720F

Finish—Majestic new process enamel is baked-on throughout. This enamel has superior wearing qualities and gives an unmatchable appearance.

Standard Colors—Green cabinet bodies with white doors; green bodies with ivory doors; gray cabinet bodies with white doors; and white cabinet bodies and white doors.

No. 720F

Consists of twenty-four inch refrigerator, Gas stove, sink front, drain board, back splasher and three top cabinets. Dimensions: length, 6 ft.; height, 80 ins.; depth, base, 20 ins.; top, 12 ins.

No. 900S

Dimensions: length, 7 ft., 6 in.; height, 80 ins.; depth, base, 20 ins.; top, 12 ins.

No. 1335

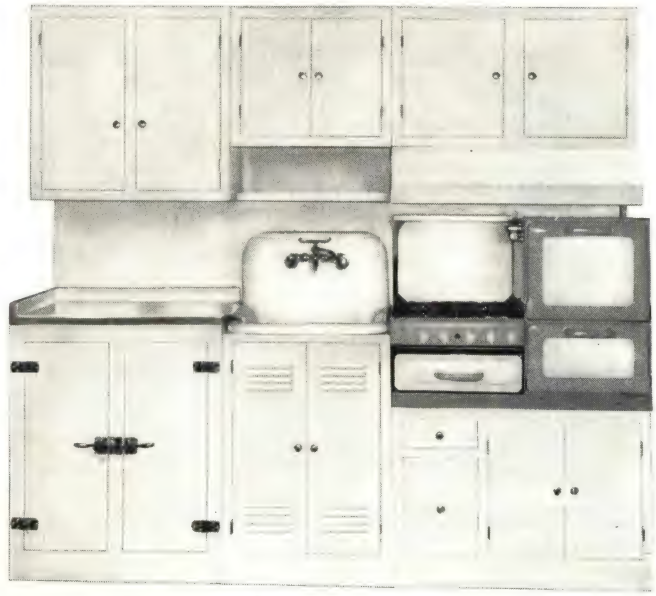
Butler's pantry, dimensions: length, 11 ft., 1½ ins.; height, 80 ins.; depth, base, 20 ins.; top, 12 ins.

All cabinets are made in widths ranging from 14 to 48 ins., enabling us to construct combinations to fit any size space, top cabinets can also be furnished with glass doors.

A complete catalog will be furnished upon request.



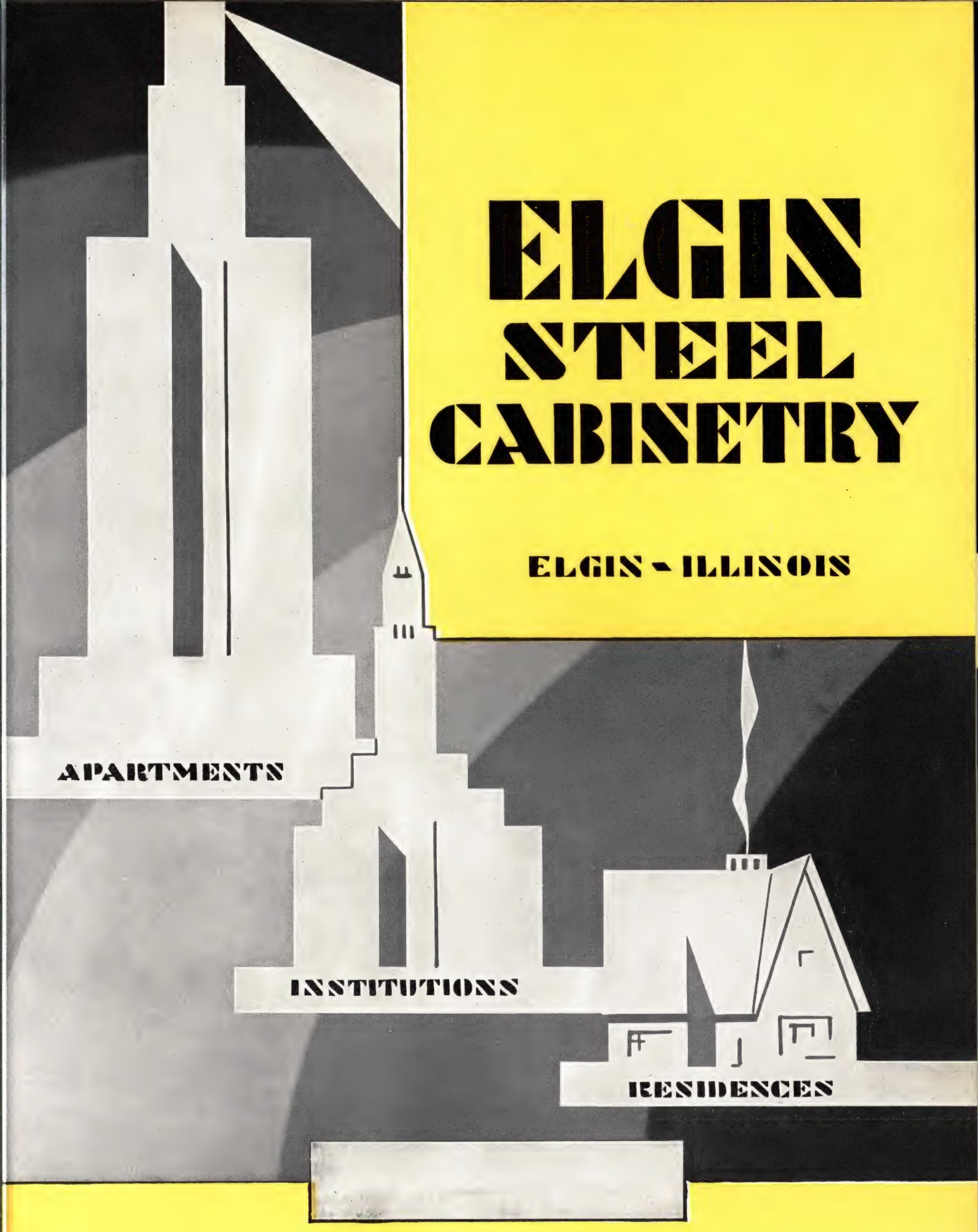
Majestic Combination Set No. 1335



Majestic Combination Set No. 900S

ELGIN STEEL CABINETRY

ELGIN - ILLINOIS



FOREWORD

STEEL has been traditionally used to attain permanence and durability. For many requirements it is essential; for a great many more it is desirable. A rapid trend toward greater use of steel is constantly taking place. Scientists and engineers are discovering new fields for it. A significant fact is the ever increasing demand in institutions, apartments and homes of today for various items constructed of steel. Kitchen cabinets, bathroom cabinets, radiator covers, and fine furniture, to mention only a few, are now available having that permanence, utility, and attractiveness which is the heritage of steel.

The ELGIN STOVE & OVEN CO. has been engaged in the manufacture of quality steel products for over a quarter of a century and for the past six years has been specializing in the manufacture of steel cabinetry for kitchens, pantries, and institutions. The executive, sales, and technical staff of the steel cabinet division are efficiently trained experts in their field and have devoted years of study to the problems arising in the design, manufacture and installation of steel cabinetry. They have been constantly on the alert in their effort to perfect this equipment, and by diligent research have succeeded in designing as fine a line of precision steel cabinetry as modern methods and engineering ingenuity can produce.

SPECIFICATIONS—ELGIN STEEL CABINETRY

STANDARD LINE

Material

All stock shall be best grade selected cold rolled, full pickled, stretcher level No. 1 furniture steel, free from pits, buckles, or rust.

Construction

Cabinets shall be new approved flush type. All joints shall be electric spot welded by Elgin special process, eliminating the weld marks. Cabinet fronts shall be rabbeted to receive 5/8 in. thick doors and drawer fronts. Doors and drawer fronts shall have a liner welded to exposed front enclosing a layer of sound-absorbing insulation. All openings shall be equipped with rubber bumpers (button-type) installed on face of rabbeting. Doors shall be equipped with glass where indicated.

All drawers shall be equipped with telescopic channel design slides and automatic stops. Drawer stops shall be designed to permit easy removal of drawer for cleaning.

Hardware

All hinges shall be bullet semi-concealed type, die cut from high-grade strip steel, rust-proof, triple-plated, hand-polished, bright chromium finish. Door and drawer knobs shall be cast brass, chromium plated, and hand-polished to a mirror finish.

Finish

All surfaces shall be chemically cleansed and coated with high-heat baking primer. Finish shall be high-grade synthetic enamel baked on at 250° F. for two hours.

Colors

Note: Various standard color combinations including green, white, ivory, tan, and gray can be furnished. Samples sent on request.

DELUXE LINE

Note: The deluxe line is similar to the standard line with the following exceptions (add these clauses to Standard Specifications):

Construction

Stock shall be special heavy gauge. All connecting members shall have corners electrically welded and ground to present a perfectly smooth flush surface. All wall cabinets shall have adjustable shelves hung on latest, most modern adjustable shelf hardware.

Finish

Finish shall have one additional baked coat of highest grade synthetic enamel with additional hand-rubbing and sanding.

Color

Note: Special color combinations to suit the most exacting requirements can be furnished to specifications.

ELGIN STOVE & OVEN CO.

ELGIN, ILL.

NEW YORK CITY, 17 East 42nd St., Suite 423

CHICAGO, ILL., 228 North La Salle St. (Ground Floor)

DISTRIBUTORS IN PRINCIPAL CITIES

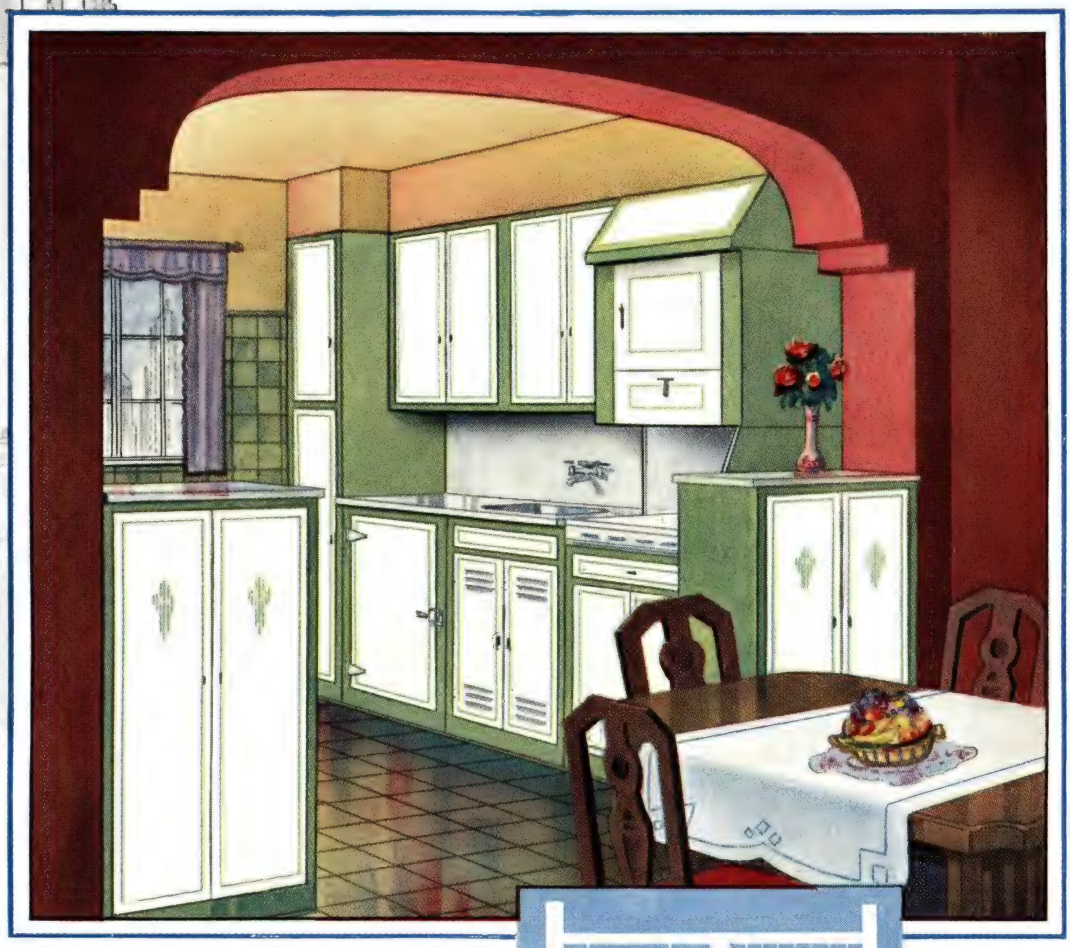


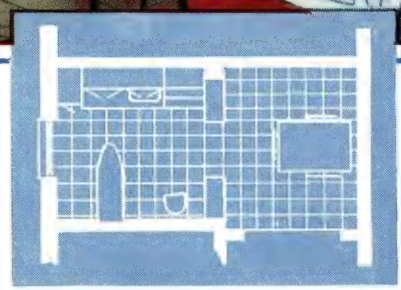
ELGIN STEEL CABINETRY
For Apartments . . . .

Important changes in apartment house design have occurred during the last few years. Desirable ground space has increased in value, and apartment arrangement has been developed with this fact in mind. The result is smaller apartments and smaller kitchens.

Elgin engineers have perfected the steel unit of design to the highest degree of efficiency to meet the more exacting requirements of a complete, compact kitchen in a limited space. The significant result of this fact is emphasized in Elgin design by the exclusive arrangement of the component parts consisting of cabinets, refrigerator, sink and range, resulting in a complete, integral steel kitchen.

Steel makes this accomplishment possible, due to its natural virtues of sturdiness, less bulk, and light weight with durability.

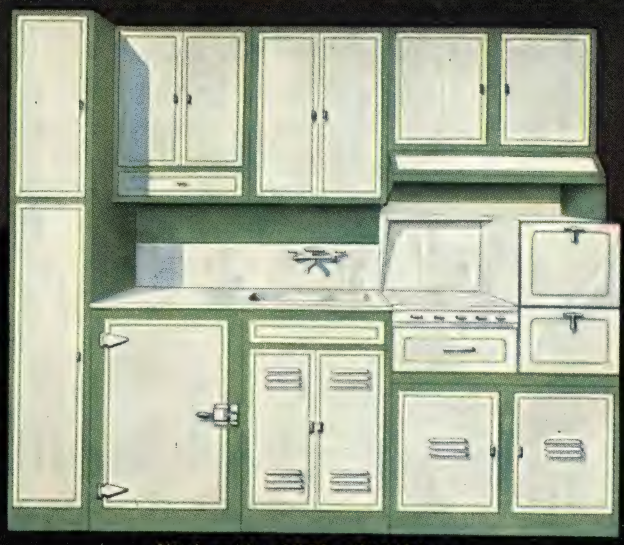




THE steel kitchen shown on this page is a very popular arrangement. It is designed for the modern efficiency apartment and is especially practical for remodeling. The complete kitchen includes ample storage area, cutlery drawer, conveniently located refrigerator; range with large cooking top —standard oven and broiler; heavy porcelain counter with integral sink and deep broom cabinet. Similar combinations are available in sizes from 5 ft. 4 in. to 8 ft. 8 in.

Attention is directed to the convenient location of divider cabinets between kitchenette and dinette.

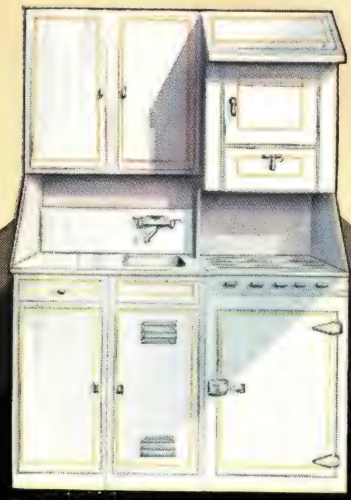
Many similar combinations may be assembled from units shown on standard work sheet.



Kitchen No. 3202—8′ 3/4″ Long

One of the three types of efficiency ranges may be substituted in combinations shown.

Individual counter height top refrigerators similar to one shown in kitchenette, number 3204, may be assembled with standard Elgin Steel Units. Special arrangement for this purpose has been made with the following makes: Electrolux, General Electric, Frigidaire, Westinghouse, and Norge.



Pullmanette No. 3203—4′ 6″ Long

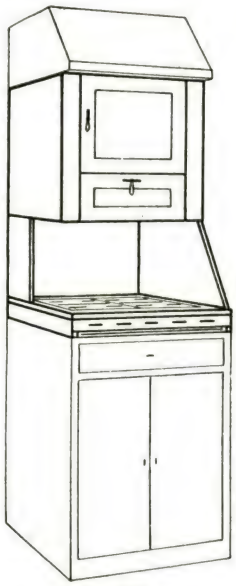
The flexibility of the new exclusive unit system, developed by Elgin engineers, enables architects, and builders of efficiency apartments to provide complete kitchen facilities in a minimum floor space, resulting in important savings in cubage, and substantial reductions in building cost.



Kitchenette No. 3204—6′ 5 1/4″ Long



Kitchenette No. 3205—6′ 1 1/4″ Long.



No. 24E
Overhead Oven Type
24 in. wide
21 in. deep
40 in. high

ELGIN EFFICIENCY TYPE RANGES

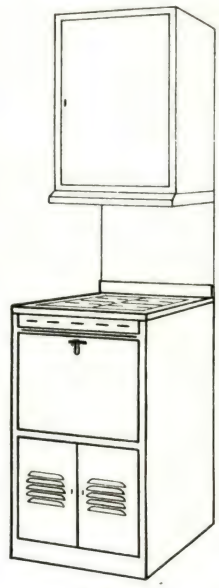
Shown Assembled with Elgin Cabinets

Ranges Are Available Separately or With Cabinets as Shown

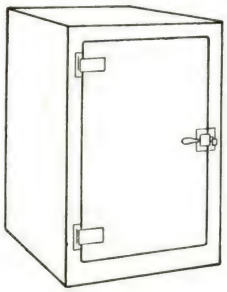
These ranges are constructed to be an integral part of the balance of the steel kitchen

Construction Features

(1) Chromium plated cooking tops especially large size.
(2) Oven, broiler, and cooking top can be operated at the same time.
(3) Air flues surrounding oven act as insulators next to walls or cabinets.
(4) Manifold and all piping concealed.
(5) All gas controls placed in one line for instant accessibility.
(6) Large size ovens 16 in. wide.
(7) Toncan metal triple-wall construction oven linings.
(8) The overhead oven range efficiently disposes of cooking odors through air flues surrounding the oven.
(9) The low oven range is ventilated with canopy to flue through wall cabinet.
(10) Low oven range has storage compartment 20 in. wide, 21 in. deep and 16 in. high below oven.
(11) Cooking top flush with sink top or counter.
(12) New pendant style drop handles.
(13) Either range is furnished for right- or left-hand installations.
(14) Colors to match cabinets.



No. 20J
Low Oven Type
20 in. wide
21 in. deep
36 in. high



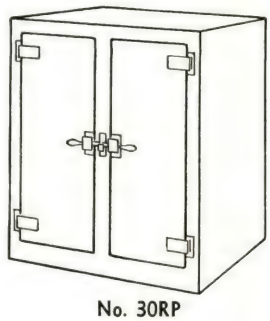
No. 24RP
24 in. wide
21 in. deep
35 in. high
Total capacity
5.1 cu. ft.
Shelf area
8.2 sq. ft.

ELGIN EFFICIENCY REFRIGERATORS

For Mechanical Refrigeration

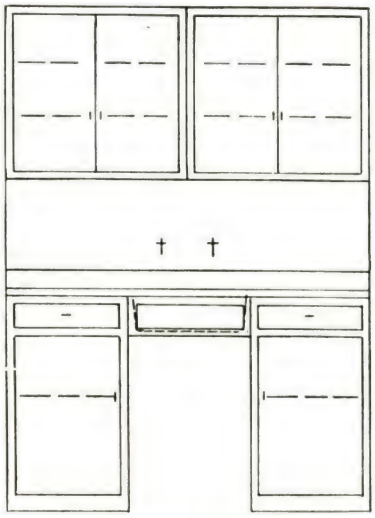
Construction Features

Heavy gauge steel cases.
One-piece porcelain linings.
Dry-Zero odorless insulation.
Newest polished chromium plated hardware and roller type catches.
Heavy composition gaskets to assure effective sealing of doors.
Modern bar type shelves.
Beautiful high-heat synthetic enamel finish to match cabinets.

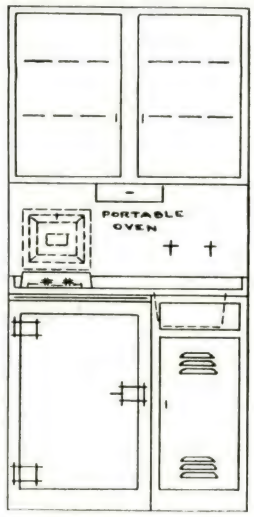


No. 30RP
30 in. wide
21 in. deep
35 in. high
Total capacity
7.3 cu. ft.
Shelf area
8.5 sq. ft.

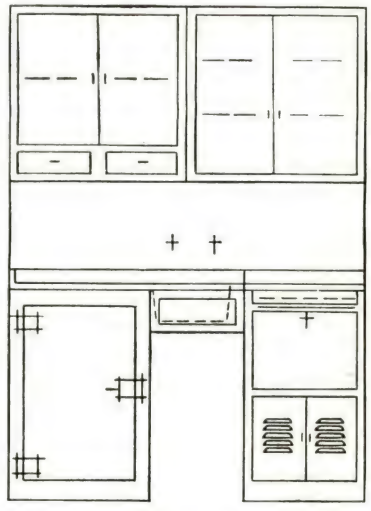
ELGIN EFFICIENCY COMBINATIONS



No. 3206—5 Ft. Long



No. 3207—3 Ft. 4 In. Long

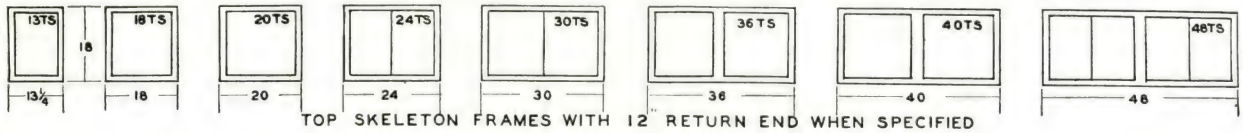


No. 3208—5 Ft. Long

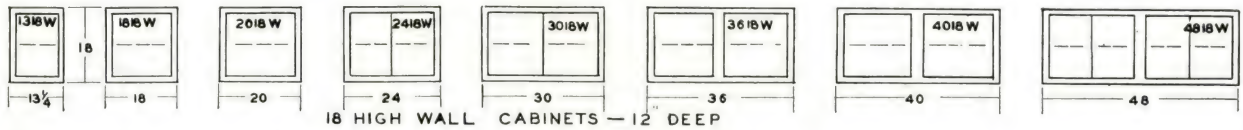
C 3440

ELGIN STOVE & OVEN CO.

DIMENSIONAL DRAWINGS—ELGIN STEEL KITCHEN STANDARD UNITS



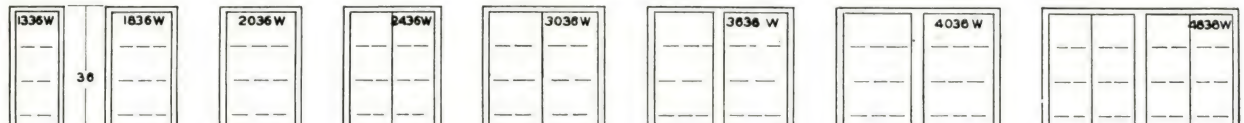
TOP SKELETON FRAMES WITH 12" RETURN END WHEN SPECIFIED



18 HIGH WALL CABINETS — 12" DEEP



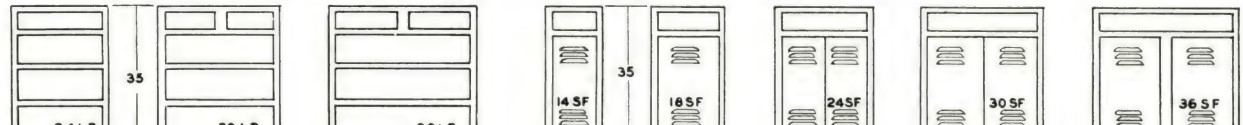
28 HIGH WALL CABINETS — 12 DEEP



36 HIGH WALL CABINETS — 12 DEEP

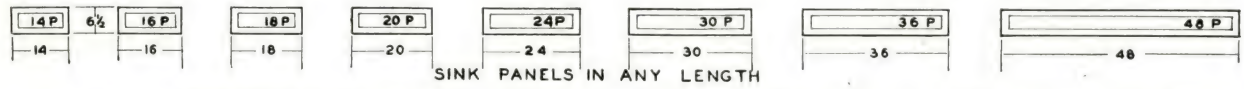


DRAWER & CUPBOARD BASE — 21 DEEP

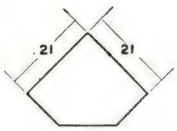


ALL DRAWER BASE — 21 DEEP

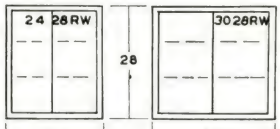
SINK FRONTS WITH RETURN END WHEN SPECIFIED



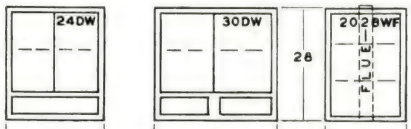
SINK PANELS IN ANY LENGTH



TOP VIEW CORNER BASE

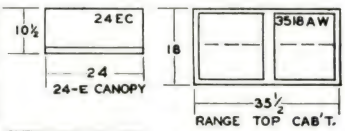


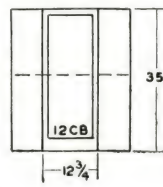
REF'G. CAB'TS.—21 DEEP

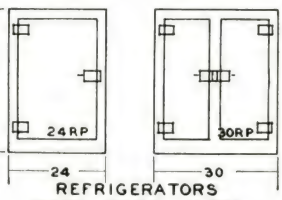


WALL CAB'TS. WITH DRAWERS

20 WALL CAB'T. WITH FLUE-PIPE

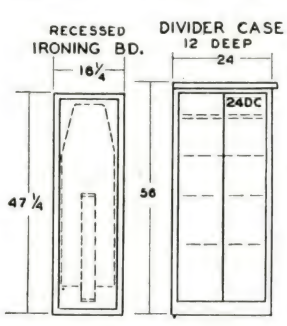


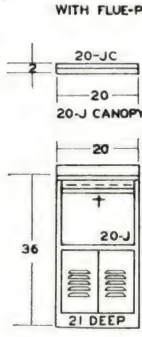


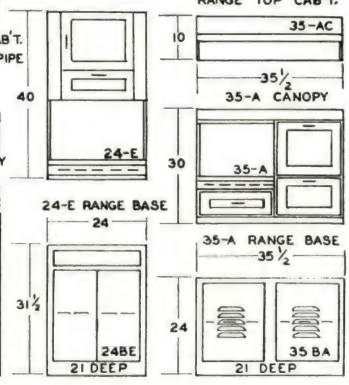


REFRIGERATORS

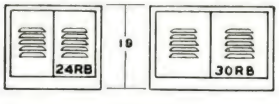
REF'G. BASE CAB'TS.





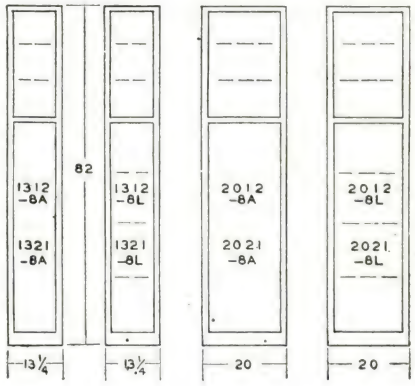




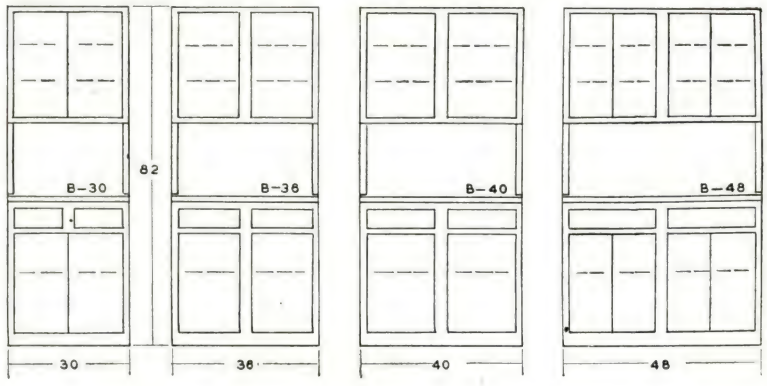


ELGIN STOVE & OVEN CO.

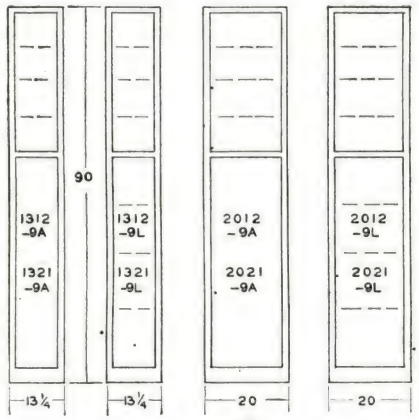
DIMENSIONAL DRAWINGS—ELGIN STEEL KITCHEN STANDARD UNITS



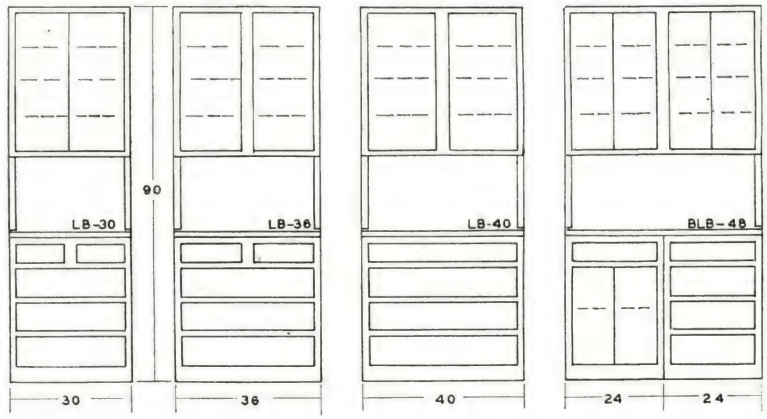
BROOM & LINEN CABINETS—82 HIGH
12 OR 21 DEEP



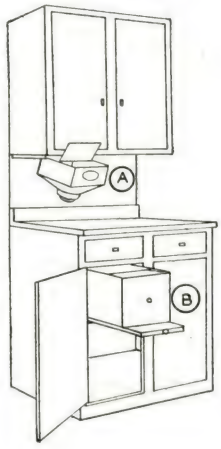
DRAWER & CUPBOARD DRESSERS WALL CAB'TS.—12 DEEP BASE CAB'TS.—21 DEEP

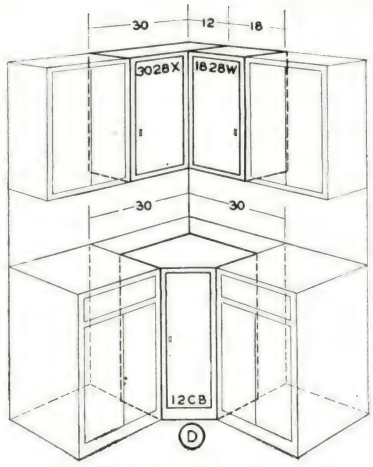


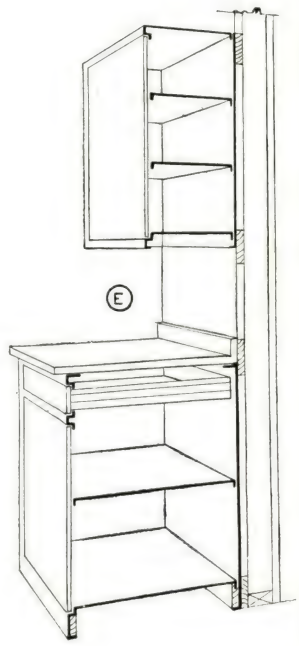
BROOM & LINEN CABINETS—90 HIGH
12 OR 21 DEEP

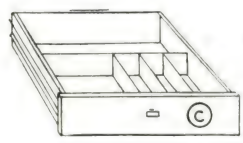


ALL DRAWER DRESSERS WALL CAB'TS.—12 DEEP BASE CAB'TS.—21 DEEP









EXTRAS

A. Flour or sugar-bin can be installed on runners below wall cabinets.

B. Bread or cake drawer can be installed in base cabinet. Cutting boards furnished with bread drawers when specified.

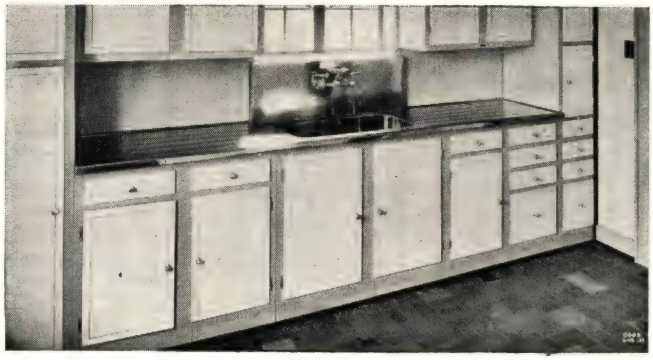
C. Cutlery drawer equipped with partitions and plush linings when specified.

D. Assembly of Elgin units in a corner installation showing the use of exclusive corner base with adjoining base and wall cabinet.

E. Details of Elgin permanent steel construction.

Wall cabinet doors may be furnished to equal the 35 in. height of standard line bases.

MONEL METAL PANTRY SINKS AND COUNTERS



Elgin steel cabinetry for the kitchen or pantry may be had with work-tops, sinks, drainboards and splashbacks of Monel metal. For appearance and durability this type of construction is recommended. (For full information on Monel metal see Sweet's Manufacturers' Index—"International Nickel Company."

Monel metal has the soft lustrous appearance of fine silver which harmonizes with any color scheme. It is strong, durable and easy to keep looking nice. Tops, sinks, drainboards and splashbacks of Monel metal add greatly to the appearance and durability of Elgin steel cabinetry and make them even more serviceable.

COUNTER TOPS

Elgin steel cabinetry may also be specified with porcelain, linoleum, or rubber tile counters. Porcelain counters can be furnished with continuous backs and ends if so desired. They are available in spotless white or in colors to match cabinets. Battleship linoleum or rubber tile counters are ideal for pantry work tops. Their smooth, soft surfaces are available in various colors or designs. The linoleum or rubber tile is applied to a substantially constructed underframe, and all edges are faced with a Monel or white metal moulding rabbeted into the counter to present a perfectly flush surface.

VERIBRITE PORCELAIN ENAMELED ONE-PIECE SINK TOPS

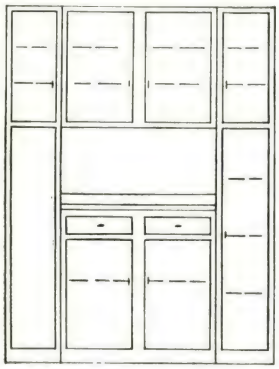
To Fit Any Kitchen Combination and to Match Any Color Scheme



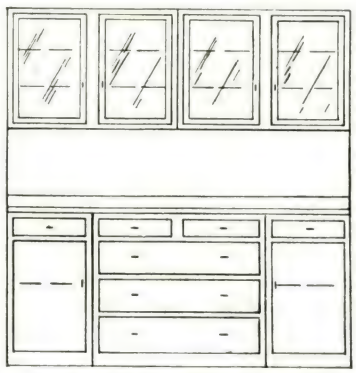
This modern arrangement with one or more sink compartments can be furnished in any length up to 132 in. and with backs or ends in any height up to 16 in..

No matter how large or small the kitchen, Veribrite sink tops used with Elgin steel cabinetry will add to its attractiveness. Veribrite sink tops are enameled with stainless porcelain on heavy gauge Armco iron. There are no crevices to catch or hold dirt or mar the beauty of the installation.

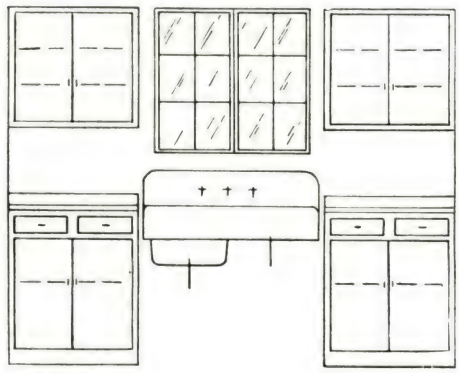
ELGIN EFFICIENCY COMBINATIONS



No. 3215
5 ft. 2½ in. long



No. 3216
6 ft. 8 in. long



2 ft. 6 in.

2 ft. 6 in.

No. 3217

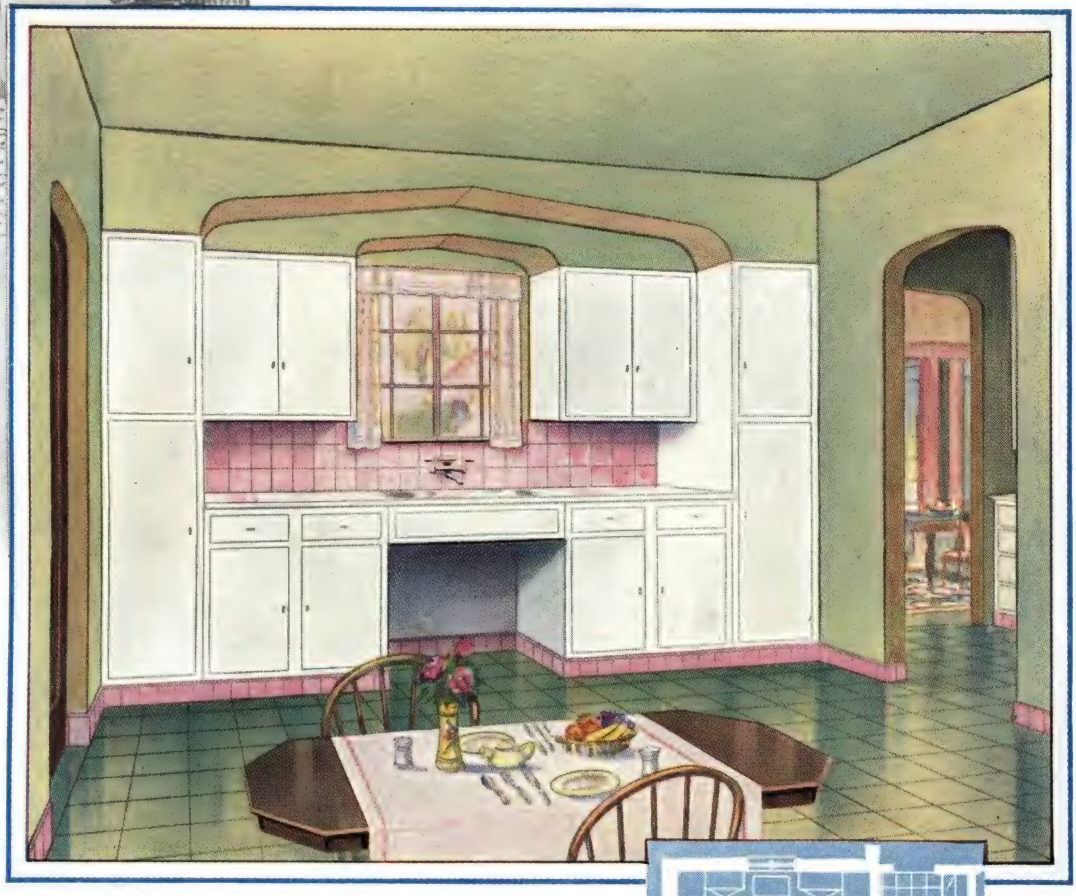


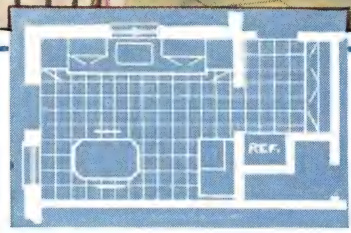
ELGIN STEEL CABINETRY
For Residences, Hospitals and Institutions

The universal and popular reception which steel has received in supplanting inferior materials prompted Elgin engineers to create an extensive and practical line of steel cabinetry. This line has been designed for a lifetime of heavy-duty service whether it be for a small home, a residence for the pretentious estate, exclusive apartment, or for the hospital and institution.

Elgin steel cabinetry supplies a distinctive finishing touch to modern kitchens and pantries. Leading architects and builders throughout the country, having used the Elgin line, are pleased to offer their endorsement. Architects may specify Elgin steel cabinetry in either the Standard or De Luxe line and be assured of maximum sanitation, permanence, and flexibility.

As a result of careful study of color harmony Elgin now offers a variety of delicate pastel shades which blend with individual decorative schemes.





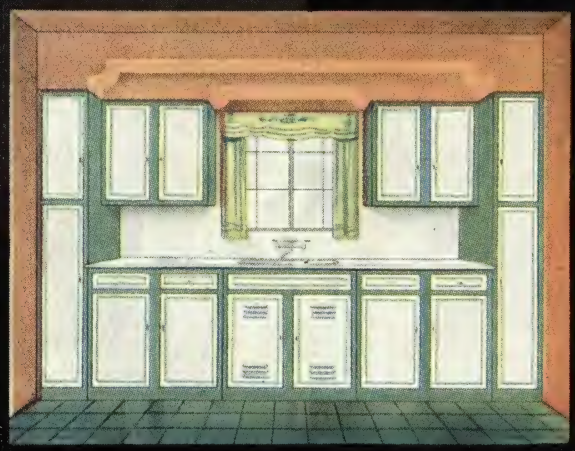
THE illustration above is a typical example of the convenient arrangement of Elgin De Luxe steel cabinets for a modern residence kitchen. A spacious broom closet is provided at one end and a deep-shelf storage unit for linen, dishes, or staples at the opposite end. Convenient height wall cabinets are located on both sides of the window. Base cabinets supporting a continuous sink have drawer storage, concealed bread drawer, and cooking utensil compartment. The integral sink with combination drain and work top can be furnished in Monel or Allegheny white metal, also in heavy acid-resisting porcelain in color to match cabinets.



De Luxe Butlery No. 3215—11'6" Long



Standard Corner Assembly No. 3216
7'2" on Each Wall

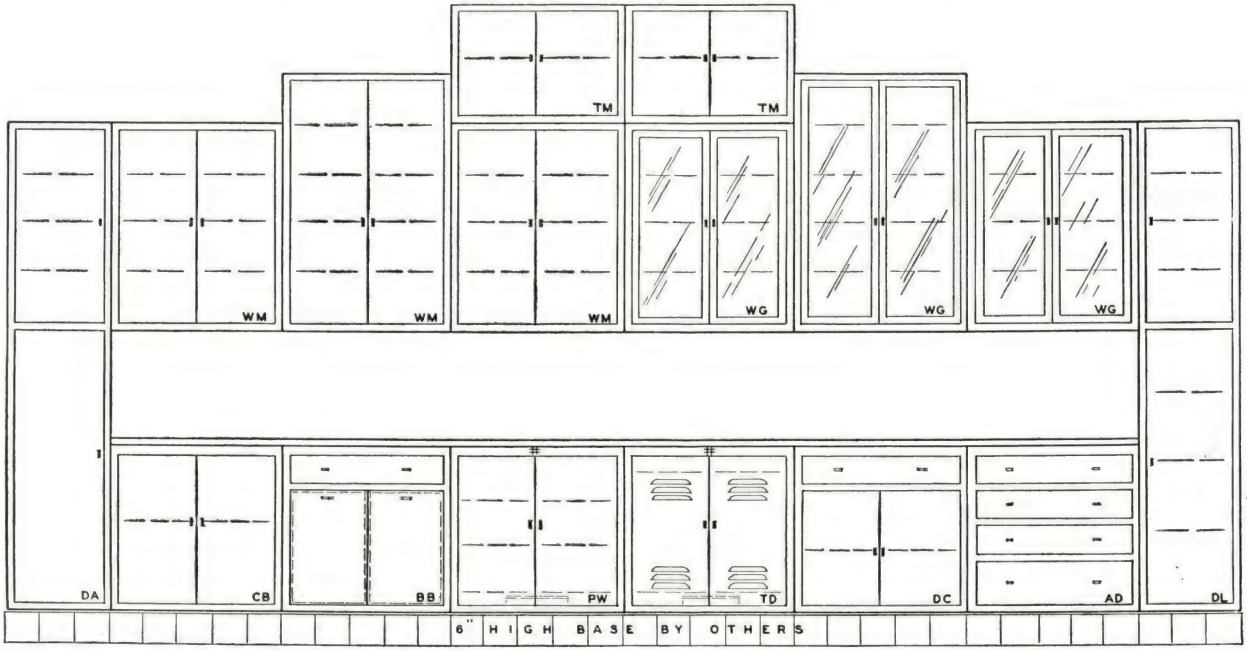


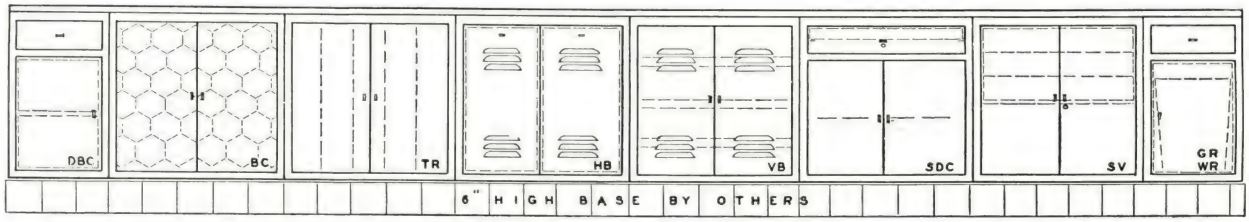
Standard Residence Kitchen
No. 3217—11'2½" Long



Standard Residence Kitchen
No. 3218—13'4" Long

DIMENSIONAL DRAWINGS—ELGIN DE LUXE CABINETRY





CABINETS		WIDTH							DEPTH		HEIGHT						
		18	20	24	30	36	40	48	12	21	22	28	28½	36	47¼	58	82	93¼
TOP SECTIONS	TM	▪	▪	▫	▫	▫	▫	▫	▫		▫							
TOP SECTIONS	TM	▫		▫						▫	▫							
WALL CABINETS METAL DOORS	WM	▫	▪	▫	▫	▫	▫	▫	▫			▫		▫	▫	▫		
WALL CABINETS GLASS DOORS	WG	▫	▫	▫	▫	▫	▫	▫	▫			▫		▫	▫	▫		
BROOM CABINETS	DA	▫		▫					▫	▫							▫	▪
LINEN CABINETS	DL	▪		▫					▫	▫							▫	▪
CUPBOARD BASE	CB	▫	▫	▫	▫	▫	▫	▫		▫			▫					
BIN BASE	BB	▫			▫					▫			▫					
PLATE-WARMER BASE	PW				▫					▫			▫					
TOWEL-DRYER BASE	TD				▫					▫			▫					
DRAWER & CUPBOARD BASE	DC	▫	▫	▫	▫	▫	▫	▫		▫			▫					
ALL DRAWER BASE	AD			▫	▫	▫				▫			▫					
DRAWER BREAD & CAKE BASE	DBC	▫								▫			▫					
BEVERAGE COMPARTMENT	BC	▫		▫	▫					▫			▫					
SILVER-DRAWER & CUPBOARD BASE	SDC			▫	▫					▫			▫					
LINEN HAMPER BASE	HB	▫			▫					▫			▫					
VEGETABLE BASE	VB	▫			▫					▫			▫					
TRAY STORAGE BASE	TR			▫						▫			▫					
SILVER STORAGE VAULT	SV				▫					▫			▫					
WASTE RECEPTACLE BASE	WR	▫								▫			▫					
GARBAGE RECEPTACLE BASE	GR	▫								▫			▫					

NOTES

Warmer and dryer bases Monel metal lined.

Silver drawer and cupboard base equipped with plush silver trays and Yale locks.

Vegetable base equipped with sliding wire vegetable trays.

Bin bases and hamper bases have removable bins to facilitate easy cleaning and assure sanitation.

Counters furnished with porcelain, Monel metal, rubber tile, or linoleum tops.

Wall cabinets have adjustable shelves.

Wall cabinets furnished with metal or glass doors.

Beverage compartment furnished with lock if specified.

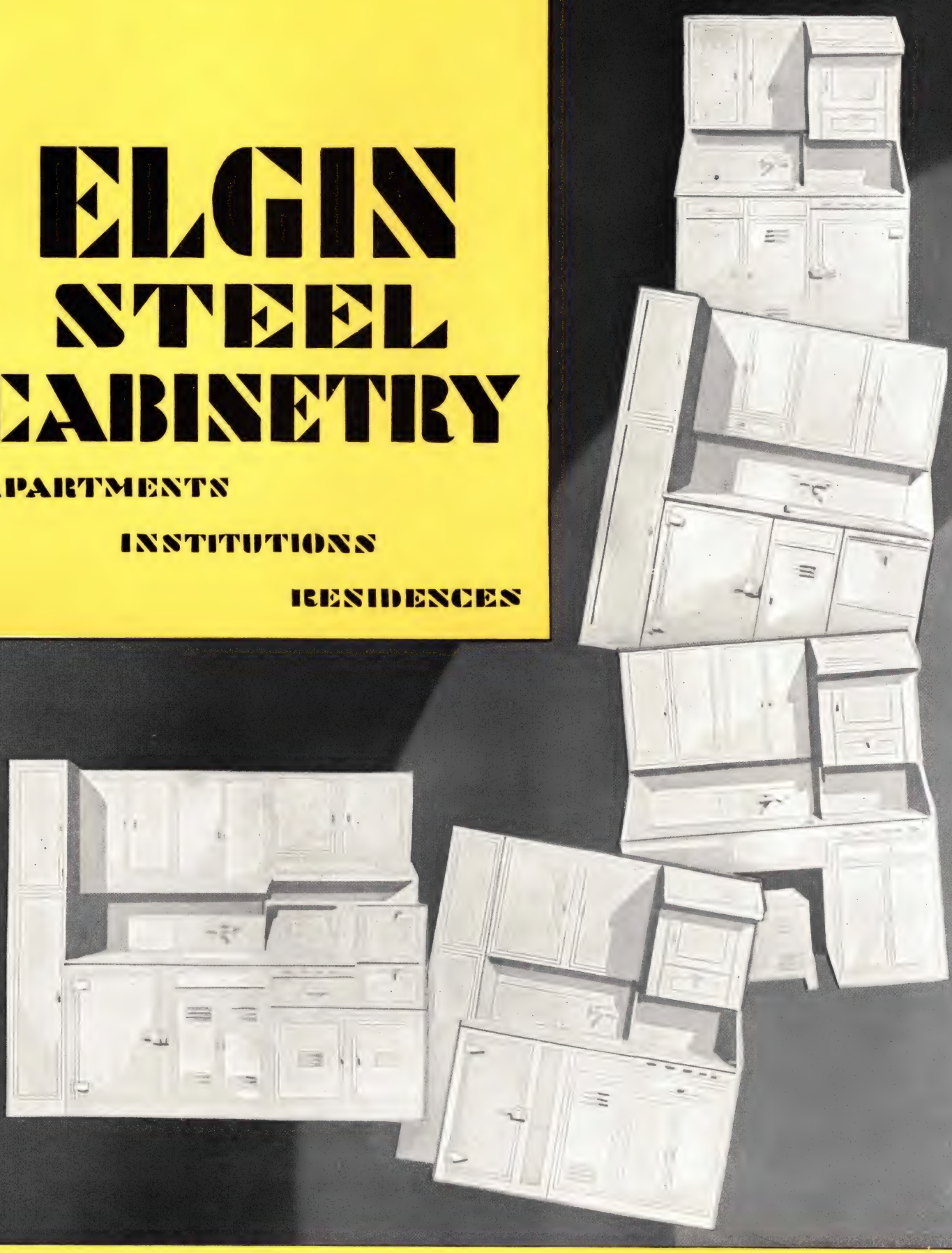
Special base cabinets in deluxe line such as warmers, vegetable bases, etc., may be worked into the standard line kitchen layouts. In such cases a 6½-in. high steel base section will be furnished to be used with the standard line.

ELGIN STEEL CABINETRY

APARTMENTS

INSTITUTIONS

RESIDENCES



ELGIN STOVE & OVEN CO.
ELGIN, ILL.

EXCEL METAL CABINET CO., INC.

JAMESTOWN, N. Y.

SALES OFFICE: 101 Park Avenue, NEW YORK, N. Y.

REPRESENTATIVES

CLEVELAND, OHIO
DALLAS, TEX.
DETROIT, MICH.
LOUISVILLE, KY.
PALM BEACH, FLA.
PHILADELPHIA, PA.
ST. LOUIS, MO.
SYRACUSE, N. Y.

Products

STEEL CABINETS, CUPBOARDS, DRESSERS, BROOM CLOSETS, LINEN CLOSETS for kitchens and pantries of residences, apartments and institutions.

Also Cabinet Electric Platewarmers; Monel Metal Sinks, Tables and Equipment.

For our page on Hospital Cabinets, see Manufacturers' Index.

Data

For complete construction details, types, sizes and specifications, refer to pages on Hospital Cabinets.

While our cabinets have been designed especially for hospital work, the same standard units are used for residences.

Advantages

Steel dressers are the utmost in kitchen and pantry equipment for the modern residence. They are sanitary, durable, moistureproof, verminproof, and fireproof.

Service

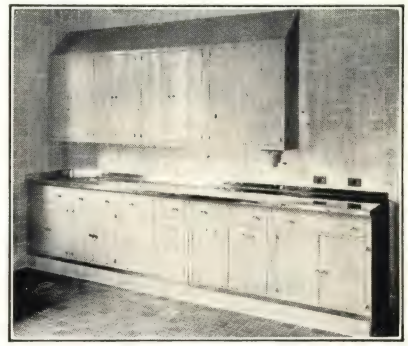
We are prepared to submit a complete layout from your floor plans and offer suggestions for efficient arrangement.



Pantry S. A. Kirkman Residence, 43 East 68th Street, New York, N. Y.

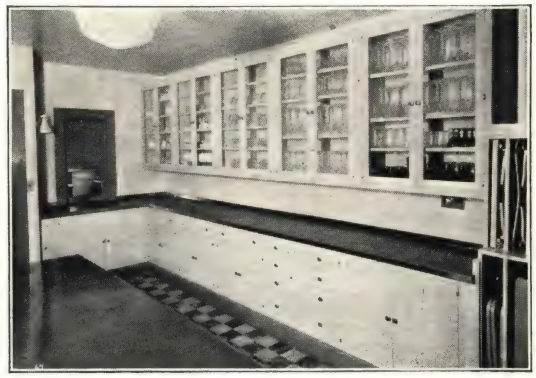


Pantry in Apartment, 740 Park Avenue, New York, N. Y.



Kitchen, E. M. Statler Residence





Kitchen and Pantry, J. W. Kiser Residence



Pantry, Geo. D. Widener Residence

Among Our Installations Are the Following

Residences

OWNER	ARCHITECT
E. M. Statler	Geo. B. Post & Son, Inc.
Samuel L. Fuller	Peabody, Wilson & Brown
John W. Kiser	Hiss & Weekes
Jacob L. Reiss	Ernest A. Arend
Norma T. Johnson	Goodwillie & Moran
George D. Widener	Horace Trumbauer
S. A. Kirkman	Ernest Flagg
L. K. Jennings	W. B. Chambers
Edw. H. Wells	Lyon & Taylor
Frederick Rockwell	Taylor & Levi
W. D. McClintock	Clarence E. Day

Apartments

720, 740, 780 Park Avenue	Rosario Candela
895 Park Avenue	Sloan & Robertson
76th Street and Madison Avenue	Bien & Prince
15 West 81st Street	Emery Roth
El Dorado Towers	Margon & Holder

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES
67 Wall Street, NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.
REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index
For Distributers, see our page on Metals

Product

MONEL METAL.

For full information on the properties of Monel Metal see Manufacturers' Index, our section on metals. This section also lists sources of supply and locations of warehouse stocks of all commercial mill forms and accessories, such as nuts, bolts, rivets, etc.

TRADE-MARK

Well-known General Uses

Monel Metal has long been used by architects for many purposes such as ornamental metalwork, food service equipment for hotels, restaurants and hospitals, laundry equipment and a variety of other applications. The same properties that make Monel Metal so desirable for these uses also recommend its use for custom-built domestic service equipment.

Custom-built Domestic Service Equipment

While ordinary household utilities are available in many standard forms and in many satisfactory materials, including Monel Metal, efficient planning frequently requires the use of custom-built equipment. For the construction of any of the following items of equipment Monel Metal is particularly well adapted:

Kitchen and pantry sinks
Cabinet tops
Table tops
Plate warmers (portable and built-in)
Range hoods and flue connections
Refrigerators
Laundry chutes

Advantages of Monel Metal Construction

For such equipment Monel Metal presents these definite advantages:

(1) Inherent cleanliness or sanitary qualities.
(2) Ease of maintenance.
(3) Durability under heavy service.
(4) Decorative value. Monel Metal harmonizes with all color schemes.

Finishes Recommended

There are two standard finishes of Monel Metal:

(1) No. 8 Finish—A fine, soft and moderately brilliant finish approximately midway between a wire-brushed and a full-polished surface. It is reflective but not mirrorlike, lustrous but not too shiny—neither too bright nor too dull. This finish is particularly recommended for all forms of domestic service equipment as its soft mellow lustre is not impaired by the abrasive cleaners commonly used in the home.

(2) No. 5 Finish—A special mirrorlike finish applied to cold-rolled sheet Monel Metal. A bright mirrorlike surface of high reflectivity. It may be used to contrast with No. 8 finish on trim or special parts or may be employed throughout where a mirror finish is desired, as is sometimes the case with pantry-type sinks. This finish requires the use of metal polishes rather than abrasive cleaners which impair its brilliance. Abrasive cleaners tend to scratch the No. 5 mirror finish but actually improve the lustre of the No. 8 finish. It is because of the probability of careless maintenance that the No. 8 finish is recommended in preference to the No. 5 finish.

Gauges of Monel Metal Recommended

Upon the gauge of Monel Metal specified by the architect depends much of the character of the resulting work. It affects the choice of fabrication methods. Heavy gauges are self-supporting and require no framework. The lighter gauges must be backed up by some appropriate material which may vary with each unit. The advantages gained by the use of heavy gauges are primarily resistance to severe abuses; freedom from reliance upon the structural backing to prevent denting under sharp impacts; the opportunity to omit structural supports by employing Monel Metal as a self-supporting material; and the elimination of the tendency toward waviness in surface that may appear in light gauge work. In general, nothing lighter than 16-gauge U.S.S.-.062-in. Monel Metal should be used for equipment such as self supporting sinks and cabinet tops. For equipment in which Monel Metal is backed up with wood or steel the construction may vary from 16 to 22-gauge—.031 in. In the exact specification of gauges the manufacturer should be consulted as the gauge best suited depends upon the dimensions of the equipment and upon the type of construction employed by the manufacturer. Additional information upon gauges may be obtained by reference to the booklet "Modern Domestic Service Equipment" published by THE INTERNATIONAL NICKEL COMPANY, INC.

Sources of Supply

All recognized manufacturers of kitchen cabinets can furnish their equipment with Monel Metal sinks and tops. Plumbers and plumbing supply jobbers can also furnish Monel Metal sinks. Range hoods and laundry chutes may be made by sheet metal workers. Cabinets and tables of Monel Metal construction may be secured from your regular sources of supply. See also Manufacturers' Index of this catalogue. Should you have any difficulty in locating sources of supply get in touch with THE INTERNATIONAL NICKEL COMPANY, INC. or with the INCO agent in your territory (see our page on metals). Also refer to our page on Standardized Monel Metal Sinks.

Available Literature

Modern Domestic Service Equipment—a thirty-two page book containing full specification data for custom-built Monel Metal equipment. Shows typical applications of custom-built and standard Monel Metal equipment for the home.



Maximum use of space is achieved with custom-built utilities. Monel Metal is adaptable to irregularities in the plan or to special service requirements



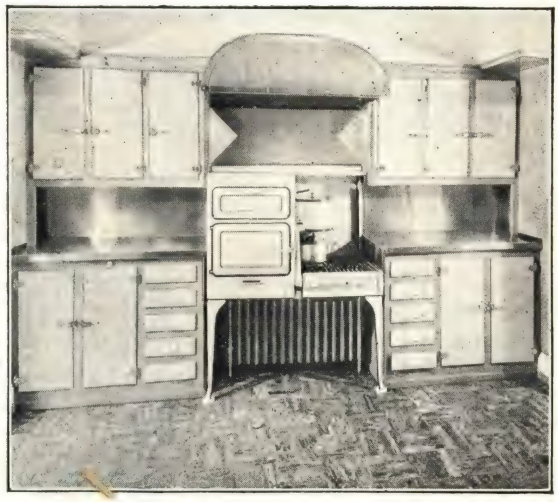
Attractive appearance is combined with efficiency, ease of maintenance and great durability in this Monel Metal sink, custom-built to fit the kitchen cabinet



Custom construction in Monel Metal permits the incorporation in the cabinet and sink unit of special utilities, such as dishwashers. This saves steps and minimizes dish breakage



There are no unsightly crevices or openings when sinks and drainboards are built of Monel Metal to fit into the cabinet unit. Such units are easy to keep clean and neat



Monel Metal range hoods add to the beauty of the kitchen and are easy to keep looking nice. They may be furnished to specifications by sheet metal workers



Efficiency and attractiveness are combined in this compact unit for apartments or small homes. The Monel Metal sink, cabinet top and splash-back greatly simplify maintenance

JANES & KIRTLAND, INC.

Sectional Steel Units

MAIN OFFICE AND SHOWROOM
101 Park Avenue
NEW YORK, N. Y.
FACTORY, ST. CHARLES, ILL.

Scope

The WHITE HOUSE Line

White House installations over a period of eighteen years reflect the preference of owners, architects and builders for a finely constructed line of steel cabinets for use in the kitchen and pantry or wherever food is stored, prepared or served.

Construction

White House Units are manufactured of first grade furniture steel. All joints are electrically welded. Doors and drawer fronts are double construction, fitting into full rabbetted frames. This interlocking rabbetted construction with double doors and drawers gives strength which is not obtainable with any other construction.

The doors are hung on patented, semi-concealed brass hinges and close on friction catches. Rubber bumpers are provided on the doors. With this construction, it is possible to open and close each door independently and without noise. Our new shelf supports are provided at the back and front of the unit, the front support being located on a stile which closes the rabbet and makes a smooth finish on the inside.

The line comprises bases and upper units, broom closets, sink units, tables, and regular kitchen cabinets with equipment.

Finish

Each unit is full finished on the inside, outside, top, bottom and back in enamel of the highest quality, each coat baked. This finish thoroughly protects the steel. Our enameling process assures a finish which is very tough and durable, and gives a glossy finish easily kept clean.

Layouts may be furnished in white or colored enamel as selected. White is our standard color. Other colors are matched to sample.

Fittings

All knobs are of glass or chromium plated brass.

Hinges are brass, semi-concealed, chromium plated.

All shelves are of steel, and enameled all sides.

Locks may be furnished on any door or drawer. These locks are brass, cylinder type with flat key.

All sub-bases furnished by others unless otherwise specified.

Counter tops are of steel enameled and covered with monel metal or stainless steel for kitchen use, and linoleum with metal nosing for pantry use. Metal counters are not made longer than 8 ft. in one piece. Longer counters are made in sections, bolted together. In the case of linoleum counters, the steel counters are made in sections and one continuous piece of linoleum provided to give the length required. Special linoleum may be furnished to match color schemes.

All White House Units are furnished complete, no extra hardware, glazing or painting necessary.



Arrangement

Sectional units in a variety of widths meet individual requirements. Aside from the usual cupboard and drawer units, additional utility and convenience is provided with flour and sugar bins, barrel compartment and electric plate warmer units. New features are electric towel dryer, soiled linen bin, tray and platter rack storage, each a unit to be made a part of the layout desired.

Cup hooks are provided on the shelves of upper units when specified.

Rolling ladders are furnished when specified for access to high units. These ladders are of wood, white enameled, fitted with rubber treads, and rubber tired wheels. The ladders travel on metal rails bracketed to the units.

Installation

White House Units effect a saving in the cost of installation, especially where the walls are tiled. Each unit being a complete steel case makes it unnecessary to tile in back of the units.

Bases are set on our regular 6-in. legs, or more often are set on a composition sub-base 6 in. high, to maintain the accepted 3-ft. counter height. This sub-base construction may be made of wood painted, concrete, or other material faced with tile or covering to match flooring.

Units are secured to the wall with bolts, etc., according to the construction of the wall, i. e.,

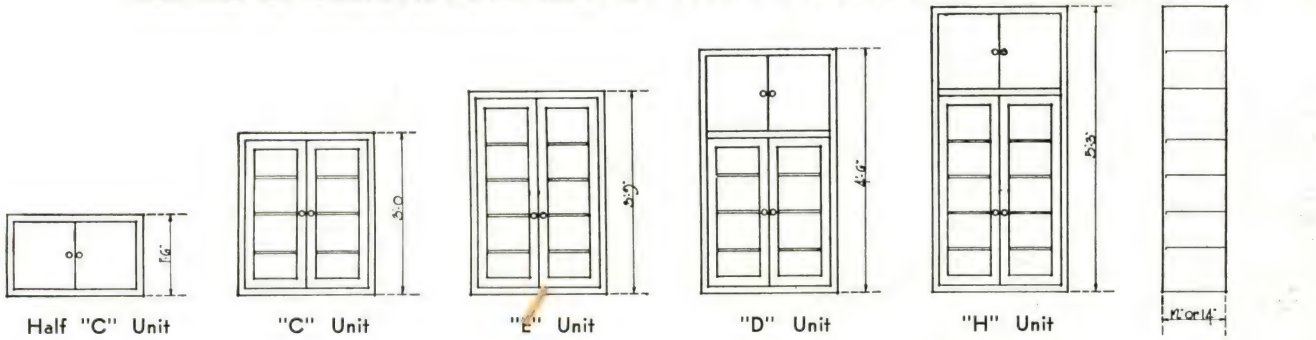
Hollow tile wall—toggle bolts.

Brick wall—expansion bolts.

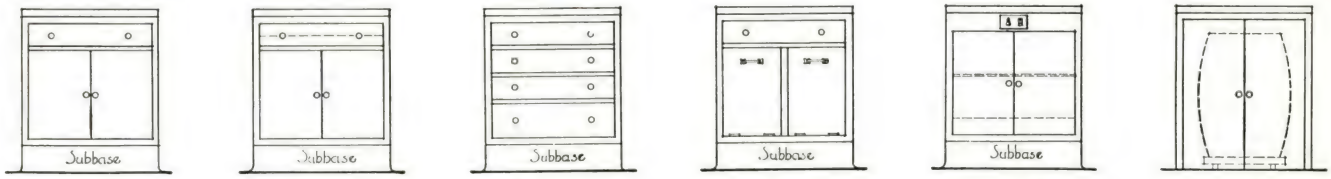
Lath and plaster wall—wood or lag screws in studding.

Gypsum block partitions—screws in wood grounds, furnished by others, or bolted through the wall.

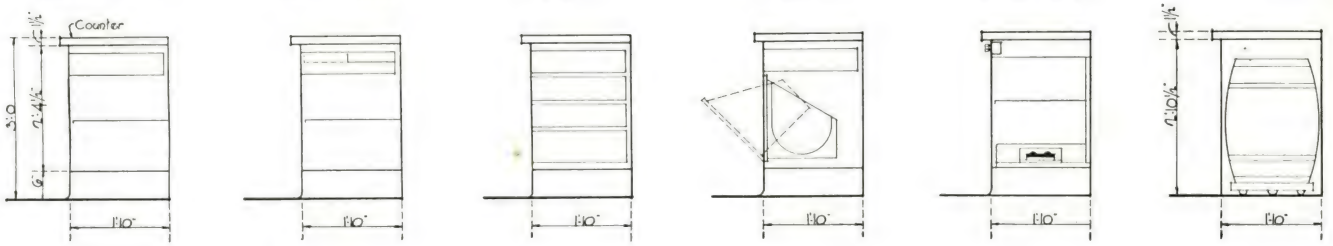
DETAILS OF DESIGNS AND SIZES OF WHITE HOUSE SECTIONAL UNITS



Half "C" Unit | "C" Unit | "E" Unit | "D" Unit | "H" Unit



Cupboard and Drawer Base | Base with Silver Drawers | All Drawer Base | Flour Bin Base | Electric Plate Warmer Base | Flour Barrel Base



Dimensions

White House Units are furnished in the following widths:

14½, 16½, 18¾, 24, 26, 27½ and 30 in. (as detailed above), 36, 39 and 50½ in.

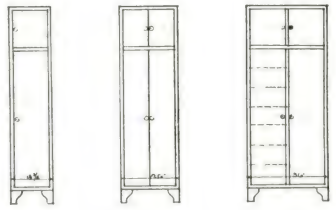
Every base unit has an upper unit corresponding in width.

Upper units are not made deeper than 14 in. to hang on the wall.

Base units are made standard 22 in. deep. They may be made shallower when specified with the exception of the bin base (which necessitates minimum depth 16 in.).

Plate warmer and barrel base made only 22 in. as detailed.

Doors—14½, 16½ and 18¾-in. units have a single door; 24, 26, 27½, 30 and 36-in. units have a pair of doors. The 39-in. unit has a pair of doors and a single door. The 50½-in. unit has two pair of doors.



Broom Closets

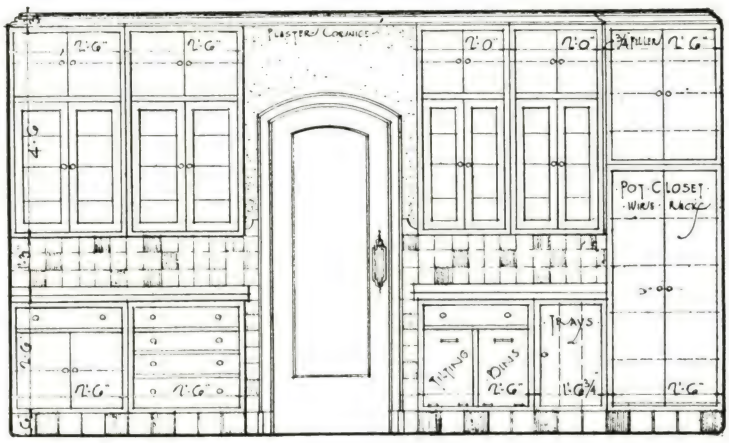
18¾ and 26-in. closets are made 12 in. deep. 36-in. closets are made both 12 and 22 in. deep.

Sink Units

Sink units are made 14½, 27½, 36, 39 and 50½ inches wide, 6-in. deep, 18-in. high.



Sketch below is suggested layout showing adaptibility of White House Units to existing conditions



Adaptability

Rigid construction and our unit system makes White House Units adaptable for every requirement of the kitchen and pantry in the residence, apartment, commercial and industrial building, as well as in the hospital.

Catalog No. 6 is now available.

A WHITE HOUSE *specification carries only one standard of construction.*

MURPHY DOOR BED COMPANY

OFFICES AND DISPLAY ROOMS THROUGHOUT THE UNITED STATES AND CANADA

ATLANTA, GA., 266 Peachtree Street, N. W.
BALTIMORE, MD., 506 St. Paul Street
BIRMINGHAM, ALA., 513 No. 21st Street
BOSTON, MASS., 248 Boylston Street
BUFFALO, N. Y., 132 W. Chippewa Street
CHICAGO, ILL., 173 W. Madison Street
DALLAS, TEX., 1919 Pacific Avenue
DENVER, COLO., 1534 Blake Street
DETROIT, MICH., 7th Floor, Kresge Building
EL PASO, TEX., Neff-Stiles Building
HOUSTON, TEX., 3914 Main Street
KANSAS CITY, MO., 1114 Grand Avenue
LOS ANGELES, CALIF., 1801 So. Main Street
NEW JERSEY REPRESENTATIVE, 57 Grove Avenue, Maywood, N. J.
NEW ORLEANS, LA., 319 Dryades Street
NEW YORK, N. Y., 19 W. 44th Street
OKLAHOMA CITY, OKLA., 2414 No. Robinson Street
PHILADELPHIA, PA., 307 Lewis Building
PITTSBURGH, PA., 501 Keystone Bank Building
ST. LOUIS, MO., 315 No. 10th Street
SAN ANTONIO, TEX., 101 W. Pecan Street
SAN FRANCISCO, CALIF., Phelan Building
SEATTLE, WASH., Terminal Sales Building
TORONTO, ONT., CANADA, 118 Alton Avenue
WASHINGTON, D. C., J. G. White, Lobby No. 5, Investment Building

For Murphy Disappearing Beds, see Manufacturers' Index

Murphy Cabranette Kitchens

Porcelain completes the kitchen in the form of Murphy Cabranettes, with their entire fronts of 18 and 20-gauge steel finished in five-coat vitrified porcelain—a glistening surface as permanent as that of a bathtub, lavatory or a kitchen sink.

Ranges and refrigerators are scientifically insulated and porcelain lined. Refrigerators are adaptable to use with ice or varied types of mechanical refrigeration. Porcelain-steel drainboards or combination porcelain-steel drainboards and sinks are furnished or porcelain cast iron sinks may be used.

By using different sizes of refrigerators, ranges and sinks, each type of standard assembly shown may be developed in various widths.

Special assemblies, to meet unusual requirements, will be built to order, requiring about thirty days.

Modern Color Schemes—*Bisque Two-tone; Silver Green Two-tone; Pewter Gray Two-tone; Spring Green and White; Spring Green and Ivory; White with Ebony Edge; Ivory with Ebony Edge.*

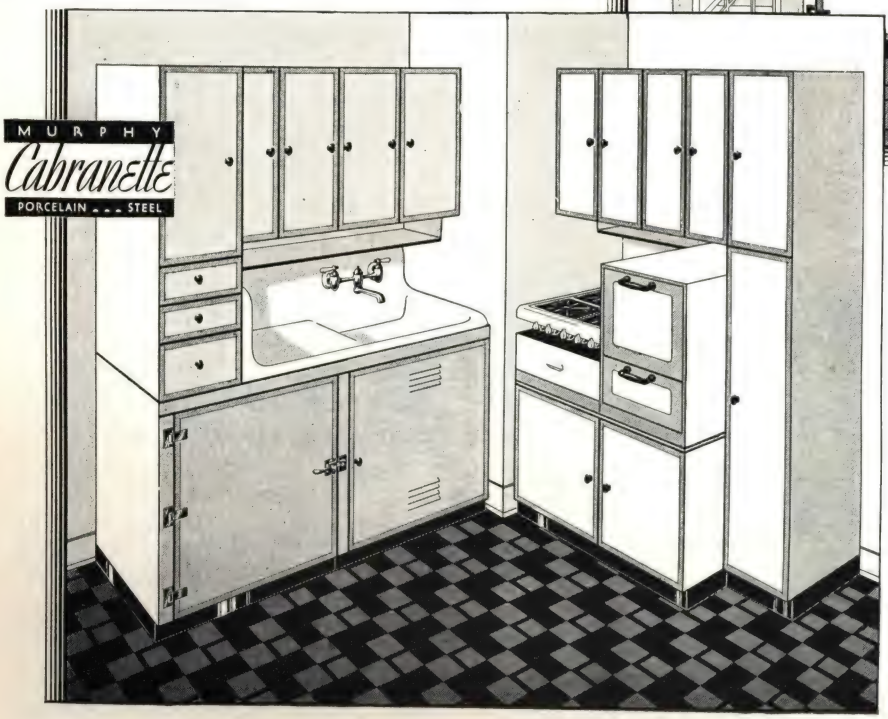
Porcelain on Steel—Surfaces as permanent as on a bathtub, a lavatory or a kitchen sink. Easily cleaned, never discolors.



Above:

Unit AB-64

Typical assembly for compact Kitchenette—available for spaces 5 to 8 ft., with gas or electric ranges and refrigerators

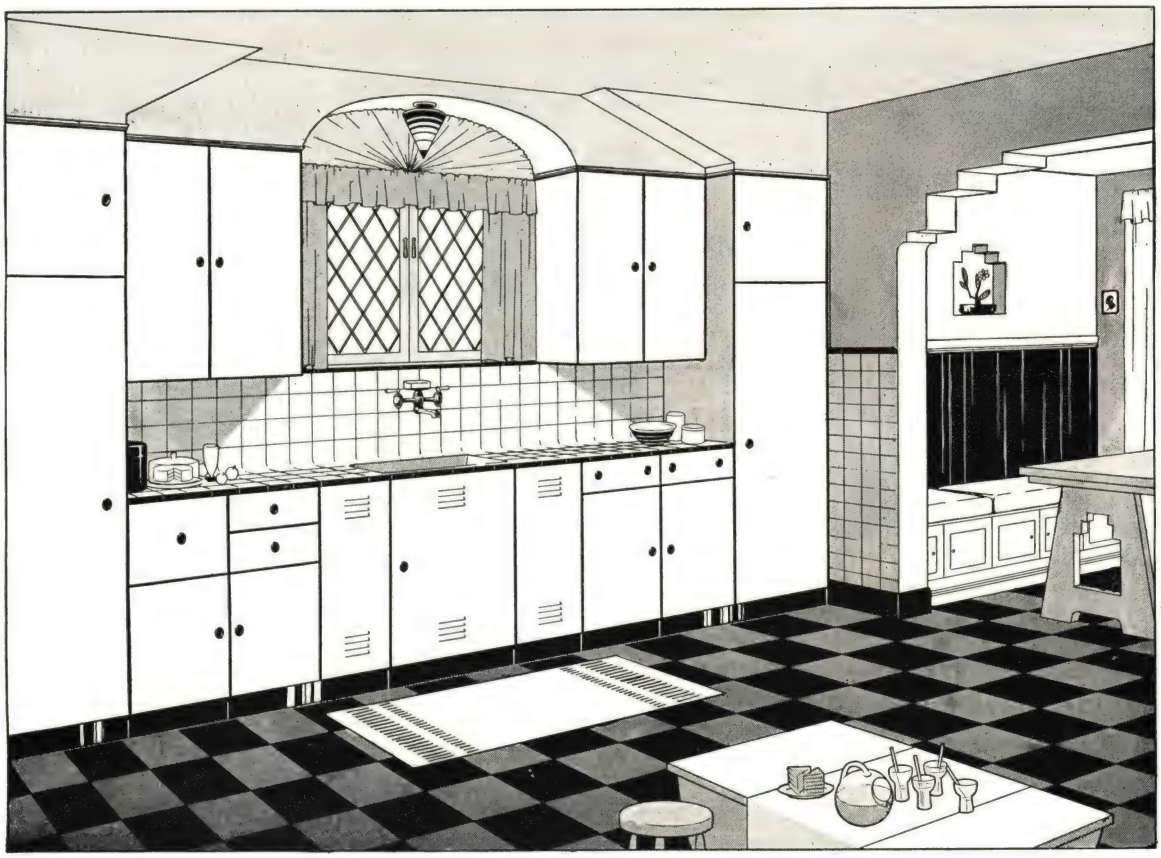


Left:

Unit AS-935

Suggestion for larger apartment or residence kitchen—available in many combinations, sizes and arrangements for placement on one or more walls

Kitchens, Pantries and Storage Cabinets, in permanent Porcelain on steel, made for residences, apartments, hospitals, restaurants, clubs or any special requirement.

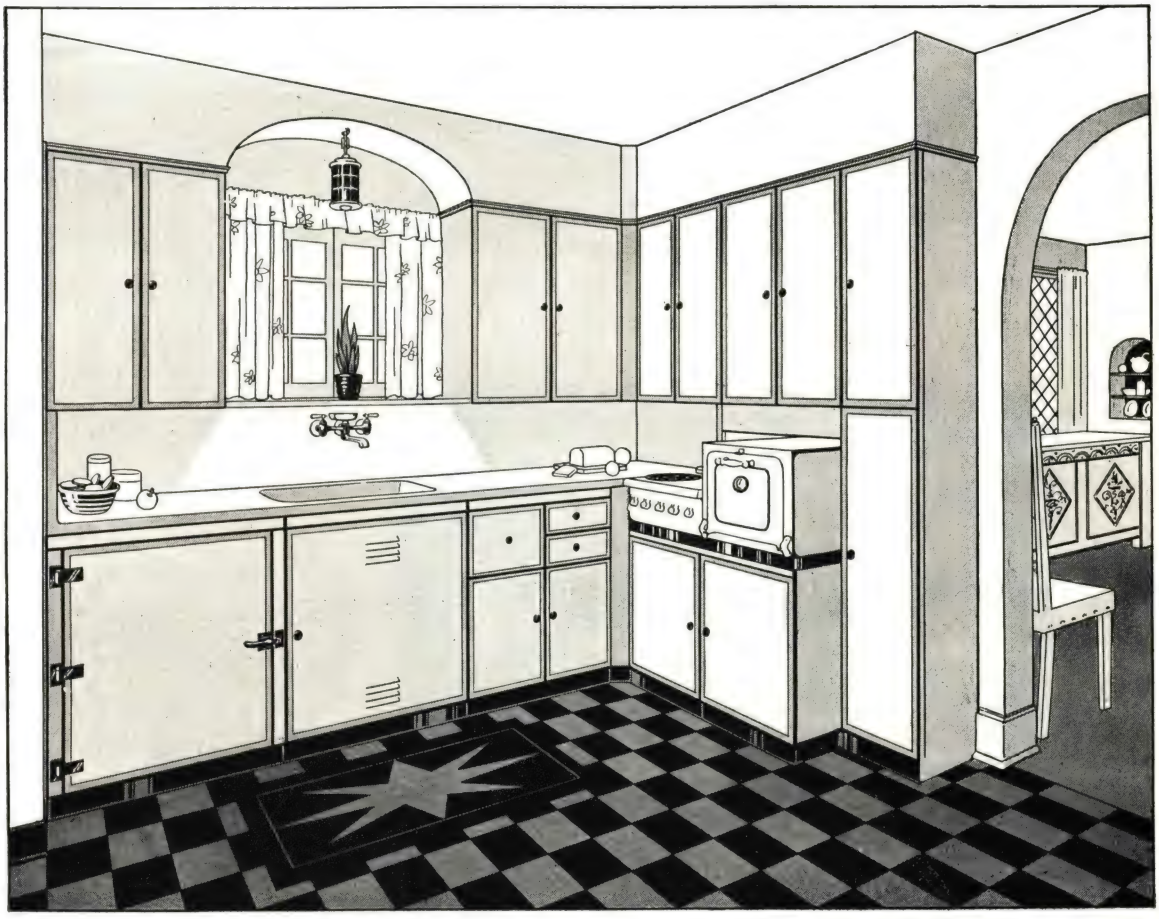


Left:

An Appealing, Efficient Assembly for the Luxurious Residence or Ultra Fine Apartment

An unlimited range of combinations is possible to meet every requirement. Work tops may be of tile, stainless steel or porcelain

WRITE FOR COMPLETE CATALOGUE, ILLUSTRATED IN ACTUAL COLORS, CONTAINING COMPLETE DESCRIPTIONS AND DETAILED DIMENSIONAL DRAWINGS



Right:

A Complete Porcelain Kitchen Assembly Consisting of Range, Refrigerator, Sink, Broom Closet and Storage Cabinets

Affording maximum convenience in minimum space. Automatic refrigeration unit may be concealed behind louvered panel below sink

G. I. SELLERS & SONS CO.

Manufacturers of Kitchen Furniture Units

Dept. N. R. 6
ELWOOD, INDIANA

SECTIONAL KITCHEN FURNITURE UNITS FOR KITCHENS AND BUTLER'S PANTRIES

Service

Complete Kitchen Designing Service offered to architects and contractors through hundreds of local Sellers Agencies.

In no other part of the house has modern ingenuity added so much improvement in compactness, labor-saving, beauty and value as Sellers brings to the kitchen—*the heart of the home.*

Advantages

More than 100 separate Sellers Units enable you to equip the largest or smallest kitchen and butler's pantry exactly as it should be furnished—with the right amount of work space, drawer space and storage space.

Sellers offers cleverly designed base storage and drawer units in various sizes; a wide range of cupboard units with wood panel doors or with glass doors; work table tops of various materials, such as Stainless Porceliron, Maple or Monel Metal; with or without sinks; either detachable or in one piece. These make possible the right kind of kitchen for every home or apartment.

Built entirely of carefully kiln-dried hardwood and finished on all sides, Sellers Units never warp. Their wedged tenon dovetail joints are the strongest known to the cabinetmaker's art; they are airtight, dustproof and never pull apart.

Sellers Units offer labor-saving features not found in a millwork job or in the ordinary factory-made line. Included are such outstanding features as the automatic base shelf extender; stainproof work table top; 3-point suspension drawers that can never stick or jam; "baked-on" enamel finishes of the highest quality; transparent colored oak finishes coated with everlasting clear lacquer; the finest rust-resisting chromium plated hardware—and many exclusive features for which Sellers is famous.

And yet, a Sellers-Equipped Kitchen, with all of its quality and tremendous appeal, costs no more than the old-fashioned nailed-together cupboard. Sellers Units are delivered completely finished, hardware attached; no extra painting; no millwork; no hardware to buy.



A Group of Sellers Units

The units composing this beautiful installation are:

Broom closet, master upper unit with flour bin, master base, hanging cupboard, storage base, sink front and Porceliron work table with welded-in one piece sink.

It may be increased or decreased by adding to or subtracting from these units, *also by using larger or smaller units*



New Colored Oak Finish

This illustration shows the newest idea on kitchen furniture finish—*colored oak*. It presents all the desirable features of the well-known golden oak finish—plus the beauty of color. All of the exquisite markings of the natural grain of the oak are preserved because the colors are transparent. It may be had in two-tone green oak; silver oak; shaded amber oak and ivory oak

Simply tighten a few bolts in the holes provided and the job is done. Painting, hardware and labor costs are saved.

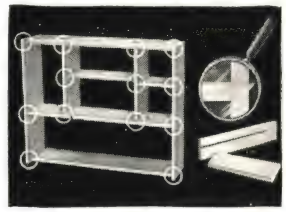
Countless enduring and satisfactory service installations throughout the country have made Sellers the name of a tried and trusted friend to every one. It is a symbol of quality, convenience and value.

With the desirability of Sellers-Equipped Kitchens available to you and your clients at no extra cost, can you afford to consider anything less?

And now you may be relieved of the troublesome detailing of kitchen cupboard assemblies. Write today for complete information on the new Sellers Modern Kitchen, the name of the nearest distributor, or *send your floor plans to Sellers for free kitchen designing without obligation.*

Furniture Construction

Sellers wedged tenon dovetail joints, exclusive with Sellers, are the strongest of wood joints. Airtight, dustproof





Sliding Base Shelf

Open the base door of a Sellers Master Unit. The base shelf holding the pots, pans, etc., slides into easy reach

Patented Drawers

Sellers patented 3-point suspension drawers move at the touch of a finger; they never stick nor jam in any kind of weather





Steamproof Finish

Sellers "baked-on" process of finishing plus preparation of the wood by careful drying, belt sanding and polishing before the application of finishing materials insure a steamproof and climateproof finish of lasting beauty. Color choice: green, ivory, gray and white enamels. Also colored oak as described above

Flexibility of Sellers Units

Illustrated at the right is the flexibility of Sellers Kitchen Units. Note how they can be built around sinks or windows. More than 100 separate Sellers Units make innumerable combinations possible. Any space can be correctly fitted



STERLING TI-DI-NETTE, INC.

MANUFACTURERS AND PATENTEES

228 North La Salle Street, CHICAGO, ILL.

THE MODERN SPACE SAVING DINETTE

Function

Ti-Di-Nette functions as a major factor in the efficient and economical use of floor area and wall surfaces. Also in the elimination of waste space and unnecessary motion in the modern home necessitated by economic requirements.

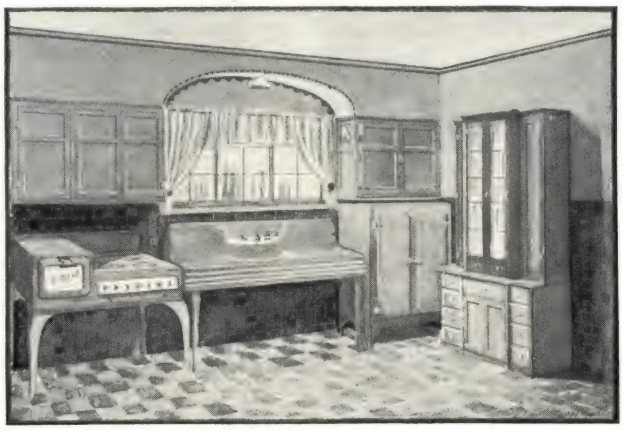
TI-DI-NETTE
REG. U.S. PAT. OFFICE
HANDY SPACE SAVER CABINET

Description

Ti-Di-Nette is a modern dinette unit utilizing foldaway dining table with seats and providing china cases, linen shelves, drawers for silver, ironing board, with optional arrangements for such auxiliaries as broom, electrical accessories, shoe shine rest, etc.

Ti-Di-Nette (of several models) is made in both the cabinet and recessed type and can be installed in all types of existing and new buildings.

The design of Ti-Di-Nette will harmonize with any architectural style or any period furniture.



A Modern Kitchen

Advantages

Ti-Di-Nette supersedes the old-fashioned kitchen table and chairs and also provides modern dining facilities for serving a maximum of five people.

Ti-Di-Nette is a handy space saver dinette unit that eliminates the construction cost of a breakfast room when installed in the kitchen. When entirely closed, Ti-Di-Nette releases 50 sq. ft. or more of floor space for other uses. It also increases room efficiency of kitchenette apartments and makes for easier rentals and sales. Dining rooms can be entirely eliminated through the use of Ti-Di-Nette.

Ti-Di-Nette is the *only space saving cabinet* having foldaway table and seats used in conjunction with permanent and ample storage space accessible at all times for complete table service. The china and linen are always within convenient reach and quickly out of the way after use. This feature releases corresponding space in other cabinets for storage.

Description of Models

Model "A"—Recess Type—Comprises three sections. The center section contains the foldaway table, enclosed behind two swinging china cabinets. Drawers for silver are installed in the lower part of china cabinets. Below the china cabinets is a linen case, containing three shelves, enclosed with doors. Flanking the center unit are side units, each containing a foldaway seat with an 11x11x4-in. storage space below, large enough for storage of irons and other accessories. There is sufficient space behind each set to receive the ironing board which can be furnished in either seat unit depending upon where the Ti-Di-Nette will be installed. Model "A" is also made in the cabinet type for installation against the wall.

This model is recommended for use in kitchens that feature a pantry or other ample storage space, where the plan does not include a breakfast room. When in use Model "A" occupies an over-all floor area 63x63 ins.

Model "B"—Recess Type—This is simply the center unit of the Regular Model "A." It is the same in all respects to the larger model, except that it does not contain the foldaway seats or ironing board. Model "B" is also made in the cabinet type.

Model "C"—Cabinet Type—Offers 35 sq. ft. of shelf space and 15½ sq. ft. of drawer space. It is comprised of three sections, center and two side units. The center section contains the foldaway table 28 ins. wide and which projects 61¾ ins. from plaster line, enclosed behind two china cabinets that swing on full length piano hinges. Each china cabinet contains five grooved shelves, fitted with wood guard to prevent slipping and breakage of dishes. Drawers for silver are installed in the lower part of each china cabinet. Behind the folded table, back of china cabinets, are five shelves each 30 ins. long, 8 ins. deep. The lower portion of the center section contains one double cupboard for pots and pans, equipped with two shelves each 29 ins. long, 17 ins. deep, also a drawer 29x17x4½ ins. deep. Each side section contains four drawers and five shelves. When in use Model "C" occupies a floor area 63x63 ins. Rebating the nosing and crown mould permits this model to be recessed into the wall.

This model is recommended to take the place of a pantry and furnishes ample storage space for foodstuffs, linens, dishes, etc., as required by the average family.

Model "C" helps solve many perplexing problems in modernizing old homes and apartments.

Note: The china cabinets of Models "A," "B" and "C" accommodate 100 or more pieces of chinaware.

Model "Junior"—Recess Type—This is designed to be installed under window, and contains folding table and seats, as well as two swinging china cabinets housing 42 pieces of chinaware. Table is 28 ins. wide and projects 4 ft. ½ in. from plaster line. Beneath the table is a two-door cupboard with two shelves of sufficient capacity to house silverware, toasters, etc. Can be furnished in cabinet type.

This model is recommended for use in the corner of a kitchen under a window, or in the breakfast room. When used in the breakfast room it serves to "add-a-room" of the same size, since all floor space is cleared for other uses when the table and seats are folded out of the way.

Specifications (All Models)

The fronts, folding tables and seats are birch. The shelving is white pine. The ironing board is pine. The backs of units and bottoms of drawers are ⅛-in. thick Masonite Presdwood which will not warp, shrink or swell.

Provide 63-in. wall space (width) for all models.

All shelves in china cabinets are grooved and fitted with wood guard on front edge to prevent dishes from slipping. Swinging china cabinets are hung on full length piano hinges. China cabinets are fitted with leaded French glass doors. Glass is shipped separately within the cabinet. All hardware is bronze, dull nickel finish. All drawers and doors have lipped fronts to make the units dustproof.

All models are delivered to the job "in the white" so that they can be finished at the building to harmonize with surroundings.

All models are made to recess into 4-in. stud partition with studs set flatwise back of center section. (See cut.) Can also be recessed into tile or metal partitions.

The patented construction of Ti-Di-Nette eliminates any possibility of the table or seats slipping or collapsing. The weight of table and seats when opened is supported independently of the doors.

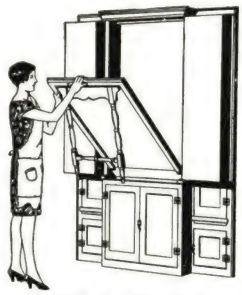
Suggested kitchenette apartment floor plans furnished architects on request.

Note: When seats are in use, doors of seat cabinets can be closed, thereby eliminating interference.

DETAILS OF VARIOUS MODELS

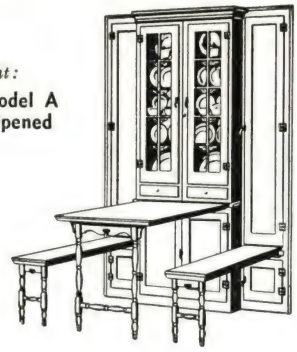


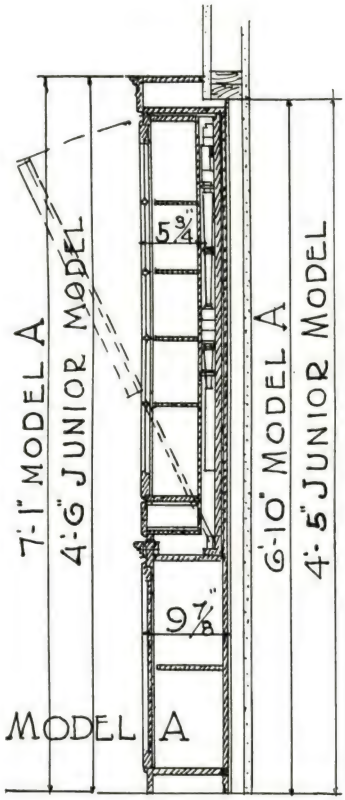
Left:
Model A
Closed

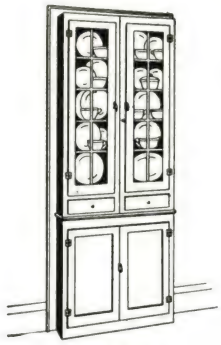


Model A—Opening

Right:
Model A
Opened







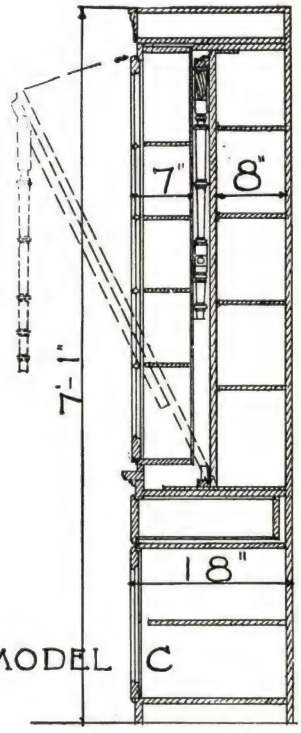
Model B

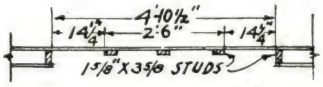


Model Junior

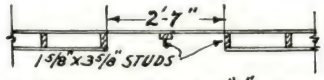


Model C

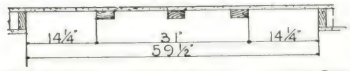




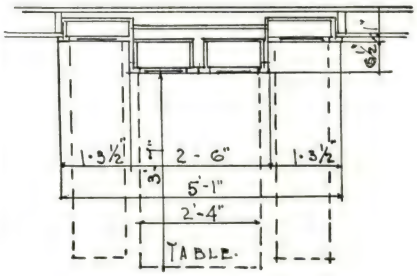
ROUGH OPENING MODEL "A" CABINET



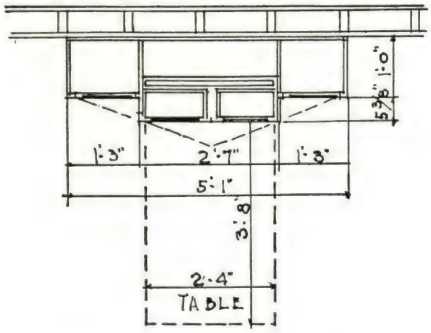
ROUGH OPENING MODEL "B" CABINET



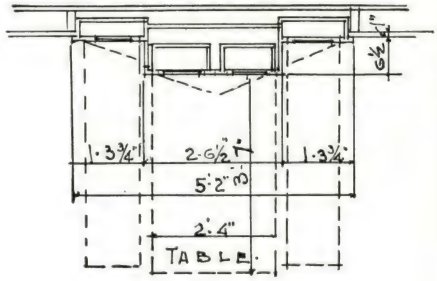
ROUGH OPENING JUNIOR MODEL



PLAN OF MODEL "A"



PLAN OF MODEL C



PLAN OF MODEL "JR."

THE PARSONS COMPANY

15843 Second Boulevard, DETROIT, MICH.

NEW YORK, N. Y., Apartment Equipment Corp., 205 East 42nd Street — SAN FRANCISCO, CALIF., C. Jorgensen & Co., 320 Market Street

THE PARSONS GAS OR ELECTRIC "PUREAIRE" KITCHEN

"Pureaire" Gas Kitchen

PARSONS *Pureaire* KITCHEN

A beautiful piece of furniture, the kitchen consists of the following:

A Steel Cabinet—Scientifically constructed of furniture steel over a cold drawn channel frame, acetylene-welded with flush joints into one rigid and solid unit. All parts are made in dies, uniform and interchangeable. The doors are beautifully embossed and hung on full length chromium plated piano hinges.

A 4-Burner Gas Stove—Having concealed manifold and burners of most modern design. The grates are black porcelain enameled. Also furnished with electric stove (see description).

A 16-in. Oven—Heavily insulated throughout and porcelain lined, containing broiler and baking compartments.

A 21x25-in. Sink with Ribbed Drainboard Integral—All drawn in dies from one piece of heavy vitreous enameling sheet steel, eliminating welding, and because of its construction making the perfect white porcelain enameling possible. The bowl is 12x18x6 ins. deep, and with the drainboard is recessed ⅞ in. from the top of the sink to prevent water from splashing over the sides. The back and side splashers are also white porcelain and 7 ins. high. The sink used in the "Pureaire" kitchen stands out in a class by itself as one of the very finest.

A Refrigerator—Of 4.25-cu. ft. capacity, is of all-steel construction, except for the maple frame around the door. The insulation, Dry-Zero, is one of the most efficient known to refrigeration science. The interior is finished in white enamel and equipped to take any standard electric or gas refrigerating unit.

Shelving and Drawers—There is a total of 20 sq. ft. of shelf space. The utility drawer measures 20x20x4½ ins. and has a padded compartment for cutlery.

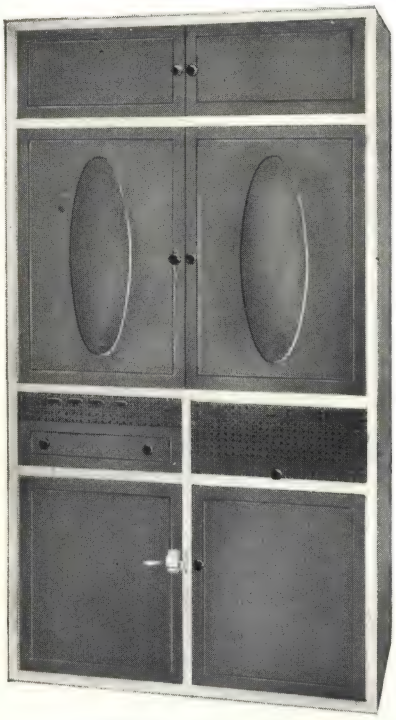
Ventilation—Smoke, steam, heat and cooking odors are carried upward through a 6-in. vent connected with the flue. This scientific construction permits fresh air to be taken in from the bottom, circulating upward, leaving the apartment clean and sanitary.

Finish—The kitchen is beautifully lacquered in special Jonquil Green and Ivory, striped in Persian Orange.

Dimensions—All-over dimensions are 80 ins. high, 45¾ ins. wide, 22 ins. deep.

Weight—Net 425 lbs. Crated 500 lbs.

"Pureaire" Electric Kitchen



This kitchen is equipped with *standard* electric stove, having one 8-in., 1800-watt, and two 6-in., 800-watt burners. The oven has two elements and is aluminum lined. The door has two pyrex glass panels and a thermometer. Connected load 5400 watts. A 110-220 volt, three-wire circuit recommended.

Plumbing and Refrigeration

We do not furnish the plumbing fixtures nor the refrigerating coil or compressor, but the "Pureaire" Kitchen comes equipped to take standard plumbing fixtures, and any standard electric or gas refrigerating unit.

Advantages

(1) Saving of floor space. The "Pureaire" Kitchen, because of its compactness and construction, actually offers more storage space than the ordinary 5 ft. 6-in. kitchen, and this in a space of less than 4 ft.

(2) The "Pureaire" Kitchen has everything within reach, saving unnecessary steps. Is easy to keep clean and makes home work more pleasant.

(3) The cooking behind closed doors keeps the apartment clean, cool, and sanitary.

(4) Saves redecorating because the smoke, heat and cooking odors are carried out through the flue.

(5) Fire protection. Because of the "Pureaire" Kitchen being enclosed in all-steel cabinet, it eliminates the fire hazard of the open stove.



(Patented and Patents Pending)

Diagram Shows How Parsons "Pureaire" Kitchen Is Perfectly Ventilated

All heat, greasy smoke and cooking odors are carried up through a 6-in. vent connected with flue

(6) Escaping gas. Should the gas valve be left partly open, the gas will escape through the flue and not injure any one sleeping in the apartment.

(7) Closed up, it is an attractive piece of furniture with the entire kitchen out of sight. Its neatness of design and color add comfort, brightness and charm to the home. It attracts and holds tenants who appreciate beauty, convenience and sanitation.

(8) Low initial cost. Because of being produced in dies and in quantities by an efficient manufacturing organization accustomed to quantity production, in a modern factory under the best conditions, the "Pureaire" Kitchen offers a most exceptional value in kitchen equipment for new apartment buildings, for remodeling old apartments, for hotels, schools, etc.

KITCHEN MAID STANDARD UNIT SYSTEMS FOR KITCHENS

MANUFACTURED BY

Wasmuth-Endicott Company

ANDREWS, IND.

Products

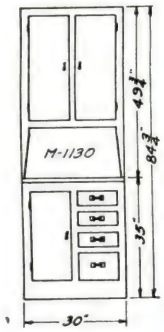
Kitchen Maid Standard Units—Kitchen Cabinets, Kitchenette Assemblages, Refrigerators, Folding Ironing Boards, Linen Cupboards, Dish Closets, Wall Cupboards, Broom and Utility closets, Divider Cupboards, In-a-wall Chairs, Telephone Niches, Wardrobes.

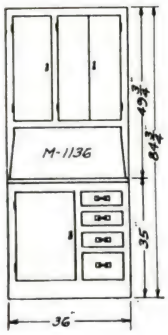
KITCHEN MAID
STANDARD UNIT SYSTEMS

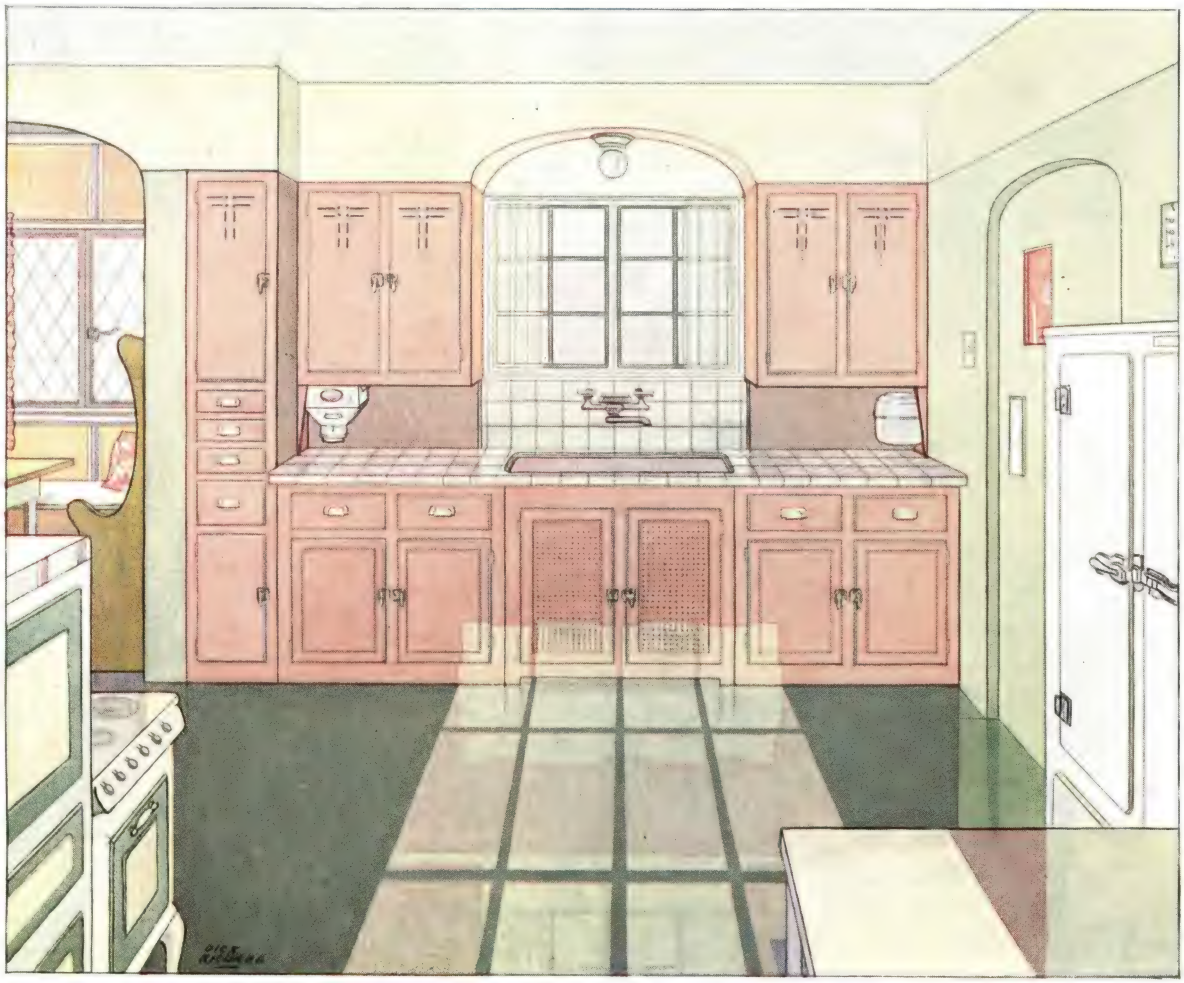
General

The Kitchen Maid line embodies all the newest and most important units of kitchen equipment. Each is complete in itself—may be used alone or in combination with other units. These units will fit into practically any size of space in kitchens already built, or may be built into kitchens especially designed to receive them. The number of unit combinations is almost unlimited.

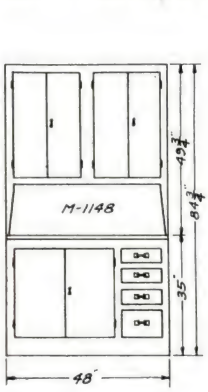
Kitchen Maid Units are built by specialists in kitchen equipment and represent the highest development of cabinet-making skill. They meet the architect's highest ideals. And, because of standardization and quantity production, the cost is less than built-in work of equal quality and completeness.

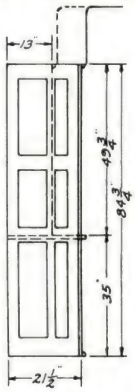


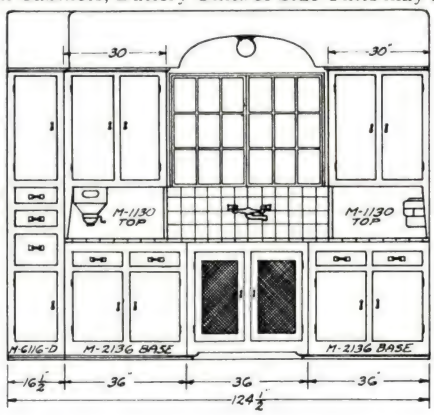


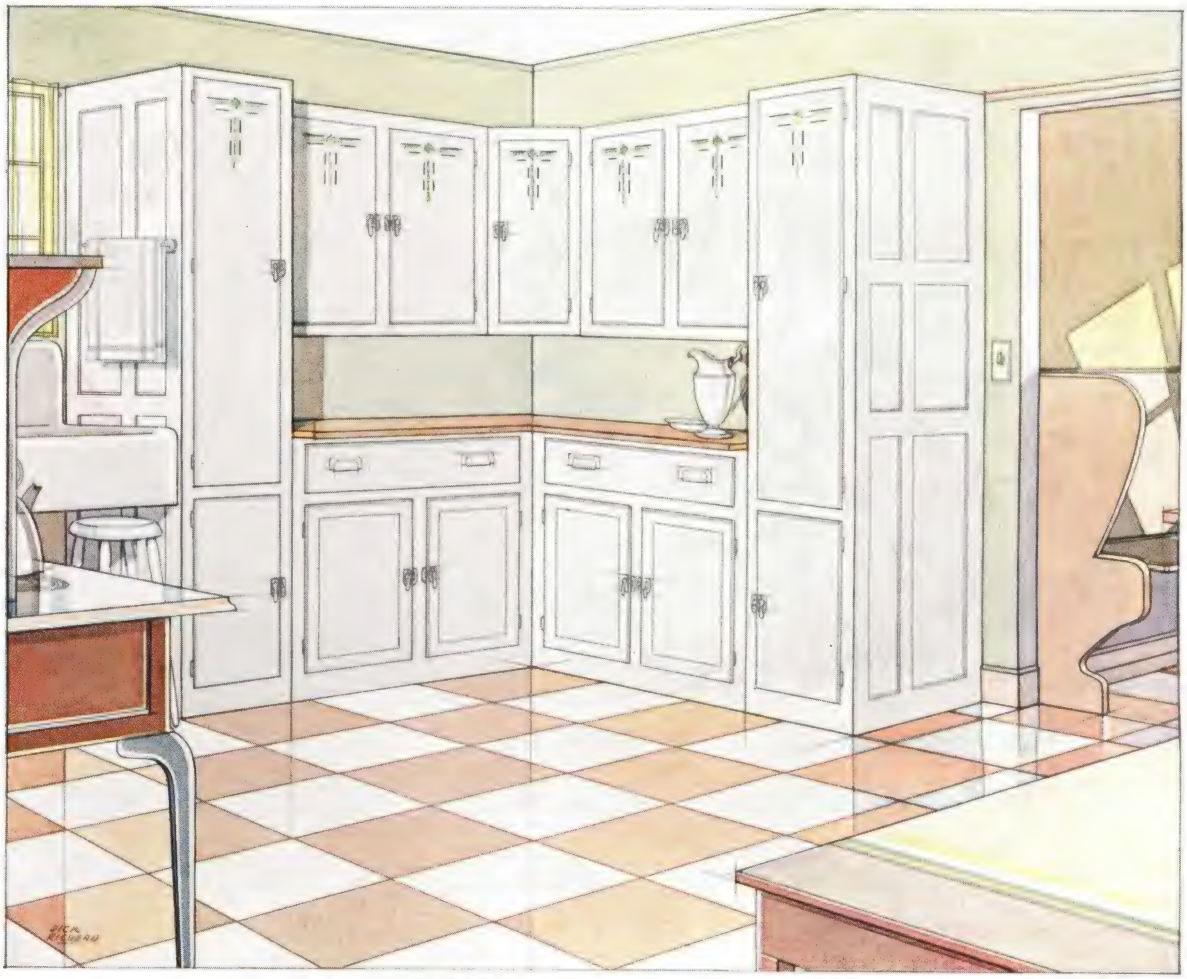


KITCHEN MAID combination made up (from left to right) of Utility Closet No. M6116D, Butlery Base No. M2136, Upper Section No. M1130, Sink Grille, Butlery Base No. M2136 and Upper Section No. M1130. Using tile table top and splash back built around a flat rim sink. Any of the other Kitchen Cabinets, Butlery Units or Side Units may be used. Total width of combination varies accordingly.

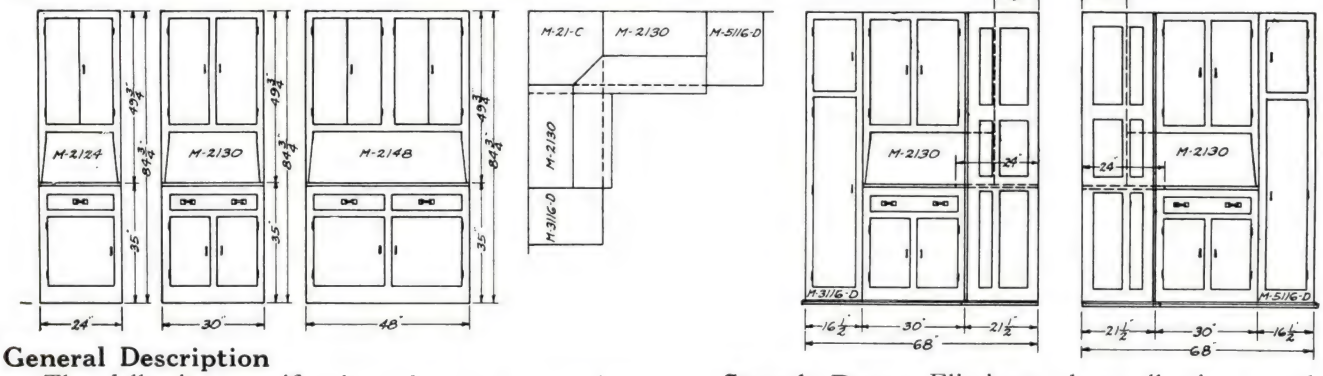








Corner combination consisting (from left to right) of full-depth Broom Closet No. M3116D, Butlery Unit No. M2130, Corner Unit No. M21C, Butlery Unit No. M2130 and full-depth Dish Cupboard No. M5116D. Any of the other Butlery Units, Kitchen Cabinets or Side Units may be used. Total width of combination varies accordingly.



General Description

The following specifications form a convenient, usable guide for the architect when he plans kitchens.

Materials—All units built of carefully selected, thoroughly seasoned, kiln-dried wood.

Front Frames—The 2″ front frames allow doors to swing fully open.

Joining—All joints either mortised, dovetailed, or tenoned and carefully glued. Shelves mortised in.

Finish—Consists of two sprayed coats of undercoat and one sprayed coat of heavy oil-base satin enamel. Surface is carefully sanded and glazed after each coat.

Colors—Kitchen Maid Units are furnished in eight exclusive colors: Pastel Green, Dawn Gray, Travertine Ivory, Shasta White, Sunbronze Tan, Canary Yellow, Spanish Orchid, Horizon Blue. Each with tasteful decorations of contrasting colors.

Smooth Doors—Eliminate dust-collecting panels. 5-ply lumber core construction. Doors guaranteed not to warp or get out of line.

Rounded Inside Corners—All inside corners of Kitchen Maid Units are of rounded construction, leaving no square dirt-catching spaces.

Enameled Interior Bases—Always easy to clean and keep clean. Present a very attractive, finished appearance.

Table Top—Bolted Laminated Maple—practically indestructible.

Porcelain Table Tops—Kitchen Maid table tops are of stain proof vitreous porcelain. Guaranteed not to chip, crack or become stained by common usage.

Hardware—All catches and strikes in Kitchen Maid units are chromium plated cast brass. Hinges of steel chromium plated. Hinges are concealed, a patented

General Description, Continued

feature, and catches are all concealed except the handle.

Flour Bins—Made of heavy rustproof metal. Capacity 12½ lbs. Sifter attached to all bins.

Condiment Sets—Provide practical units for sugar, coffee, tea and spices. Made of sparkling glass.

Non-sag Shelves—All shelves in Kitchen Maid units are 3-ply panels, making sagging almost impossible.

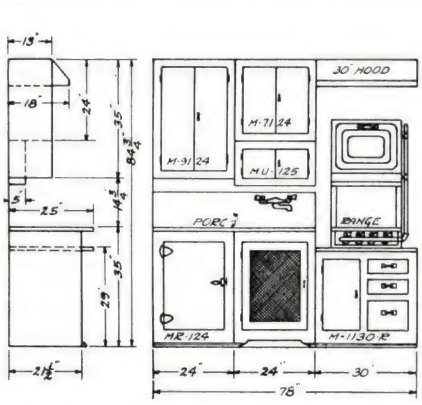
Indestructible Drawers—Made of enameled heavy gauge steel with wood fronts. Exceptionally strong and rigid. One drawer in each cabinet is equipped with felt lining for silverware. Drawer pulls are of black or white porcelain enamel over cast iron.

Refrigerators—All steel construction. Insulated with two inches of pressed Corkboard dipped in odorless asphalt. Doors are steel-clad with fine enamel finish. Each box equipped with Universal hangers for cooling coil and with boring for mechanical refrigeration.

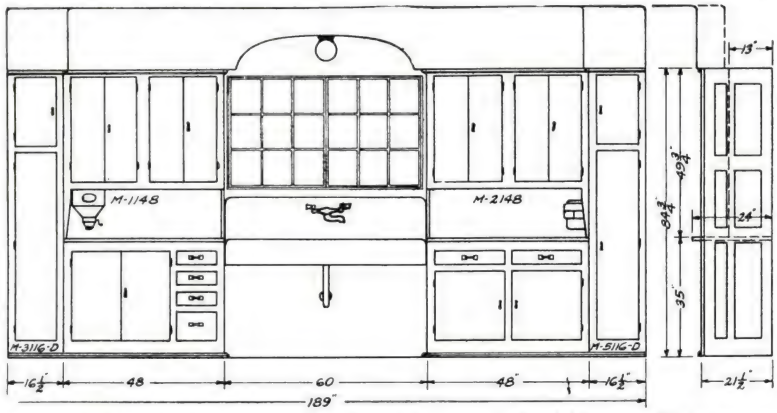
Packing—Units carefully cartoned and crated at factory. No shipment leaves until given a final inspection and found in perfect condition.



This combination consists (from left to right) of Broom Closet No. M3116D, Kitchen Cabinet No. M1148, a regular 60″ double Drainboard Apron Sink, Butlery Unit No. M2148 and Dish Cupboard No. M5116D. It shows the use of the standard units built around the standard type porcelain sink. Any of the other kitchen cabinets, butlery units or side units may be used. Total width varies accordingly.



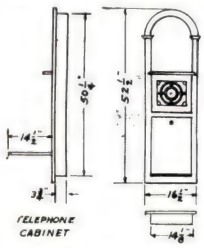
Above is shown a dimensional drawing of a Kitchen Maid Kitchenette Assemblage.

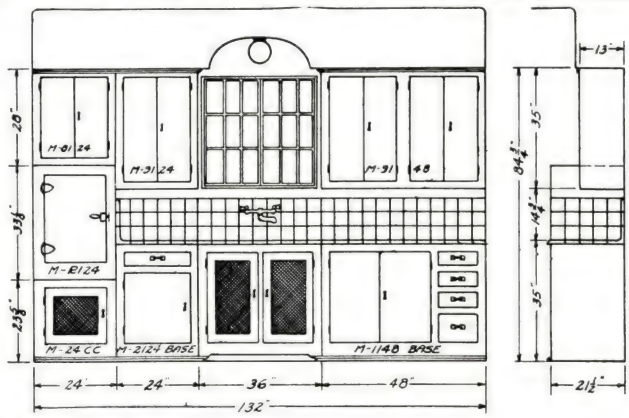


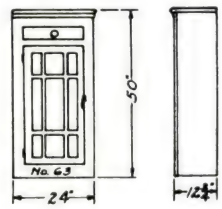
These assemblages may be varied in width by changing refrigerator, sink or stove sizes. Arrangement may be varied to suit requirements by using other standard Kitchen Maid units.

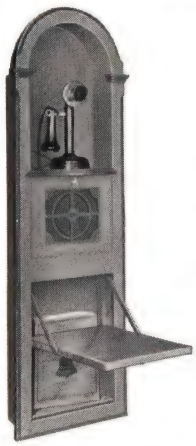


Complete Kitchen Maid Assemblage around the sink consisting (from left to right) of Compressor Case No. M24CC, Refrigerator No. MR124, Top Unit No. M8124, Butlery Base No. M2124, Wall Case No. M9124, Sink Grille, Kitchen Cabinet Base No. M1148 and Wall Case No. M9148. This installation is equipped with tile splash back, ends and drainboards. Other Kitchen Maid units may be used to vary the width.











Telephone Niche

Telephone Niche. Built to fit into wall. Uses no floor space . . . Note comfortable seat. May be finished in Brown Mahogany or Walnut varnish; in Olive Green or Mandarin Red lacquer; or in two-tone Olive Green or Mandarin Red lacquer. Also available unfinished.

Kitchen Maid Divider Cabinets

Kitchen Maid Divider Cabinets offer practical arrangements for dividing kitchen and dinette. No. M63 (shown at right) is made with conventional panelled glass door. No. M62 made with wood panelled door decorated with carved wood design.

Kitchen Kraft Standard Units

This is a complete line of Lower Price Units distinguished by many of the features that have won favor for Kitchen Maid Units.

It offers the builder of lower priced homes or apartments the same adaptability of installation, remarkable compactness and convenient unit assembly that characterize the Kitchen Maid line.

Just as in Kitchen Maid, metal drawers, operating in metal slides, insure easy operation. Panel door construction is employed throughout. The units are finished in your choice of eight beautiful enamels.

HERMAN SOELLNER, INC.

Honeycomb Bottle Racks

TELEPHONE
VOlunteer 5-4975

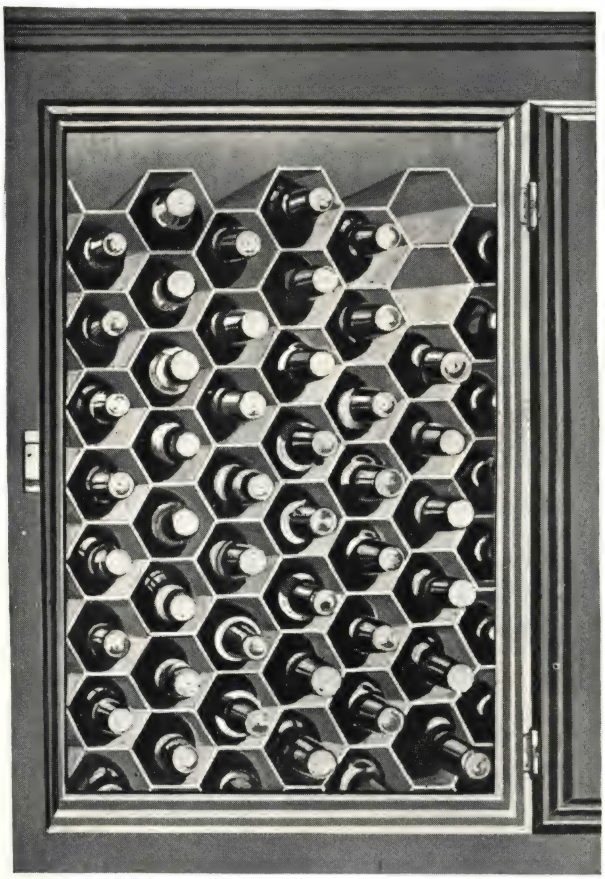
336 East 59th Street (At the Queensboro Bridge)
NEW YORK, N. Y.

BRANCH OFFICE: MUNICH, GERMANY, HALLMAIERSTRASSE, 8

Honeycomb (Hexagonal) Bottle Racks

Sheet metal, hexagonal shelving, made to measure or furnished from stock in standard sizes.

Shipped knocked down (nested) in small, closed boxes; ready for re-assembling at the rate of over one thousand cells a day by a novice.



Advantages

Bottles are securely held within individual cells, within plain sight and convenient reach.

Corks are kept wet and tight, thus retaining gas-pressure and quality of contents.

Save 40% of wall space. More economical than wooden shelving.

Service

Nineteen years' faultless record for local, long distance and export service attested to by architects from coast to coast.

Illustrated pamphlets, plans, estimates and practical suggestions for stockrooms and wine cellars free of charge.

Your inquiries will receive our prompt attention.

Price

$20.00, approximately, per 100 cells, f. o. b. New York City; weight, packed, 40 lbs.



Re-assembling (Setting In) Hexagonal Shelving

DETROIT-MICHIGAN STOVE COMPANY

GARLAND DIVISION

6900 East Jefferson Avenue, DETROIT, MICH.

Products

GARLAND GAS RANGES, OVENS, BROILERS and SALAMANDERS.

Description

Garland heavy duty cooking equipment for hotels, clubs, restaurants, hospitals, etc., possesses advantages and outstanding features that appeal to architects who specify for large buildings. The design, arrangement and the material used in Garland equipment have contributed directly to their success, and the following description and specifications of each individual type will prove helpful in preparing kitchen layouts.

All Garland hotel equipment can be furnished in full monel finish with toncan oven linings.

We shall be pleased to co-operate with architects, and to give them every assistance in our power on any job on which they may be engaged. Catalogues, information, prices, etc., on request.

No. 45-26 Garland Hotel Range for Heavy Duty Work

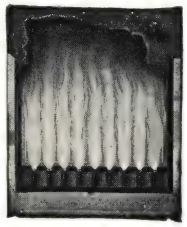
Dimensions—Cooking top surface—34 in. wide, 40½ in. deep. Height to cooking top—33½ in. Oven—26 in. wide, 26 in. deep, 16 in. high.

Body—Body to be constructed of No. 16 gauge steel, reinforced with angle and band iron with ¾-in. air space insulation at sides and back. Legs, door frames and burners to be of cast iron.

Cooking Top—To be polished cast iron. Cooking top proper to be of heavy sectional cast iron key plates with two 10-in. covers.

Top Burners—To consist of 9 burners, each burner controlled by a separate brass gas cock fitted with adjustable orifice.

Burner Box—To contain a 2-in. layer of fire brick to deflect the heat to the underside of top. Burner box outlet to the exit flue to be entire width of range. Robershaw Oven Heat Control can be furnished.



Heat Distribution of No. 45-26 Series



No. 45-26 Garland Hotel Range. All Hot Top

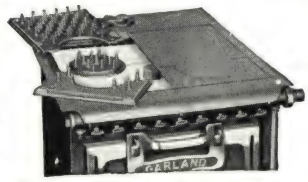
Oven—To be heated by 3 tubular burners, each controlled by a separate gas cock, burners removable through the front of range. Burners to be provided with pilot lighter which has drilled ports, lights from outside.

Oven to be equipped with one oven rack made of heavy angle and band iron; to have three slides so rack can be placed at different heights. Rack to be equipped so it will not tilt when pulled half way out. Oven fully insulated can be furnished.

Oven Bottom—Made of three thicknesses of heavy steel spaced from each other, upper sheet to be perforated on four edges to speed heat circulation, and to be removable without the use of tools.

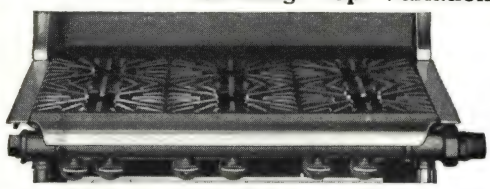
Oven Door—To be of heavy cast iron and steel substantially braced and counterbalanced.

Extreme Bottom—To have openings for ventilation on four sides and to be insulated by two thicknesses of sheet steel with air space between.



Cooking Top 45-26 Series

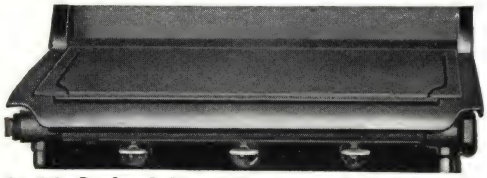
Cooking Top Variations of the 45-26 Garland Hotel Range



No. 44-26 Garland Hotel Range with Open Top

Cooking Top—To be of three sections of open grids. The front top edge to extend over the top burner valves and burner air mixers, protecting them from grease drippings and breakage.

Top Burners—To consist of 6 Giant Star burners, each burner to be controlled by a separate cock fitted with adjustable orifice



No. 47-26 Garland Hotel Range with Solid Grid Top

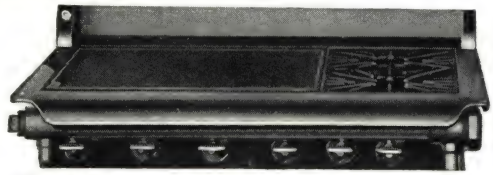
Cooking Top—To be of one solid grid, extra heavy. Front top edge to extend over top burner valves and burner air mixers, protecting them from grease drippings and breakage. Front top edge to have a grease groove 2 in. wide of graduated depth and tapped at lower end for 1-in. pipe.

Top Burners—To consist of 3 double drilled bar burners, each burner to be controlled by a separate cock fitted with adjustable orifice



No. 48-26 Garland Hotel Range with Center Fire Top

Top Burners—To consist of 5 burners, each burner to be controlled by a separate brass cock fitted with an adjustable orifice. The flame to be baffled at the center of the key plates so as to spread the flame to the extreme sides



No. 43-26 Garland Hotel Range with Grid Top and 2 Open Burners

Cooking Top—To be fitted with a griddle top 20½ in. wide, 27 in. deep, with grease groove on four sides and 2 Giant open burners. The front edge to extend over the top burner valves and burner air mixers, protecting them from grease drippings and breakage.

Top Burners—To be of 4 long bar burners under grid and 2 Giant open top burners, each burner to be controlled by separate cock, fitted with adjustable orifice

No. 45-22 Garland Cafe Range with All-hot Top for Heavy Duty Work

Dimensions—Cooking top surface—29 in. wide, 32 in. deep. Height to cooking top—33½ in. Oven—22 in. wide, 24 in. deep, 14 in. high.

Body—To be constructed of 18 gauge steel. Legs, door frames and top of cast iron.

Cooking Top—To be of heavy cast iron frame and two sections of pan tops, fitted with 8-in. covers.

The front edge to extend over the top burner valves and air mixers, protecting them from grease drippings and breakage.

Top Burners—To consist of 5 bunsen burners each controlled by a separate cock fitted with adjustable orifice.

Burner Box—To contain a layer of fire brick to deflect the heat to cooking top.

Oven—To be heated by 2 tubular burners each controlled by a separate cock. Burners to be removable through front of range. Burners to be provided with a pilot lighter which lights from outside of oven.

Oven Bottom—To be of three thicknesses of heavy steel spaced from each other to prevent bottom burning food. Upper sheet to be perforated on four sides to speed heat circulation and bottom to be removable without the use of tools.



No. 45-22 Garland Cafe Range with All-hot Top

Extreme Bottom—To be made of three thicknesses of heavy steel with air spaces between.

No. 44-22 Garland Cafe Range with Open Top

Same dimensions as 45-22.



No. 44-22 Garland Cafe Range with Open Top

Cooking Top—Frame to be of heavy cast iron with two sections of open grid.

Top Burners—To consist of 4 Giant Star burners, each burner to be controlled by a separate cock.



No. 16-26 Salamander

Fits Nos. 43, 44, 45, 47, 48 of No. 26 range series

No. 16-26 is 34¼ in. wide, 19 in. deep, 18 in. from top of range. Grid 30x16 in. Burners: 2 clusters of 4 each.

No. 14-22—Fits No. 45-22, No. 47-22 or No. 44-22 range.

No. 14-22 is 29x17 in. deep. Grid 21¼x14 in. deep. Burners: 2 clusters of 3 each.

Each cluster controlled by one cock at front end

No. 44-252-22 Garland Cafe Range

Dimensions—Cooking top surface—58 in. wide, 32 in. deep. Floor to cooking top—33½ in. Oven—22 in. wide, 24 in. deep, 14 in. high.

Body—To be constructed of 18 gauge steel. Legs, door frames and top of cast iron.

Cooking Top—Frame to be of heavy cast iron with extra heavy open grids over burners.

Top Burners—To consist of 8 Giant Star open burners, each to be controlled by separate cock.

Burner Box—To be fitted with drip pans.

Oven—To be heated by 2 tubular burners each controlled by a separate cock. Burners to be removable through front of range. Burners to be provided with a pilot lighter which lights from outside the oven.



No. 44-252-22 Garland Cafe Range

Oven Bottom—To be of three thicknesses of heavy steel spaced from each other to prevent bottom burning food. Upper sheet to be perforated on four sides to speed heat circulation and bottom to be removable without the use of tools.

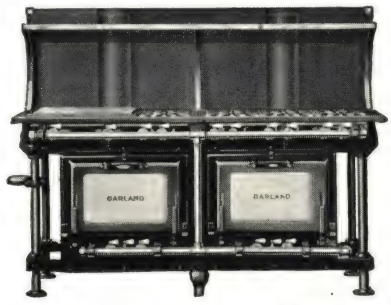
Extreme Bottom—To be made of three thicknesses of heavy steel with air spaces between.

No. 1332 Restaurant Range

Dimensions—Cooking top 74 in. wide, 28½ in. deep. Floor to cooking top—34½ in. Ovens—22 in. wide, 20 in. deep, 14 in. high.

Body—To be of 20 gauge steel with cast iron oven front. Mounted on heavy base frame reinforced with angle iron.

Cooking Top—Frame to be of heavy cast iron with extra heavy open grids over 8 burners and polished cast iron griddle 20 in. wide. When so specified, griddle 9¼ or 31 in. wide can be furnished. Also obtainable with 12 open top burners.



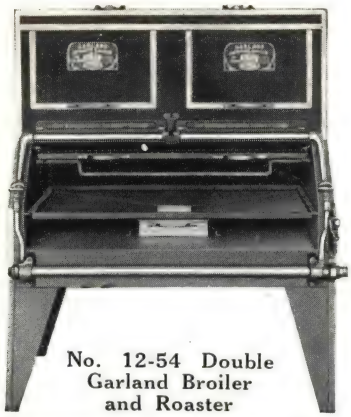
No. 1332 Restaurant Range

Two ovens, single deck high shelf, 8 open top burners and 20-in. griddle. Can also be furnished in single section with 6 open top burners

Top Burners—4 Giant and 3 regular Star open top burners and 2 loop burners beneath griddle. Each burner separately controlled by cock.

Burner Box—To be fitted with drip pans.

Ovens—Two ovens, each heated by 2 tubular burners, each controlled by a separate cock. Burners to be removable through front of range and to be lighted by outside pilot lighter.



No. 12-54 Double Garland Broiler and Roaster

Dimensions—Extreme width, 54 in.; 34 in. deep, 67½ in. high. Broiler grid 48 in. wide, 23½ in. deep. Ovens, each, 22 in. wide, 24 in. deep, 14 in. high.

Body—To be of 16 gauge range steel. Extra heavy cast iron parts, all operating parts placed in front.

Burners—12 double drilled tubular, divided in clusters of 6, each cluster controlled by one large cock. All removable for cleaning without the use of tools.

Broiler Grid—Extra heavy, controlled by lever which locks at position wanted. Has forward extension of 10 in. Fitted with hopper grease pan.

Ovens—Each heated by 6 burners. Oven has 2-in. thick fire brick bottom which absorbs and reflects the heat to the grid



No. 630 Garland Broiler and Roaster

Dimensions—Extreme width 30 in.; 34 in. deep. Height 67½ in. Broiler grid 23½ in. wide, 23½ in. deep. Oven 22 in. wide, 24 in. deep, 14 in. high. Heated by broiler burners. Has 2-in. thick brick between bottom and burners.

Body—To be of 16 gauge range steel, reinforced with band and angle iron. All operating parts in front.

Burners—6 double drilled tubular, divided in clusters of 3 each. Each cluster controlled by one large cock. All burners removable for cleaning.

Broiler Grid—Extra heavy, controlled by a lever which locks at position wanted. Has forward extension of 10 in. Fitted with large grease pan



No. 18-36 Garland Broiler, Toaster and Griddle

Dimensions—Griddle top 36 in. long, 18¾ in. wide. Broiler grid 30 in. long, 16 in. wide. Extreme length 39 in., extreme height 42 in.

Body—Heavy steel, cast iron top.

Burners—8 burners in clusters of 4. Each cluster controlled by one large cock.

Grid Control—Lock lever at end.

Griddle Top—To be of heavy polished cast iron, fitted with grease groove on four sides. Space between griddle and burners filled with fire brick to retain and radiate heat



No. 24-24 Garland Griddle

Dimensions—Griddle 24 in. wide, 24 in. deep. Warming shelf below burners 21½ in. wide, 23½ in. deep with a 6-in. clearance from burners. Storage compartment 21½ in. wide, 23½ in. deep, 11½ in. high. Over-all width 24 in., depth 27 in., height 33¼ in.

Body—Heavy gauge blued steel with 1¼-in. angle iron legs.

Burners—4 tubular cast iron burners, each controlled by separate valve.

Griddle Top—Heavy polished cast iron with ½-in. raised edge



No. 13-24 Garland Broiler, Toaster and Griddle with Adjustable Grid

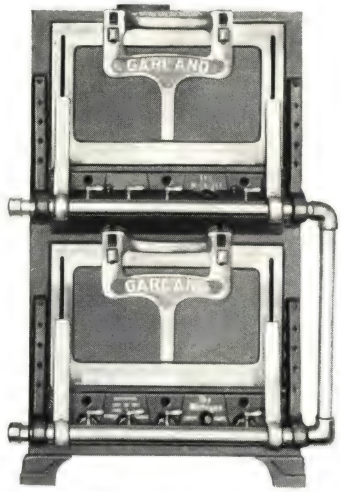
Dimensions—Griddle top 18 in. wide, 26 in. deep. Broiler grid 13 in. wide, 24 in. deep. Extreme height 39¼ in., extreme width 19 in., extreme depth 29¼ in.

Body—Heavy gauge blued range steel.

Burners—3 tubular burners, each controlled by separate valve.

Grid Control—Lock lever at side. Permits raising or lowering of grid to suit operator.

Griddle Top—Heavy polished cast iron, fitted with grease groove on four sides. Drilled for grease drain connection



No. 2-26 Garland Roasting Oven

Construction—Made in units of 2 and 4 ovens.

Dimensions—*No. 2-26*—Width 31 in., depth 34½ in., height 53½ in. Ovens each 26 in. wide, 26 in. deep, 16 in. high.

No. 4-26—Width 62 in., depth 34½ in., height, 53½ in. Ovens each 26 in. wide, 26 in. deep, 16 in. high.

Ovens—Controlled by 3 burners under each oven. Burners to be removable through front. Each oven fitted with a drilled pilot lighter, lighted from the outside. Oven bottoms to be of three thicknesses of steel with air spaces between instead of insulation. Oven bottoms to be perforated with rows of holes on four sides to speed circulation. Air inlet for upper oven to be taken from rear.

Main Bottom—To be of three thicknesses of heavy steel with air spaces between



At Left:

No. 54-24 Garland Short Order Range

Dimensions—Cooking top 39 in. wide, 27 in. deep. Floor to cooking top 33½ in. Oven 24x22x 14 in.

Body—Blue polished steel, insulated, nickel-plated trimmings.

Cooking Top—Fitted with 3 heavy cast iron plates over 6 Garland giant burners. Furnished with 2 Rutz top lighters.

Oven—To be fitted with Garland V-shaped oven bottom, removable. Heated by 2 tubular burners.

Griddle, Broiler and Toaster—Polished cast iron with raised edge. Size 21x21 in. Equipped with grease drain. Movable broiler or toaster grid heated by 3 tubular burners. Size of rack 21x18½ in.

High shelf—new design—waste heat conserved under shelf.

STANDARD GAS EQUIPMENT CORPORATION

Manufacturers of Gas Ranges and Appliances

18 East 41st Street, NEW YORK, N. Y.

CABLE ADDRESS
"Vulcan, New York"

NEW ENGLAND OFFICE, 100 Arlington Street, Boston, Mass. WESTERN OFFICE, 122 So. Michigan Avenue, Chicago, Ill.
FACTORIES AND FOUNDRIES: JERSEY CITY, N. J., BALTIMORE, MD., AURORA, ILL., BIRMINGHAM, ALA.
PACIFIC COAST DISTRIBUTORS: Northwest Gas & Electric Equipment Co., PORTLAND, ORE., LOS ANGELES, CAL.

Products

SMOOTHTOP, ORIOLE, VULCAN and ACORN DOMESTIC GAS RANGES; VULCAN GAS RANGES for hotels, restaurants, clubs, hospitals, schools, institutions, etc.

Also manufacturers of Deep Fat Fryers, Bake Ovens, Broilers, Griddles, Bakers' and Confectioners' Stoves, Industrial Burners.

Equipment can be used with manufactured, natural, butane and bottled gases.

SMOOTHTOP GAS RANGES

Smoothtop Ranges are recognized as one of the most advanced types of cooking appliances. They have greater capacity, yet take less space than ordinary ranges. Smart, distinctive appearance.

Many exclusive features. Large closed top, all of which is cooking surface. One burner will cook four vessels—a whole meal—and keep it hot. Well lighted top—no oven in the way. Removing lids speeds cooking. Oven heat control. Burners light automatically when turned on. Insulated oven optional. De Luxe construction. Approved by American Gas Association, Good Housekeeping Institute and others.

Sold by gas companies, dealers, or direct if no dealer.

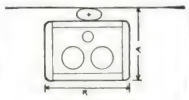
Descriptive catalogue sent on request.

Specifications.—Furnish and set, complete with gas connections, Smoothtop Gas Ranges as made by STANDARD GAS EQUIPMENT CORPORATION, New York, N. Y., as per schedule.

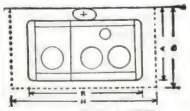


Smoothtop No. E18 ET

Full enamel finish insulated or non-insulated, supplied also in color, semi-enamel and standard finishes. Closed top heated by two speed burners in front and one junior burner in rear. Entire top is cooking area, having four cooking zones. Duplex oven and broiler of large capacity



No. E18ET
Oven,
18x19x14 in.
For complete dimensions of range see table below



No. E12-16ET
Oven,
16x19x13 in.
Broiler,
10x19x13 in.



Smoothtop No. E12-16 ET

Full enamel finish, supplied also in semi-enamel finish. Closed top heated by three speed burners in front and one junior in rear. Entire top is cooking area having four cooking zones—speed, moderate, simmering and warming. Large oven and separate broiler. Exceedingly compact and moderately priced

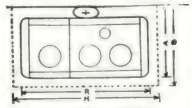


Smoothtop with Warming Closet

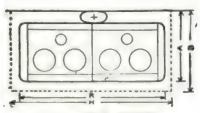


Smoothtop No. E12-18 ET

Full enamel (insulated or non-insulated). Also supplied in color, semi-enamel and standard finishes. Top is heated by three speed burners in front and one junior in rear. Has ample capacity for large families. Top will accommodate 8 large vessels. Warming closet supplied if desired



No. E12-18ET
Oven,
18x19x14 in.
Broiler,
11¾x19x14 in.
For complete dimensions see table opposite

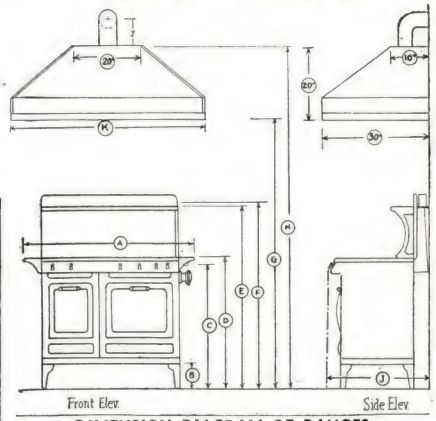


No. E18-18ET
Ovens (2),
18x19x14 in.
For complete dimensions see table opposite



Smoothtop No. E18-18 ET

The largest of the Smoothtop line. Supplied in full enamel (insulated or non-insulated), and in color. Also semi-enamel and standard finishes. Top equipped with six burners, four speed burners in front and two junior burners in rear. Two large ovens, one of which is both baking and broiling oven



DIMENSION DIAGRAM OF RANGES

Dimensions	Range Numbers					
	E-18	E-12-16	E-12-18	E-12-18W	E-18-18	E-18-18W
A-1	32	42¾	48¼	48¼	54½	54½
A-2	26	36¾	42¼	42¼	49	49
B	8½	9½	8½	8½	8½	8½
C	35½	35½	35½	35½	35½	35½
D	36	36	36	36	36	36
E	50¼	50¼	50¼	50¼	50¼	50¼
F	49½	49½	49½	49½	49½	49½
G	74	74	74	74	74	74
H	94	94	94	94	94	94
I	6″	6″	6″	6″	6″	6″
J	26½	26½	26½	26½	26½	26½
K	38″	49″	54″	54″	60″	60″

Note: A-1 shows dimension with End Shelves. A-2 shows dimension without End Shelves. For Heat Control without end shelves add 1½ in. to A-2.

All Smoothtop Ranges can be supplied with or without Oven Heat Control

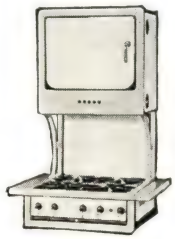
APARTMENT RANGES FOR EVERY REQUIREMENT

In addition to the hundreds of gas ranges in its regular lines, STANDARD GAS EQUIPMENT CORPORATION has a number specially designed to meet the exacting requirements of apartments. An amazing amount of cooking and storage capacity is packed into 20-in. space for small apartments. A wide variety of ranges are available for apartments of moderate size. For apartments where cooking requirements are heavy, there are special ranges. Vulcan heavy duty domestic type ranges are frequently used for large apartments or residences. *Only a few types are shown here and on preceding page. Ask for catalogue.*



Compact Apartment Range
No. B-16

Especially adapted for built-in cabinet work. Four burner cooking top, 19½x20½ ins.; duplex oven-broiler, 16x18x12 ins. May be had without broiling burner. Utensil drawer at bottom. Floor space, 20 ins. wide x 24 ins. deep. Height, 55 ins. Insulated oven optional. High shelf optional. Two finishes



Duplex Oven Kitchenette Range
No. B-61

Can be set on cabinet. Provides four burner cooking top of standard size, and duplex oven-broiler. Two finishes. Floor space without end shelves, 20 ins. wide, 23 ins. deep. Add 5 ins. for end shelves. Height 39½ ins. May be used with range Nos. B-14 and B-16 to provide additional oven-broiler capacity



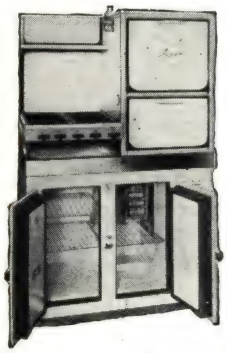
Duplex Oven Kitchenette Range
No. B-61 UB

Provides maximum cooking and storage capacity in 20-in. space. Cooking top, 19½x20½ ins.; duplex oven-broiler, 16x12x12 ins.; shelf, cutlery drawer, utensil cupboard. End shelves optional. Two finishes. Floor space, 20 ins. wide, 23 ins. deep (end shelves 5 ins. extra). Height, 65½ ins.



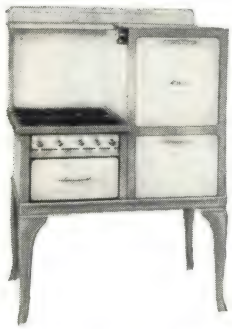
Compact Single Oven Range
No. B-14

Suitable where other storage space is provided and it is desired to have oven below cooking top. Cooking top, 19½x20½ ins.; oven, 14x18x14 ins. Broiling burner optional. Floor space, 20 ins. wide x 23 ins. deep (end shelves 5 ins. extra). Height, 53 ins. Two finishes. High shelf optional



Refrigerator Range No. A-2016 ET

Sets over Electrolux gas refrigerator, saving space. Bottom insulated. Four burner cooking top, 19x21 ins.; oven (insulation optional), 16x18½x14 ins. Separate broiler. Oven heat control if desired. Floor space, 38¼ ins. wide x 24½ ins. deep. Height over all, 60¼ ins. Two finishes



Compact Cabinet Range
No. 940-2 T

One of hundreds of models in many styles and sizes at widely varying prices. This model has an oven, 14x18x14 ins.; broiler, 14x18x9½ ins.; cooking top, 19x21 ins. Self-lighting burners. Oven heat control optional. Floor space, 36¼ ins. wide x 24 ins. deep. Height, 52 ins.



Low-priced Console Range
No. A-316 T

The latest style in gas ranges at a surprisingly low price. Cooking top, 20x19½ ins.; oven, 16x18x16 ins.; broiler, 16x18x10 ins.; utility drawer, utensil drawer. Floor space with 3-in. end shelf, 42¾ ins. wide x 26½ ins. deep. Oven heat control and insulation optional. Three finishes



Compact Gas Range No. A-516 T

The newest style for smart kitchens. Oven top 36 ins. high. Cooking top cover lifts up, forming back splasher. Has cupboard 17x18x16½ ins.; drawer; pull-out shelf. Cooking top, 20x19½ ins.; standard 16-in. oven and broiler. Insulation, heat control optional. Floor space, 43¾ ins. wide x 27½ ins. deep. Two finishes



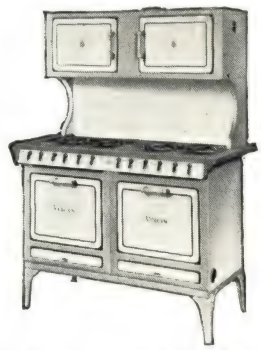
Six-burner Cabinet Range
No. 6-910-2 T

Especially desirable for medium or large families, requiring larger cooking top than on usual cabinet range. Six-burner top is 32x20½ ins.; oven, 18x18x14 ins.; broiler, 18x18x9 ins. Warming closet, drawer and canopy top. Floor space, 54 ins. wide x 26 ins. deep. Height over all, 59½ ins.



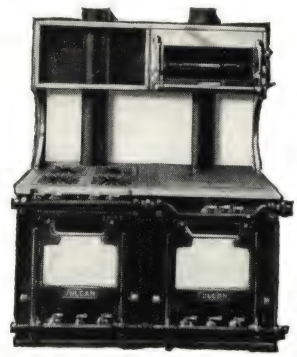
De Luxe Residence Range
No. 1001-2 T

Provides unusually large capacity—with six-burner cooking top, 34½x22 ins.; two heat controlled ovens, 22x18x13½ ins. and 14x18x14 ins.; broiler, 16x18x14 ins. Warming closet and canopy top. Floor space, 56 ins. wide x 26 ins. deep. Insulated ovens and broiler optional. Three finishes.



Large Capacity in Limited Space
No. E8-1818 EB

For conditions where open top range of large capacity is required, yet only limited space is available. In space 50 ins. wide x 26½ ins. deep there is an 8-burner cooking top, two 18x18x14-in. ovens, one with broiling burner. Warming closet optional. Height over all, 64 ins.



Heavy Duty Combination
No. 3700-3836

Frequently used in large apartments and residences. Combines closed "All-Hot-Top," 26x29 ins.; open top, 26x29 ins.; two ovens, 19x24x14½ ins.; broiler and warming closet. Floor space 52x29 ins. Height to flue collar, 67 ins. Monel or Allegheny metal if desired

VULCAN HEAVY DUTY ALL-HOT-TOP RANGES, BAKE OVENS AND OTHER APPLIANCES

The new Vulcan line marks a distinct advance in commercial cooking equipment. Faster service, greater capacity, lowered fuel costs and better results are assured by numerous improvements. More comfortable working conditions result from thickly insulated ovens. Smooth front improves appearance and makes cleaning easy. Heavy construction throughout assures longer life and minimum maintenance costs.

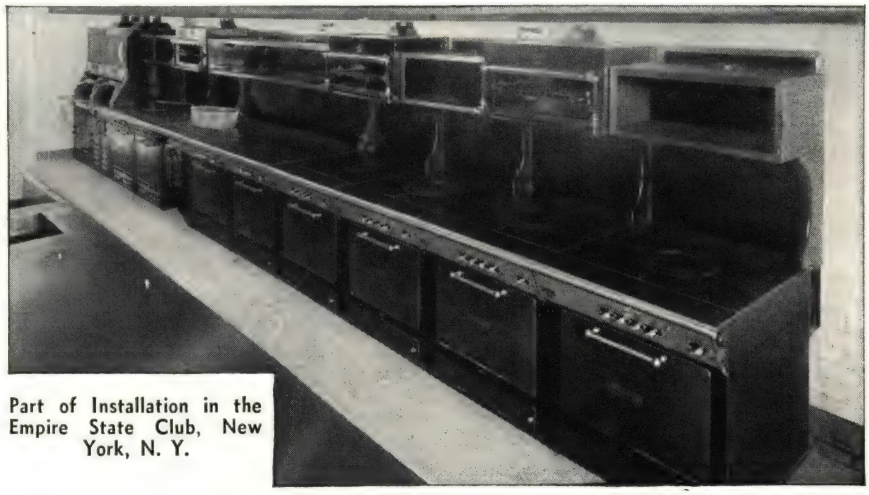
Only a few Vulcan gas cooking appliances are shown here. There are complete lines of restaurant, junior restaurant ranges, bakers and confectioners stoves, griddles and short-order equipment and industrial burners. Ask for catalogue.

Vulcan equipment is extensively used by hotels, restaurants, hospitals, clubs, schools, industrial cafeterias.



Vulcan No. 4751 All-Hot-Top Gas Range

The leader of the Vulcan line. Closed top is heated by one four ring burner. Large oven. Insulated oven and heat control optional. Broiler at top if desired. Floor space, 31¼ ins. wide, 40¾ ins. deep. Height over all, 68½ ins. Gas manifold, 1¼ ins., flue 6 ins.



Part of Installation in the Empire State Club, New York, N. Y.



Vulcan No. 4745 Open Top Gas Range

Widely used for short order work. Furnished with four burners as shown, or with six burners. Large oven. Insulated oven and heat control optional. Broiler at top if desired. Floor space 31¼ ins. wide, 40¾ ins. deep. Height over all, 68½ ins. Gas manifold, 1¼ ins., flue, 6 ins.



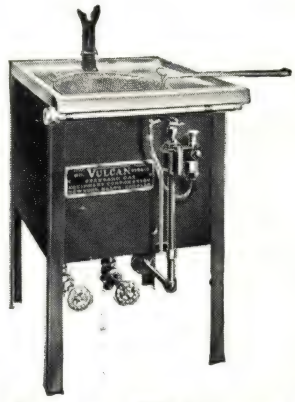
Vulcan No. 3761 Insulated Gas Bake Oven

Chefs, who have been winning prizes year after year at National Hotel Shows, use this type oven. Ideal for bread, pies, cakes and pastry. Evenly heated. Insulated, prevents loss of heat. Automatic heat control assures uniform results. Two sizes: Floor space, 42 ins. wide, 28½ ins. deep; height, 63¼ ins. Floor space, 51 ins. wide, 38½ ins. deep, height, 63¼ ins. Gas manifold, 1 in.



Vulcan No. 3758-1 Radiant Surface Broiler

Broils 25% faster, broils better, uses less gas than ordinary broilers. A radiant bed of fire like that of charcoal is produced on the face of slabs of alundum. Sears quickly, cooks fast and gives food a finer flavor. Floor space, 30½ ins. wide, 38 ins. deep. Height, 67½ ins. Gas manifold, 1 in., flue, 9 ins.



Vulcan No. 3764-3 Insulated Deep Fat Fryer

Automatic control maintains fat at correct temperature for perfect frying of potato chips, oysters, fish, croquettes, etc. Cuts fat expense 50% or more, for same fat can be used several days. Rock wool insulation reduces heat radiation. Two sizes: (over-all dimensions), floor space, 20½ ins. wide, 27½ ins. deep; height, 32 ins. Floor space, 24½ ins. wide, 31¾ ins. deep; height, 32 ins. Gas manifold, 1¼ ins.

Specification Sheets

Architects will find these specification sheets extremely useful. These can be furnished for all Vulcan appliances. One side of the sheet has an illustration of the appliance and the specifications are given; on the other side are complete dimension diagrams. Architects are invited to write us for a complete set of these specification sheets.

Cooking Planning Service

Experts with many years' experience in planning the cooking equipment for thousands of kitchens will be glad to assist you in selecting the types and sizes of equipment best suited to the job in hand.

Use this service when a client is considering equipping a new kitchen or renovating one now in use.

EDISON GENERAL ELECTRIC APPLIANCE CO., INC.

5600 West Taylor Street, CHICAGO, ILL.

BRANCHES AND FACTORY SERVICE STATIONS

ATLANTA	CHICAGO	DENVER	NEW YORK	SALT LAKE CITY
BOSTON	CLEVELAND	KANSAS CITY	ONTARIO, CALIF.	SAN FRANCISCO
CHARLOTTE, N. C.	DALLAS	LOS ANGELES	PORTLAND, ORE.	SEATTLE

For Hotpoint Heaters, Ranges, Water Heaters, see Manufacturers' Index

GENERAL ELECTRIC EDISON COMMERCIAL COOKING AND BAKING EQUIPMENT

A Complete Line

A complete line of electrically heated Baking and Roasting Ovens, Ranges, Broilers, Urns, Steam Tables, Stock and Fry Kettles, Griddles, Waffle Bakers, and Toasters.

Catalogue and detailed specifications on each piece of equipment on request.

A GENERAL ELECTRIC ORGANIZATION

EDISON

Exclusive General Electric Edison Features

(1) Products are the result of 20 years' research and experience in electrical cooking and baking.

(2) Manufactured by the oldest and largest manufacturer of commercial electric cooking and baking equipment in the world.

(3) Heated by the famous Calrod element (construction shown in cut), the longest lived, most dependable and efficient electrical heating element known. Used exclusively in Edison Products.

(4) Most simple and dependable automatic temperature control mechanism on the market used in all automatic devices.

(5) More successful commercial installations than any other manufacturer.

(6) Most complete service facilities.

(7) Highly trained and experienced kitchen and electrical engineers and specialists equipped to give architects every aid.

Many Leading Architects Specify Edison Equipment

Because clean, efficient, flexible, and easily controlled, Edison Electric Equipment is in demand by leading food service operators.

Because the installation of electric cooking and baking equipment generally secures their clients a more favorable electric rate, or where power is locally produced, increases the efficiency of the generating plant by adding "off peak" load.

Because their clients can produce better, more uniform food with automatic temperature controlled Edison equipment.

Because depreciation and maintenance expense are materially reduced.

Because the problem of kitchen location and layout is simplified by reduction of requirements for ventilation and fuel supply.

Because a more efficient and compact layout is possible with Edison equipment, and provision for future expansion is simplified by the standardization and ease of installation of additional equipment.

Because Edison electric equipment is fire and explosion proof, reducing the hazard to life and property as well as loss of income.

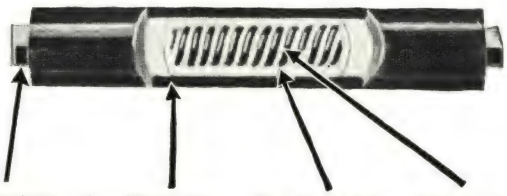
Because only Edison equipment has service arrangements which are nation wide and a liberal service policy to support them.

Because only General Electric Edison has a complete line of all devices used in commercial cooking and baking, eliminating the necessity of purchasing equipment through many sources and gaining the advantage of single large orders and lump sum bids.

Because Edison experts and engineers can offer the architect definite assistance in planning kitchens from their wide experience with thousands of other installations. This assistance may include cost and wiring estimates, engineering aid, complete kitchen layouts, complete specifications, and sales help in presenting a proposal to a client or prospective client.

Co-operation with Architects

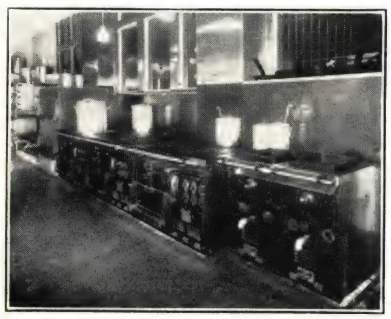
Edison specialists are in close touch with building, remodeling, and refitting jobs throughout the country. They have the confidence of many operators, large and small, and are often in a position to reciprocate the co-operation offered them by architects.



The million-dollar General Electric invention, *Calrod*, used in General Electric Edison cooking equipment. It is practically indestructible.

Calrod

The heating element shown in the cut is made of a helical coil of calorite resistance wire firmly bedded in granite, hard, thoroughly dessicated magnesium oxide, electrical insulator and heat conductor. Terminal posts are permanently attached and the junction with the resistance is permanently embedded in the insulation. The whole is protected by a seamless metal tubular sheath protecting it from mechanical shocks or electrical shorts. Calrod is mechanically strong, electrically safe, and proof against burnouts.



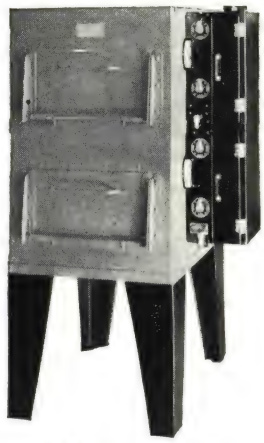


Typical Edison Kitchens

Left:
Edison equipment in one of the Forum Cafeteria kitchens. All kitchens of this company, operating in Kansas City, St. Louis, Houston, Minneapolis and Cleveland, are so equipped

Right:
The three novel restaurants of the W. H. Childs' Company, New York, are Edison equipped, as shown in this kitchen at "Old London"

TYPICAL BAKING AND ROASTING OVENS



NA67—Automatic
N67—Non-automatic

Classification—Utility baking oven.

Dimensions—38 in. wide, 39 in. deep, 65½ in. high. Each compartment 18⅝ in. wide, 28¾ in. deep, 8 in. high.

Capacity—Baking area, 7 sq. ft. (20 1-lb. loaves).

Wattage and Voltage—5 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuits.

Finish—Standard, battleship gray—black enamel trim. Special, white porcelain, monel, or nickel-chromium steel, with trim to match.



NA57—Automatic
N57—Non-automatic

Classification—"Ad-A-Deck" portable baking oven, sectional type.

Dimensions—62¼ in. wide, 75 in. deep, 77 in. high. Each compartment 37⅜ in. wide, 57 in. deep, 8 in. high.

Capacity—Baking area, 45 sq. ft. (120 1-lb. loaves).

Wattage and Voltage—16.2 kw. Standard voltage—110 and 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Standard, battleship gray—black enamel trim. Special white porcelain, monel or nickel-chromium steel, with trim to match.



NA123—Automatic
N123—Non-automatic

Classification—"Ad-A-Deck" portable roasting oven, sectional type.

Dimensions—56 9/16 in. wide, 40 9/16 in. deep, 62 in. high. Each compartment 37⅜ in. wide, 28¾ in. deep, 12 in. high.

Capacity—Roasting area, 14 sq. ft. (250 lb. meat, or 40 1-lb. loaves).

Wattage and Voltage—10 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c circuit.

Finish—Standard, battleship gray—black enamel trim. Special, white porcelain, monel, or nickel-chromium steel, with trim to match.

TYPICAL KITCHEN EQUIPMENT



442 R116
Cooking Top Only

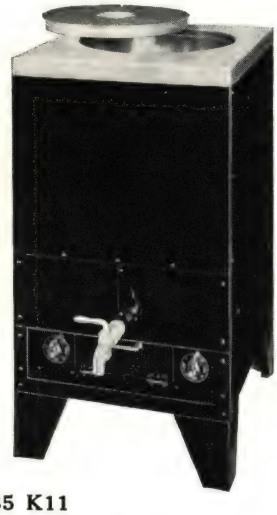
Classification—Heavy duty cooking top. (Range also furnished with oven.)

Dimensions—48 in. wide, 43 in. deep, 31¼ in. high. Storage space, width 27 in., depth 29½ in., height, upper compartment 11¾ in., lower compartment 10 in.

Capacity—Area of hot plates, 6 sq. ft. Size of hot plate area, 24x36 in.

Wattage and Voltage—16 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Black enamel.



435 K11

Classification—Stock kettle.

Dimensions—24 in. wide, 27 in. deep, 44¼ in. high. Diameter of container, 18¾ in.

Capacity—20 gal.

Wattage and Voltage—5 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single phase) or d-c. circuit.

Finish—Body—black enamel; top—polished nickel.



434 KA15—Automatic

Classification—Fry kettle.

Dimensions—18¼ in. wide, 28¼ in. deep, 31¼ in. high. Grease container 12 in. long, 16 in. wide.

Capacity—Fat—45 lb.

Wattage and Voltage—4 kw. Standard voltage—110 or 220 (can be 120, 200 or 240) a-c. (single or 3-phase) or d-c. circuit.

Finish—Standard, black japan—polished steel top. Special, polished monel—nickel trim.

WESTINGHOUSE ELECTRIC & MFG. CO.

EAST PITTSBURGH, PA.

For Branch Offices, see our Lighting Catalogue
For References to Other Products, see Index to Manufacturers

COMMERCIAL COOKING

Hotel Type Broilers

Built to withstand constant hard service, and in design incorporates features that insure convenience of operation and low operating cost. Broiler is made in two sizes, each of which is supplied complete with an insulated au gratin oven permanently placed above the broiling area. Heat from the broiler, which would otherwise be wasted, is used in heating this oven.



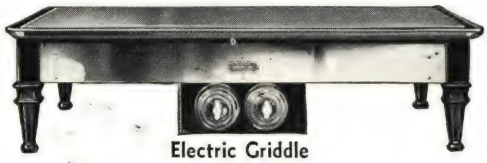
Large Broiler with Roasting Oven

The broiling grid, which is counterbalanced, is manipulated by a convenient handle and can be adjusted by the operator's arm, thus leaving the hands free to place the food to be broiled directly on the broiling grid.

The large broiler is supplied with or without a roasting oven identical to that in the hotel range which gives the user increased roasting facilities with no increase in floor space.

Electric Griddles

The 20-in. griddle has one heater, the 38-in. has two heaters, each covering one-half of the top area. Heaters are controlled by a three-heat, reciprocating snap switch giving full, one-half and one-quarter heat.

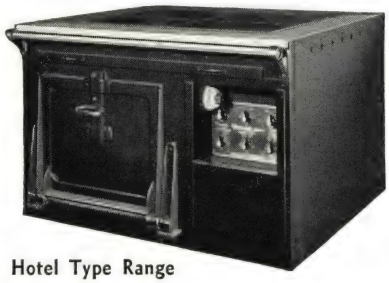


Electric Griddle

Commercial Type Ranges

The Westinghouse 3-ft. and 4-ft. section commercial type ranges are built to withstand the heavy service found in hotel, restaurant, cafeteria and institution kitchen operation.

Framework of ranges is heavy structural steel. Cooking surface consists of cooking plates surrounded by a belt of brushed steel trim. Heating elements are embedded in the heavy cast iron plates in such a way that they are completely protected, insuring high efficiency and long life. The 4-ft. section has 4 plates, 3-ft. section 2 plates, each being controlled by separate 3-heat snap switch.



Hotel Type Range

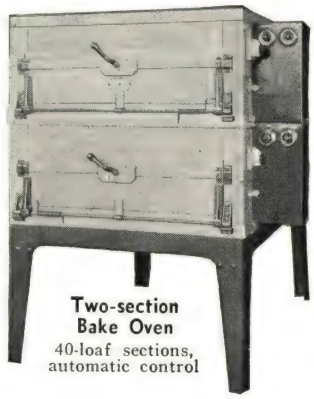
Ovens, supported by the framework, consist of an inner and outer shell of rust-resisting steel. Oven of the 4-ft. section is lined with stainless steel and the 3-ft. section is vitreous enamel lined; both are heavily insulated with mineral wool.

Oven can be supplied with automatic or non-automatic oven heat control. All switches and fuses, kept cool by air circulation, are mounted directly on ranges. Range fronts are protected by guard rails.

The Westinghouse Range will do more work than a fuel range of same size, saving labor and floor space.

Sectional Bake Ovens

The ovens are of the hearth type built in sections, each section having independent heat control; thus products requiring different baking temperatures may be baked in adjacent sections at the same time. All ovens are supplied with either automatic or non-automatic temperature control. In non-automatic controlled oven, the temperature is regulated by three-heat reciprocating switches. In automatic oven, the temperature is maintained automatically at any desired point by a thermostat and mercury switch.



Two-section Bake Oven
40-loaf sections, automatic control

Sectional Ovens can be easily installed in basements or second story locations where it would be inconvenient or unsafe to install a large heavy oven because separate sections can be carried through a small door.

Sectional Roasting Ovens

Made in capacities to meet all requirements from the small restaurant to the largest hotels or cafeterias.

These ovens will pay for themselves in a short length of time due to reduced shinkage of meats. Improved flavor and reduced spoilage are other important features.

Three sizes (60, 125 and 250 lbs. capacity per section) of roasting ovens are available, each of one or two-section capacity. These are complete ovens.

Electric Coffee Urns

The Westinghouse Electric Coffee Urn is a combination hot water and coffee urn consisting of two compartments, one for hot water and one for coffee. The urn is simple in operation and foolproof in construction. Coffee cannot be made in the urn until the water boils and this boiling water is quickly sprayed over the grounds and automatically repoured with cover closed, thus retaining all the delicate aroma and flavor.

The urn body is made of very heavy copper, nickel-plated and polished, and the coffee container is of heat-resisting glass in the smaller sizes; rustproof metal in the 8 and 10-gal. sizes. An air space between the coffee container and the inner shell keeps the coffee at proper temperature, preventing cooling or boiling. The urns of the 4-gal. and smaller sizes have one coffee faucet and one hot water faucet. The larger urns have two coffee faucets and one hot water faucet. The urn is provided with efficient and durable immersion heaters controlled by a three-heat rotary switch. It has a special combination safety and water relief valve to prevent any possible collapse or bursting from pressure through careless handling.



Coffee Urn

ELECTRIC RANGES

Westinghouse uses the Old Dutch Oven principle for the operation of its Flavor Zone Ranges. They are the only ranges that make it possible to duplicate the best results of any other cooking method without any one being in the kitchen during the browning and roasting process. A lining of enameled sheet steel is placed inside the outer oven walls and a high grade heat insulator (mineral wool) packed between lining and walls. The same procedure is followed in the oven door, so that, when closed, heat is retained in the oven long after the current has been turned off. The use of this principle has many advantages: economy of current consumption from the use of stored heat; food left in the oven longer than necessary is never overdone or burned, but kept hot and palatable; complicated method of control not necessary to maintain a cooking temperature in the oven.



New Quick-Cook Unit

In addition Westinghouse ranges are now equipped with new *Quick-Cook* units—the application of this exclusive development making it possible to do cooking 30% to 50% faster and 10% to 20% more efficient. These surface units can be had with either open or enclosed coil.

Oven—Furnished right or left-hand.



Improved Clock

Console D 431

Description—Apartment or home kitchen for 4 or 5 people.

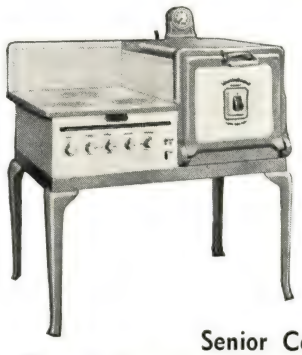
Dimensions in Inches—Over-all, 38¼ wide, 46¾ high, 27½ deep. Oven, 14 wide, 14 high, 17½ deep. Wiring outlet, from floor 24; from oven end 9½.

Finish—Gray enamel.

Units—Surface, open *Quick-Cook;* 6 in., 1000 watts; 6 in., 1200 watts; 8 in., 2000 watts. Oven: top, 1500 watts; bottom, 1500 watts; appliance receptacle, 660 watts.

Operation—Full automatic.

Console D 631



Description—For the bigger family.

Dimensions in Inches—Over-all, 40½ wide, 46¾ high, 27½ deep. Oven, 16 wide, 14 high, 17½ deep. Wiring outlet, from floor 25, from oven end 12⅛.

Finish—Gray enamel.

Units—Surface, open *Quick-Cook* or enclosed; 6 in., 1000 watts; 6 in., 1200 watts; 8 in., 2000 watts. Oven: top, 1500 watts, bottom, 1500 watts, appliance receptacle, 660 watts.

Operation—Full automatic.

Senior Console D 841

Description—8 or 10 people (small clubs and the like).

Dimensions in Inches—Over-all, 46¾ wide, 48 high, 27½ deep. Oven, 18 wide, 15 high, 17½ deep. Wiring outlet, from floor 24; from oven end 11½.

Finish—Gray enamel.

Units—Surface, open *Quick-Cook;* 6 in., 1000 watts; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2000 watts.

Oven: top, 1800 watts, bottom, 1800 watts; appliance receptacles, 660 watts.

Operation—Full automatic.

Console C 631

Description—For the bigger family.

Dimensions in Inches—Over-all, 42½ wide, 51¼ high, 27 deep. Oven, 16 wide, 14 high, 17½ deep. Cooking platform, 23 wide, 24½ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 12⅛.

Finish—Gray or green enamel.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Full automatic.

Console C 841



Description—For family of 8 or 10.

Dimensions in Inches—Over-all, 48 wide, 51¼ high, 27 deep. Oven, 18 wide, 15 high, 17½ deep. Cooking platform, 26 wide, 24¼ deep, 32 from floor. Wiring outlet, from floor 25; from oven end 13⅝.

Finish—Gray or green enamel.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in., 1000 watts; 8 in. (hot spot), 1500 watts; 8 in., 2250 watts. Oven: top, 1800 watts; bottom, 1800 watts. Appliance receptacle, 660 watts.

Operation—Full automatic.



Low Oven Range

Description—Small kitchenette.

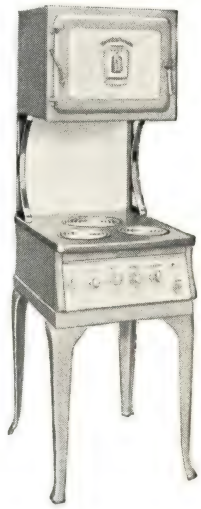
Dimensions in Inches—Over-all, 20½ wide, 38½ high, 21 deep. Oven, 16½ wide, 12 high, 13½ deep. Cooking platform, 19¾ wide, 17½ deep, 35 from floor. Wiring outlet, from floor 28⅛; from oven end 5⅞.

Finish—Gray enamel and black japan.

Units—Surface, open or enclosed; 6 in., 1200 watts; 8 in., 2250 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Automatic or non-automatic. Automatic oven controlled by thermometer.

High Oven Range



Description—Small apartment kitchen.

Dimensions in Inches—Over-all, 20½ wide, 62¼ high, 24¼ deep. Oven, 16½ wide, 12 high, 13½ deep. Cooking platform, 19¾ wide, 23 deep, 32 from floor. Wiring outlet, from floor 25; from oven end 9⅞.

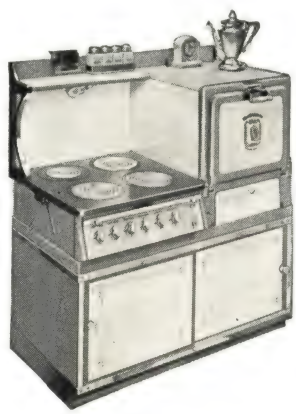
Finish—Gray enamel or black japan.

Units—Surface, open or enclosed; two 6 in., 1000 watts; one 8 in. (hot spot), 1500 watts. Oven: top, 1500 watts; bottom, 1500 watts. Appliance receptacle, 660 watts.

Operation—Automatic or non-automatic. Automatic oven controlled by thermometer.

Royale CR 841 with Lowboy

Description—More than 6 people (small clubs).



Dimensions in Inches—Over-all, 48½ wide, 54½ high, 27 deep. Oven, 18 wide, 15 high, 17½ deep. Cooking platform, 26 wide, 24¼ deep. Warming compartment 16 wide, 20 deep, 12 high. Wiring outlet, from floor 25; from oven end 13⅝.

Finish—Gray enamel and chromium plate.

Units—Surface, open or Corox enclosed; 6 in., 1200 watts; 8 in., 1000 watts; 8 in. (hot spot), 1500 watts. Oven: top, 1800 watts; bottom, 1800 watts; warming compartment, 300 watts. Appliance receptacle, 660 watts.

Operation—Full automatic.

EDISON GENERAL ELECTRIC APPLIANCE CO., INC.

5600 West Taylor Street, CHICAGO, ILL.

FACTORIES: CHICAGO, ILL., AND ONTARIO, CALIF.

BRANCHES AND FACTORY SERVICE STATIONS

DALLAS	BOSTON	NEW YORK	ATLANTA	CHARLOTTE, N. C.
CLEVELAND	CHICAGO	KANSAS CITY, MO.	DENVER	SALT LAKE CITY
LOS ANGELES	SAN FRANCISCO	PORTLAND, ORE.	SEATTLE	ONTARIO, CALIF.

Products

HOTPOINT ELECTRIC RANGES for residences and apartments. Furnished in many sizes and designs to meet varied demands. Architects' hand book on request.

Also manufacturers of "Hotpoint" Electric Household Appliances.

For Edison Electric Commercial Cooking and Baking Equipment, Hotpoint Electric Water Heaters and Electric Air Heaters, see Manufacturers' Index.

A GENERAL ELECTRIC ORGANIZATION

Hotpoint

Distinctive Features

Cleanliness—Electric cookery has no flame, consequently no soot. Reduces decorating expense.

Patented Calrod Units—Consist of a helical coil of CALROD, cast within a smooth top solid metal plate, thus the coil is protected against oxidation and physical abuse.

Open Coil Surface Units—The glowing, radiant, instant heat type set in heater brick of special high temperature, heat retaining porcelain. Interchangeable with CALROD units.

Hi-Speed Calrod Surface Unit—Heavy knife blade terminals. Interchangeable with any Hotpoint open coil or standard CALROD surface units. Watts, 1200-600-300.

Interchangeable Surface Units—Surface units can be placed in any hole of the same size in the cooking tops regardless of the unit wattage. Affords "custom built" ranges to suit individual needs.

Welded Connections—Welded connections on Hotpoint units eliminate six trouble points in each unit.

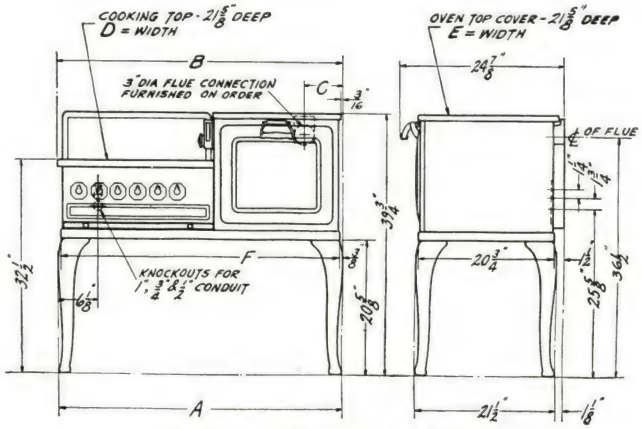
Safety Plugs—All wire attachment to units are made inside heavy shockproof plugs.

White Porcelain Enameled Cooking Tops—Easy to clean as a china plate. All corners carefully rounded to eliminate dirt accumulation.

Precision Temperature Control and Thermometer—Maintains and indicates oven temperatures with remarkable accuracy due to extreme sensitiveness and location.

Reversible Switches—A Hotpoint convenience.

Pressed Steel Parts Throughout—All important parts are of heavy pressed steel—strong, accurate and highly finished.



Outline and Dimensions of RA134



Model RA146

Dimensions—Floor space 43¾x24⅞ in.; height over all 39¾ in.; cooking top 24x21⅝ in.; 32½ in. from floor; oven 16 in. wide x 14 in. high x 18 in. deep



Model RA134

One of the 15 standard models



Model R113

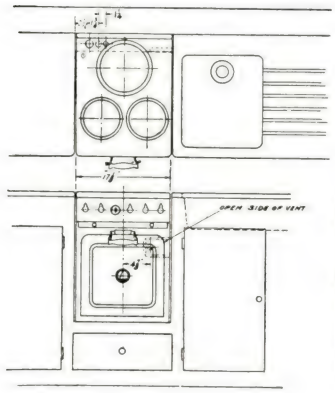
Models R112 and R113

Adaptation—Specially designed for apartment kitchenettes. These ranges furnished without legs as standard equipment for built-in kitchen cabinet installation. Legs (black or white) furnished at additional cost.

Oven—14 in. wide, 14 in. high, 15 in. deep.

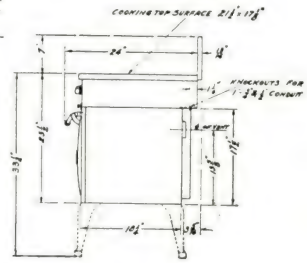
Unit Equipment—R112—One interchangeable 6½-in. surface unit, 1000-500-250 watts, either CALROD or open coil. One interchangeable 8¾-in. surface unit, 2000-1000-500 watts, CALROD or open coil. Two interchangeable oven units (upper and lower) each 1100-550-275 watts, open coil type.

R113—Two interchangeable 6½-in. surface units, 1000-500-250 watts, CALROD or open coil. One interchangeable 8¾-in. surface unit, 2000-1000-500 watts, CALROD or open coil. Two interchangeable oven units (upper and lower) each 1100-550-275 watts, open coil type.



Outline and Dimensions of *Hotpoint* Electric Range

MODELS R112—R113



TECHNICAL INFORMATION

Underwriters' Laboratories' Approval

All Hotpoint ranges are listed as standard by the Underwriters' Laboratories, Inc.

Wiring for Hotpoint Ranges

Each range must be supplied through a separate branch circuit. (Rule 1602-e—1925 N.E.C.) This should preferably be a 110-220-volt, 3-wire circuit. The circuit to each range must be controlled by an accessible indicating switch. The service switch may be used for this purpose. In the Multi-Family dwelling, a switch should be in the apartment, or on the same floor of the apartment in which the range is installed and may control the lights and other appliances. (1928 N.E.C. Rule 1603) (A-3). This switch does not need to be within sight of the range. If the range connection is made with a three-wire plug and receptacle, the requirement of this switch is generally waived.

When only single conductor, single braid, solid wire is used, the following conduit sizes may be used (Rule 503m—1925 N.E.C.):

3—No. 12 wires in ½-in. conduit
3—No. 10 wires in ¾-in. conduit (standard)
3—No. 8 wires in ¾-in. conduit
3—No. 6 wires in 1-in. conduit (recently approved)

Demand factor. Electric ranges seldom are used at their full name plate rating. Many city electrical inspection codes allow the use of a demand factor in determining the size of service wires, switchboards and feeders supplying electric ranges.

RANGE LOADS

Number of Ranges	
1 to 2	100%
5	85%
8	65%
10	52%
15	40%
Over 25	30%

For safety reasons it is essential that all range frames be thoroughly grounded. A ground connection to the conduit supplying the range is considered satisfactory.

The various heating units in electric ranges are not required to be separately fused. (Rule 1605-d—N.E.C. 1928.) The larger Hotpoint ranges have individual fuses for convenience.

Metering

In many cities a low wholesale rate for electric service makes it desirable for the apartment owner to purchase all of the power for lighting, ranges, elevators, etc., though one meter and include the cost of power for cooking in the rent. In other cities a low rate for cooking is available to individual small customers which make it desirable for each apartment to be separately metered, particularly as lighting and cooking power is generally supplied through the same meters, and each tenant thus assumes the operating cost.

Power Demand and Consumption

The National Electric Light Association has recently completed a very complete study of the load characteristics of groups of electric ranges. Demand—for ranges in detached houses with an average nameplate rating of 6.44 kw., the maximum demand per range was found to be as follows:

Number of range customers	Average maximum demand per range
1	3.61 kw.
5	1.75
10	1.36
20	1.13
40	1.00
80	.89
150	.86

Tests made in six apartment buildings in Seattle totaling 284 ranges showed a maximum demand of .87 kw. per range.

Kilowatt-Hour Consumption

The average power used by an electric range installed in homes has been found to be very closely 1500 kilowatt-hours per year. The N.E.L.A. report shows an average of 1424 kilowatt-hours per year for the homes that were studied. Of course, wide variations from this are to be expected.

Separately metered three and four-room apartments show a substantially lower consumption. Six apartment buildings in Seattle were carefully checked and an average consumption of 90 kilowatt-hours per apartment per month was found. Other tests indicate an average consumption per apartment of 80 to 100 kilowatt-hours per month.

CHICAGO DRYER COMPANY

TELEPHONE
Belmont 1060

Laundry Room Equipment

ESTABLISHED 1886

2210-2220 North Crawford Avenue
CHICAGO, ILL.

DISTRIBUTORS

NEW YORK, N. Y., Hill Laundry Equipment Co., Inc. (A. E. Morford) Special Representative, 5-33 48th Avenue, Long Island City, N. Y. Telephone STillwell 4-5720
LOS ANGELES, CALIF., E. R. Kuns Co., Inc., 1221 W. 11th Street
PHILADELPHIA, PA., J. F. Alexander, 1626 Wood Street
PITTSBURGH, PA., J. M. Webber, Dartmore Avenue, Overbrook
ST. LOUIS, MO., Laundry Dryer & Heating Co., 123 No. 11th Street
SAN FRANCISCO, CALIF., M. E. Hammond, 557 Market Street
SEATTLE, WASH., S. W. R. Dally, 332 Pioneer Building

CHICAGO
TRADE-MARK
REG. U. S. PAT. OFF.

Products

DOMESTIC LAUNDRY EQUIPMENT:

Clothes Dryers, Electric Washers, Ironers, Ironing Boards, Complete Outfits for use in residences, apartment buildings, schools, etc.

INSTITUTIONAL EQUIPMENT:

Gas and Electrically Heated Ironers, Washers, Extractors, Tumblers, and other complete accessories for use in hotels, hospitals, clubs and institutions.

Co-operative Service

We invite architects and engineers to make full use of our engineering and layout service. We maintain a staff of engineers, who will be pleased to assist in planning installations to meet requirements.

Clothes Dryers

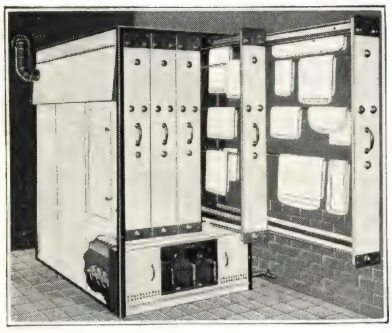
Built in various sizes and types to meet requirements. May be heated by means of gas, steam, electricity or coal stove attached. Framework made of ⅛-in. thick angles of suitable size. Casing is of best quality galvanized sheet steel. When so specified, casing may be made double with air space or double and interlined with sheet asbestos.

All our gas heated dryers are provided with our patented indirect gas heating system.

Gas Heated Dryers

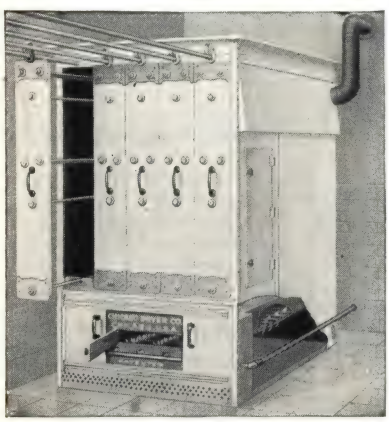
Indirect gas heating system means that the burners are contained in an interior drum. No flame is exposed. Equipped with complete air circulating system for the intake of air and removal of moisture. Hanging bars are of specially galvanized tubular pipe and ventilated so as to prevent overheating. Dryers equipped with racks or draws are built to order. When space will permit, these dryers are generally built 7 ft. high and 7 ft. long. These measurements may be varied to suit conditions. When dryer is built 7 ft. long, the total length with racks fully extended is 13 ft. 6 in.

Chicago-Francis Dryer Type S. C. 5909



Equipped with self-contained (type S.C.) racks, which completely eliminate the overhead track system on the outside of dryer. Racks operate on metallic ball bearing rollers. Built in various sizes containing 2, 3, 4, 5, 6, 7, 8 or more racks or draws, as may be specified. Each rack measures 9 ins. wide and has a hanging capacity of 39 lin. ft. Heated by means of gas, steam, electricity, or coal stove attached, as may be specified. Illustration shows dryer heated by means of gas.

Chicago-Francis Dryer Type 5909



Equipped with overhead pipe track. Built in sizes containing 2, 3, 4, 5, 6, 7, 8 or more racks, as may be specified. Each rack measures 9 ins. wide and has a hanging capacity of 39 lin. ft. May be heated by means of gas, steam, electricity, or coal stove attached, as may be specified. Vent pipe measures 5 ins. in diameter and may be brought out on either side, close to rear end, or extreme top at rear end, as may be required.

Chicago-Francis Gas Heated Cabinet Dryer



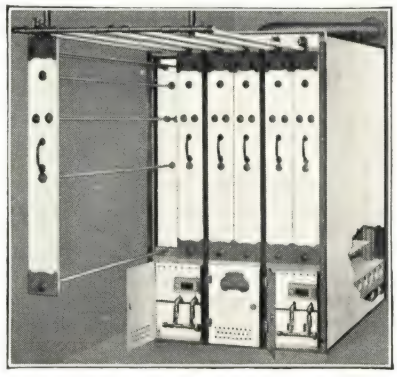
Made in four sizes: G-24 measures 72 ins. high, 48 ins. wide, 24 ins. deep; hanging capacity 50 lin. ft. G-209 measures 72 ins. high, 62 ins. wide, 21 ins. deep; hanging capacity 60 lin. ft. G-309 measures 72 ins. high, 80 ins. wide, 21 ins. deep; hanging capacity 85 lin. ft. G-409 measures 72 ins. high, 80 ins. wide, 26 ins. deep; hanging capacity 117 lin. ft.

Also made for electric or steam heat.

Diameter of vent pipe at top is 5 in.

Chicago Gas Heated Compartment Dryer

Can be supplied with any number of compartments desired.



Compartment G-2972 contains two 9-in. racks; measures 72 ins. long, 78 ins. high, 21 ins. wide; hanging capacity 65 lin. ft. G-2984 contains two 9-in. racks; measures 84 ins. long, 78 ins. high, 21 ins. wide; hanging capacity 78 lin. ft.

Illustration shows dryer containing three compartments. May be equipped with self-contained (Type S.C.) racks, when so specified.

*Chicago Electric Washer and Safety Wringer



Adapted for use in residences and small institutions. Only machine on market with wringer equipped with automatic conveyor for conveying clothes into rolls, and also automatic safety stop, which prevents tearing of clothes and insures absolute protection against possible accidents to operator when wringing clothes through power wringer.

Washer tub made of copper with nickeloid plating on inside. Framework is of heavy iron. Outside of washer tub, including framework, finished in white enamel. Provided with water inlet for stationary water and drain connections.

Will wash clothes thoroughly clean and without injury in 10 to 15 minutes. Equipped with ¼ hp. motor, which may be connected to any lighting circuit.

When planning, recommend washing machine being placed at either right or left end of stationary laundry tubs as shown in illustration. Equipped with 14-in. wringer.

Made in the following sizes:

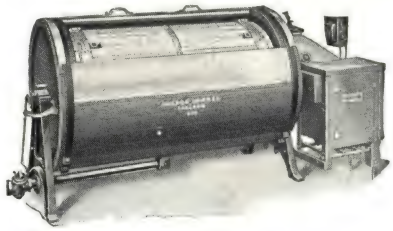
No.	Capacity, sheets	Capacity, dry weight, lbs.	Washer tub measures, in.	Occupies floor space, in.
214	9	15	26x18	26x34
314	12	20	26x21	26x37
414	15	25	26x24	26x40
514	18	30	26x27	26x43

Chicago-Institutional Laundry Appliances

May be advantageously used in hotels, hospitals, clubs, cafeterias, sanitariums, including public and private institutions of all kinds.

Chicago Laundry Equipment eliminates the necessity of providing high pressure steam. Its initial cost as well as its operating cost is less than steam operated outfits. Our engineering department is at your free disposal. Plans and estimates submitted without obligation. We invite inquiries. Write for Bulletin No. 33.

Chicago-Direct Motor Driven Cylinder Type Washer



Operated by means of electric motor contained in housing. The direct unit drive attachment eliminates noisy and overhead line shaft; allows easy installation and economy in operation. Made with wood shell and wood cylinder.

Built in sizes as follows:

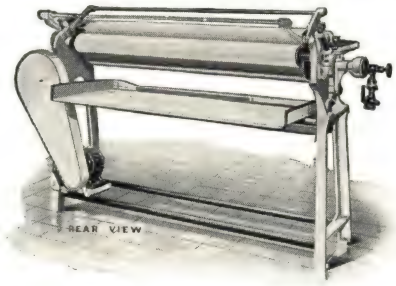
Washer No.	Cylinder, in.	Motor, hp.	Capacity, dry weight, lbs.	Occupies floor space, in.
E-3136	31x36	¾	50	46x76
E-3152	31x52	¾	75	46x92
E-3652	36x52	1	100	54x100
E-4064	40x64	2	200	60x126



Chicago-Direct Motor Driven Extractor, No. 20 in. Type M.D.

Basket measures 20 ins. in diameter and is spun from extra heavy copper, tinned on inside and heavily reinforced to prevent bulging. Is supplied with safety cover interlocking device. Operated by means of 1½ hp. motor. Occupies floor space 30x56 in. Larger sizes can be supplied when so required.

*Chicago Three-roll Gas Heated Ironer



Suitable for ironing all kinds of flatwork, such as sheets, pillow cases, napkins, towels, table linens, etc. Adapted for use in residences, and small institutions. May be equipped with foot lever control, when so specified.

Equipped with 3 rolls, consisting of 1 heated and 2 compression rolls. All the rolls revolve, no wear on linens.

These machines are furnished equipped with atmospheric gas burner or burner with gas blower attachment in the following sizes:

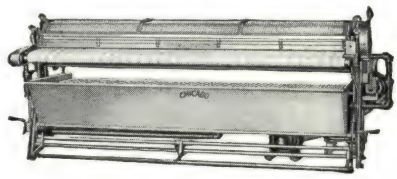
Ironer No.	Length rolls, in.	Outside dimensions, in.	Motor, hp.	Type of gas burner
3-50A	50	28x75	¼	Atmospheric
3-50B	50	28x75	⅓	Blower att.
3-60A	60	28x85	¼	Atmospheric
3-60B	60	28x85	⅓	Blower att.
3-75B	75	28x100	⅓	Blower att.

*Tested and approved by the Good Housekeeping Institute conducted by the "Good Housekeeping Magazine."

Automatic safety stop finger guard approved by New York State Labor Safety Commission.

Chicago Six-roll Gas Heated Flatwork Ironer with Motor and Blower Attached

Adapted for use in hotels, hospitals, clubs and institutions. Solves the ironing problem without the use of high pressure steam. Linens when run through singly may be taken direct from extractor—dried and ironed—in one pass. All the rolls



revolve, no wear on linens. Rolls compressed or raised from heated roll instantaneously. Equipped with ribbon feed attachment, including automatic safety stop finger guard, approved by New York State Labor Safety Commission. Capacity up to 2000 lbs. dry weight daily. A size for every need.

Hundreds of these machines now in actual service. Built in various sizes as follows:

Ironer No.	Contains	Occupies floor space, in.	Motor, hp.
6—60	6 rolls 60 in. long	40x90	½
6—80	6 rolls 80 in. long	40x110	½
6—100	6 rolls 100 in. long	40x130	½
11—104	11 rolls 104 in. long	96x138	1½

Provide 1-in. gas supply. The six-roll type may be supplied for electric heat in the following sizes: 50, 75 and 100 ins.

*Chicago Ironing Board and Stand with Electric Attachment No. 302

Ironing board measures 60 ins. long, 1¾ ins. thick. Large end measures 16 ins. wide and tapers to 10 ins. at small end. Underside of board provided with patented attachment for holding padding. Base and stand finished in white enamel. Stand is self-contained and need not be fastened to floor.

Equipped with sleeve board, sponge cup, electric switch, pilot light and plate for holding iron.

Made for operating on 110 volt current only.

*Tested and approved by the Good Housekeeping Institute conducted by the "Good Housekeeping Magazine."



HILL LAUNDRY EQUIPMENT COMPANY, INC.

TELEPHONE
STillwell 4-5720

5-33 48th Avenue
LONG ISLAND CITY, N. Y.

EASTERN REPRESENTATIVE OF CHICAGO DRYER COMPANY
Refer to Manufacturers' Index

HILL "INDESTRUCTO" LAUNDRY DRYERS

A Type for Every Requirement

HILL "INDESTRUCTO" LAUNDRY DRYERS of all descriptions for the residence, club, apartment and institution.

We have on hand drawings and statistics covering the development of laundry equipment for the past thirty years, and are glad always to place these at the disposal of architects, builders and owners in the form of advice on plans and specifications, which will undoubtedly result in great saving and efficiency.

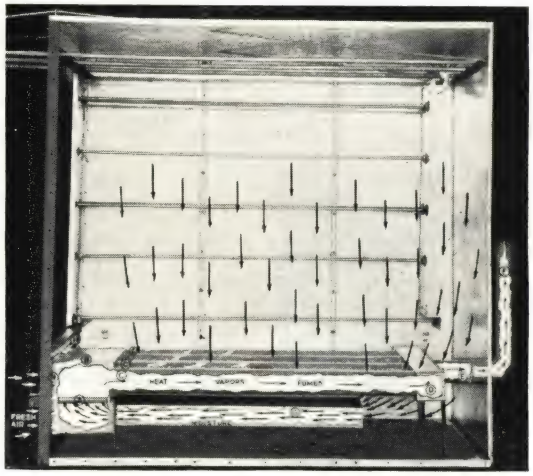
"Indestructo" Laundry Dryer Provides Positive Ventilation

The "Indestructo" laundry dryer we believe is the only indoor dryer in which thorough ventilation is actually accomplished while the clothes are being dried.

Our sanitary radiator, which is an *exclusive* feature, distributes the heat equally through the cabinet on a *minimum of gas consumption.*

Rapid drying can be accomplished only through perfect ventilation—*and our dryer has the only system which does this without requiring a flue.*

Dampness is removed from the bottom of the dryer, thus facilitating heating and insuring pure white clothes at a great saving in gas. If this dampness is not removed it requires additional gas heat to overcome it.



System of Heating and Ventilating in "Indestructo" Gas Radiator
Arrows indicate moisture, vapor and fumes being drawn out of the dryer through the ventilating duct

Construction Features

The individual drying compartment of our apartment house dryers having 10 hanging bars, each 6½ ft. long, has a linear equivalent of 66 ft. of hanging space. In a residence type of dryer, each rack has 6 hanging bars totaling 39 linear feet.

Hanging bars are spaced about 5 in. apart thus allowing *adequate circulation* for drying and are ventilated and rustproof. "Indestructo" dryers are built entirely of heavily galvanized sheet iron and angle iron.

Gas cocks are on outside of dryer protected by a guide bar and are always visible to the laundress. The operators, and owners of apartment buildings, note the great saving in floor space required and in gas consumption.

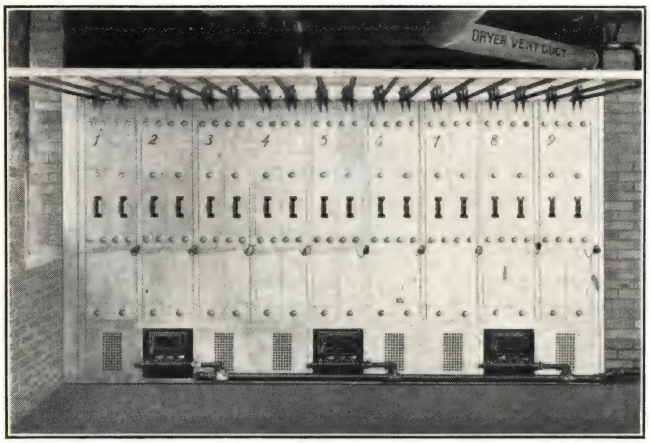
The travelling bar system is supported by truss rods through the roof of the dryer, thereby eliminating the necessity of supporting these bars from the ceiling of the room.

Built in Any Size

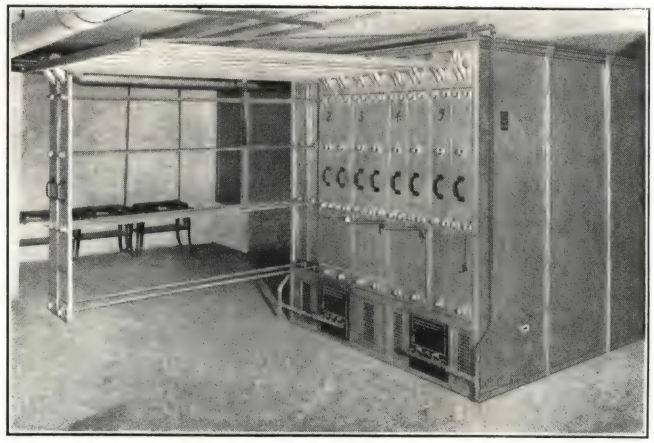
Hill "Indestructo" dryers are always built to order in any size, and are especially constructed for each individual building thus meeting special requirements.

Guarantee

Hill "Indestructo" dryers are guaranteed, in writing for five years against mechanical defects.



Apartment House Type Gas Radiator Heated Dryer Divided into Individual Drying Compartments



Gas Radiator Heated Dryer with One Compartment Open and Rack Extended

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES
67 Wall Street, NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
REFINERY: Port Colborne, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index
For Distributers, see our page on Metals

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of laundry equipment. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.) All necessary accessories such as nuts, bolts, screws, rivets, etc., are also available.

INCO MONEL METAL TRADE-MARK

Monel Metal

Monel Metal is a registered trade-mark applied to a technically-controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal in the Laundry

(1) Resists corrosive action of soaps, sours, bleaches, etc. Rustproof.
(2) Does not spot or stain the wash.
(3) Solid, glass smooth, wear-resisting surface that cannot harm delicate fabrics.
(4) Saves floor space.
(5) Strong as steel, withstands abuse.
(6) Clean, sanitary and attractive in appearance.

Uses

Washers, extractors, trucks, utensils, chutes, hoppers, table tops, starching equipment, soap tanks, identification tags, clips, etc.

Development of Modern Laundry Machinery

In 1917 the first Monel Metal washers were built. These were placed in commercial laundry service for test and observation. The service given by these and other Monel Metal washers built during this experimental period was so satisfactory that Monel Metal was adopted as a standard material of construction for washers.

The new metal washers met with the general acceptance of the laundry industry and in the last ten years more than 16,000,000 lbs. of Monel Metal have been used in commercial, industrial, institutional and hotel laundries.

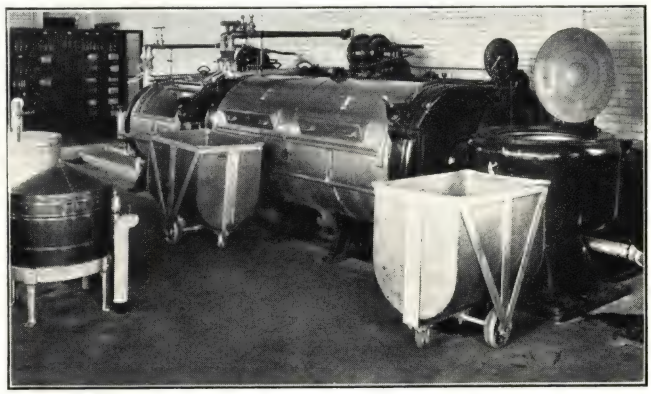
In 1929 one company adopted Monel Metal as standard basket construction for extractors. The satisfactory service of Monel Metal in laundries has naturally led to its wide adoption in dry cleaning plants.

Transportation in the Modern Laundry

Chutes, hoppers and trucks. There is a definite trend in the modern laundry to adopt the production line principles so effective in industrial plants. Monel Metal construction has been found ideal for the various gravity hoppers and conveying chutes leading from washers on one floor to extractors below and for the trucks used to transport from washers to extractors where chutes are not used.

The same properties of Monel Metal, freedom from rust and corrosion, glass-smooth surface, strength and durability, as evidenced in washer service have been responsible for its wide specification for hoppers, chutes and trucks.

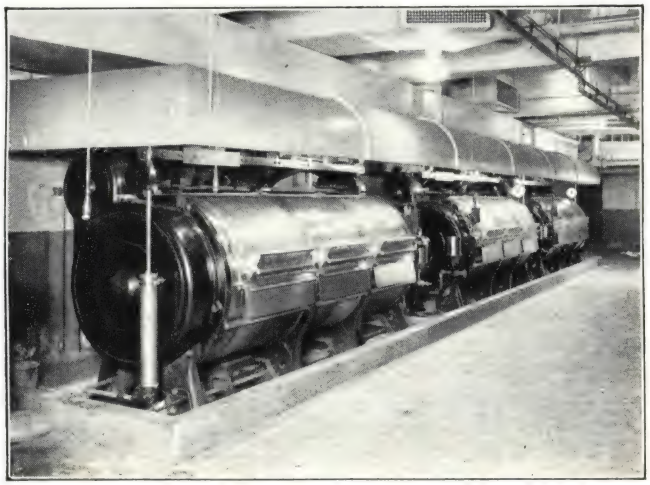
The names of reliable sheet metal workers skilled in building Monel Metal chutes, hoppers, and trucks will gladly be sent on request.



Monel Metal Washers and Trucks in the Laundry of the Montefiore Hospital, Pittsburgh, Pa.

Available Publications

"Laundry Owners' Year Book."
"Gravity Operation Successful in Commercial Laundry."
"Nesco Monel Metal Utensils."
"Construction and Operation of Washing Machines."
"Substantial Savings Through Replacement of Obsolete Equipment."



Some of the Monel Metal Washers in the Hotel New Yorker, New York, N. Y.



Monel Metal Chutes in the Excelsior Laundry, Cincinnati, Ohio

JUDELSON DRYER CORPORATION

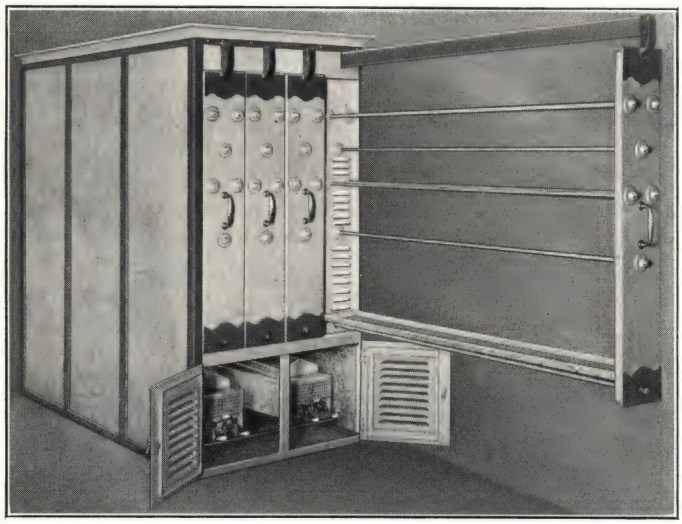
Makers of Efficient Drying Equipment Since 1892

SALES OFFICE: 295 Madison Avenue, NEW YORK, N. Y.

FACTORIES: Moundsville, West Va. and Long Island City, N. Y.

DRYERS—WASHERS—IRONERS—TABLES—SOAP TANKS—STARCH COOKERS

Complete Laundry Equipment for Residences, Apartment Houses, Clubs, Institutions, Schools, Gymnasiums, Fire and Police stations, etc.



"Judelson" Special Clothes Dryer—Custom Built

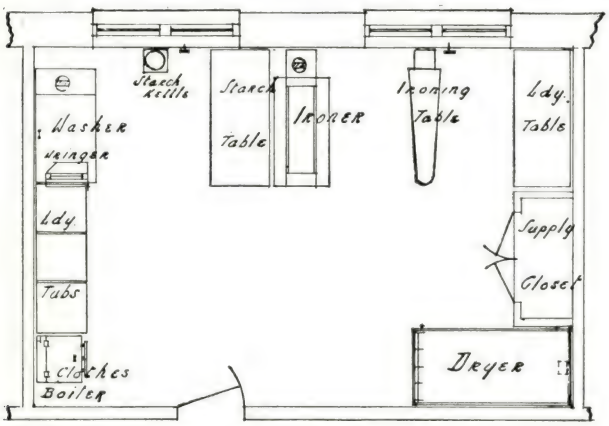
The Judelson Self-Contained Extension-Rack Dryer has been given the preference in many of the finest homes in America. Its rugged construction, design and finish, specially selected materials, highest type of workmanship and engineering skill, together with approved scientific principles and many exclusive features make this dryer the choice of those who want the best.

The racks slide in and out smoothly on a patented, three-point, steel ball-bearing suspension arrangement, eliminating the disadvantages of the old-fashioned overhead traveler bars on ceiling and the obsolete floor carriage type.

Equipped with completely enclosed interior indirect heat radiator.

Heated by gas, electricity or steam, which circulates dry, fresh, sterilized air evenly throughout drying chamber. Furnished with any number of racks to suit requirements.

Dimensions—Height 7 ft.; depth 7 ft.; overall width depends upon number of racks. The racks are 9 in. wide and equipped with 6 hanging rods having a total of 39 ft. linear hanging capacity per rack.

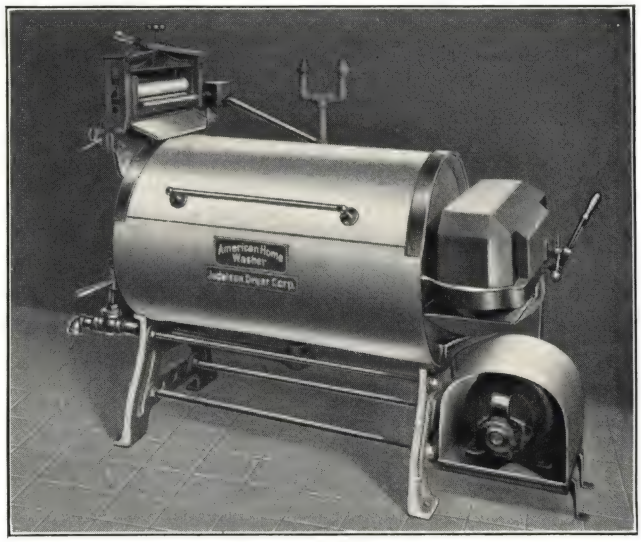


Floor Plan of a Typical Residence Laundry

Our engineering department will be glad to furnish blue print plans and cooperate in laying out domestic laundries or drying equipment for any type of building. You are cordially invited to avail yourself of this free service.

Notice

The business of the Domestic Laundry Equipment Corporation, whose catalogues have appeared in previous editions of SWEET'S CATALOGUES, has been absorbed by the JUDELSON DRYER CORPORATION and it continues the manufacturing of all "Domestic" products and assumes all guarantees in connection with the servicing of all laundry equipments installed by the Domestic Laundry Equipment Corporation.

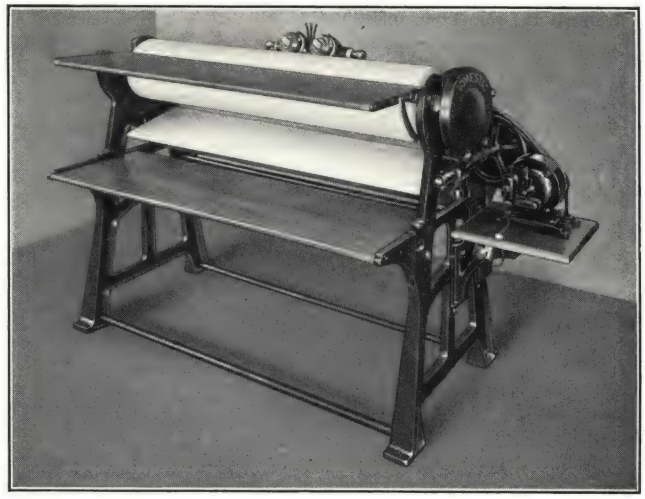


"Domestic" Heavy Duty Washer

Shown with safety wringer driven by the washing machine motor.

A very sturdy and highly efficient motor driven washer for large residences, clubs and institutions. Equipped with quick opening drain valve and connections for both hot and cold water. Monel metal cylinder and body. Nickel-plated trim. Capacity:

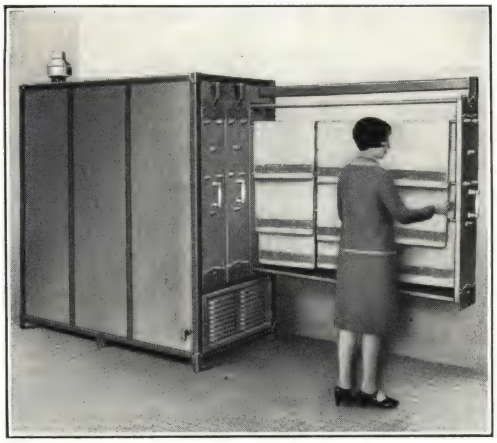
No. 2—20 sheets or 35 lbs., ¾ h. p. motor
No. 3—25 sheets or 45 lbs., 1 h. p. motor



"Domestic" Heavy Duty Ironer

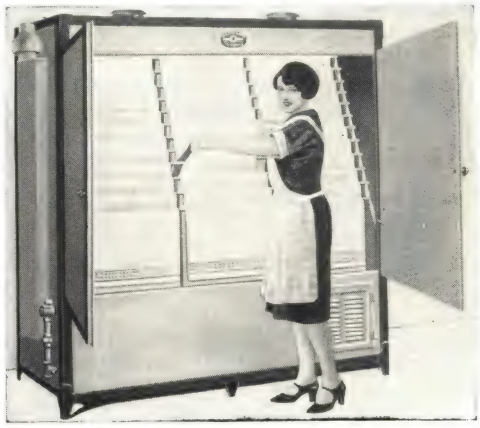
Gas or electric heated. Made in 2 sizes. Rolls 48 or 56 in. wide.

JUDELSON DRYERS MAKE ANY DAY A PERFECT DRYING DAY



No. 903 Extension-Rack Type Dryer

The No. 903 dryer is equipped with three racks, each 9 in. wide, each rack equipped with 6 hanging rods. The No. 903 has an outstanding field in the larger and finer homes. A smaller dryer, the No. 902, is made with two racks, having a hanging capacity to accommodate the full load of the ordinary washing machine.



No. 600 Cabinet Dryer

The acme of perfection in Cabinet Type Dryers. Equipped with 12 movable hanging rods. Will take full load of the ordinary washing machine. Finished in durable ivory lacquer with harmonizing green trim.



No. 300 Cabinet Dryer

A very compact dryer, for installation in kitchens, pantries, etc., equipped with 12 movable hanging rods, accommodating 24 towels 16 in. wide, or equivalent. Finished same as No. 600.

In providing a home with the comforts of modern time and labor saving appliances, there is none that will bring more comfort, convenience and real pleasure than a Judelson Clothes Dryer. It solves the most troublesome part of the home laundering problem and makes the process of washing, drying and ironing a continuous one. It places that part of the domestic routine on a definite, fixed schedule—any day of the week—regardless of weather conditions. It provides a quick, strictly sanitary and better all-round way of drying clothes every week in the year.

Clothes hung outdoors, even on sunshiny days, mar the beauty of the landscape and are contaminated by dust, soot, smoke, acids, insects and other disturbing elements. Hanging clothes in various places indoors results in expensive delays and subjects all the members of the household to unpleasant dampness and general inconvenience. The modern clothes dryer is the most important of all laundry appliances.

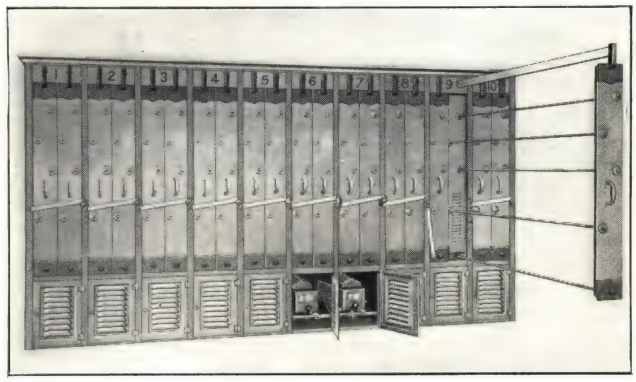
Judelson Clothes Dryers embody the specialized experience of more than a quarter of a century in manufacturing scientific drying equipment—and are the last word in safety, efficiency, operation, construction and appearance. They have stood the test for over twenty-five years in the finest homes and apartment houses in America. They possess many exclusive features that insure their performance satisfying the most critical user—and are made in a variety of standard sizes and styles to meet the exacting requirements of all types of private dwellings, apartment houses and institutions.



Special dryers built to order for practically any domestic, institutional or industrial purpose. Equipped with gas, electricity or steam heating systems.

Dimensions and Specifications of Judelson Dryers

Cat. No.	Height, over all	Depth	Width	Linear hanging capacity
No. 903	6 ft., 9 in.	6 ft.	2 ft., 7 in.	97 ft.
No. 902	6 ft., 9 in.	6 ft.	1 ft., 10 in.	65 ft.
No. 600	6 ft.	2 ft.	6 ft.	65 ft.
No. 300	6 ft.	2 ft.	3 ft., 6 in.	33 ft.



Special Judelson Multi-Section Dryer

Built to order in any number of sections or compartments, each containing 2 or 3 racks. Each compartment separately heated and equipped with locking device. Racks 7½ in. wide or 9 in. wide, as required. Height 7 ft.; depth 7 ft.; height and depth varied to meet requirements, when necessary.

In apartment houses it is customary to specify a two-rack compartment, or one No. 902 or No. 600, for each group of three or four families. Example: The minimum requirements for a 24 family apartment house should be an 8 section dryer. If No. 902 or No. 600 standard dryers are desired specify one of these for each set of tubs in the laundry.

TROY LAUNDRY MACHINERY CO., INC.

FACTORY
EAST MOLINE, ILL.

SALES OFFICES
BOSTON, MASS., 514 Atlantic Avenue
CHICAGO, ILL., 2231 South Parkway
LOS ANGELES, CAL., 767 East Washington Street
NEW YORK, N. Y., 235-47 East 45th Street
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EUROPEAN AGENTS: JAMES ARMSTRONG & CO., LTD.
LONDON BERLIN ZURICH

Products

Manufacturers of COMPLETE LAUNDRY EQUIPMENT for Commercial and Industrial Laundries, Dry Cleaning Plants, Hospitals, Sanatoria, Hotels, Schools and Clubs.

Troy Advisory Service

Care and expert attention should be employed in planning the laundry. Many factors are to be considered. Machinery installations and equipment layout vary with the work to be done, the space available, the location of doors, windows and bin space. Linens and garments should pass through the various processes without waste motion—in a direct line from one operation to another.

As an aid to architects, engineers, building committees and executives in laying out laundry facilities, Troy offers without charge the Troy Advisory Service for planning, estimating and preparing specifications for laundry equipment in any type and size of project.

Feel free to consult Troy Advisory Service on any problems involving laundry plans, construction, equipment and operation. Write for complete information on Troy Machinery and Troy Service.

Information Required

When estimating or planning laundry equipment it is necessary and advantageous to all parties concerned to supply the following information:

(1) Type and size of institution or plant.
(2) Nature of work to be done.
(3) Number of square feet of floor space available for laundry.
(4) Height of ceiling.
(5) Size of doors, windows, or other openings to laundry.
(6) Current characteristics of lighting system and power lines.
(7) Ventilation facilities available.
(8) Number and size of electric power outlets.
(9) Number and size of electric motors.
(10) Number and size of steam, water and waste outlets.
(11) Size of soiled linen room.
(12) Size of clean linen room.

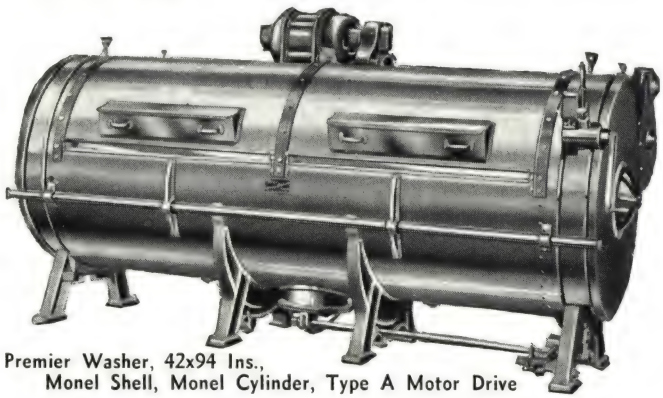
Premier Washers, Motor or Belt Driven

Troy Premier Washers are built in three cylinder diameter sizes, 36, 42 and 54 in. The two smaller sizes are available with horizontally or vertically partitioned monel cylinders and either wood or monel shells. The 54-in. Premier has the "Y pocket" type of horizontal partition and is monel throughout.

Premier Washers are made in either motor or belt driven models.

Type A motor drive consists of (a) direct geared reversing motor, mounted on channel supports; (b) a combined inching switch and mechanical brake in conjunction with gear lock; (c) a timer station and reversing control, arranged for wall or panel mounting; and (d) a safety switch on shell doors.

Type B motor drive consists of a one-way motor belted to countershaft, with starting switch or rheostat in steel cabinet.



Premier Washer, 42x94 Ins., Monel Shell, Monel Cylinder, Type A Motor Drive

Belt drive with elevated header consists of a positive reversing mechanism, arranged for wide belts and furnished with handle for starting and stopping machine.

DETAILED SPECIFICATIONS, TYPE A MOTOR DRIVE PREMIER WASHERS

Size of machine, in.	Cylinder, r.p.m.	Floor span, in.	Floor space, in.			Shipping *weight, lbs.	Cylinder volume, cu. in.	Maximum capacity dry wt., lbs.
			L	W	H			
36x36	26	39½	81	59	68	2750	36644	110
36x54	26	39½	99	59	68	3400	54967	165
36x62	26	39½	107	59	68	3650	63110	190
36x70	26	39½	115	59	68	3900	71253	215
36x84	26	39½	129	59	68	4150	85504	260
36x94	26	39½	139	59	68	4400	95683	285
42x36	22	39½	81	64	72	3900	49874	150
42x54	22	39½	99	64	72	4150	74812	225
42x62	22	39½	107	64	72	4300	85895	260
42x70	22	39½	115	64	72	4550	96978	290
42x84	22	39½	129	64	72	4900	116374	350
42x94	22	39½	139	64	72	5050	130228	395
54x84	16	49	121	82	88	8100	192376	580
54x108	16	49	145	82	88	9700	247341	740
54x120	16	49	157	82	88	10800	274824	820

*Shipping weight on belt driven washers averages 300 to 600 lbs. less; on Type B motor driven washers 50 lbs. less.

Mercury Clear Top Extractor, Motor Drive

The Mercury Extractor is a highly perfected self-balancing, time controlled and automatically operated clear top extractor of large capacity. Its design is a complete departure from that commonly used in clear top machines, in that all exterior parts of the extractor, including the entire curb and motor, are stationary, the basket being of the self-balancing type free to oscillate independently of the curb and motor mounting. The value of such a design lies in lower power consumption, because a much smaller mass must be moved by power, and practically complete elimination of vibration despite the fact that the machine can be operated with more greatly unbalanced loads.

The Mercury safety cover is so arranged that the machine cannot be started until the cover has been locked and the cover cannot be unlocked until the basket has come to a dead stop. This cover represents



Mercury Clear Top Extractor, Motor Drive, 48-in. Size

the ultimate in safety device design in that the centrifugal device used to accomplish the above has no bearings, joints or other mechanism to require lubrication and maintenance, in the neglect of which the ordinary safety cover becomes ineffective.

The automatic timing device is provided in conjunction with a control lever so that the machine may be operated for a pre-determined length of time, at the end of which the timer automatically shuts off the motor, applies the brake and by means of a light, signals the operator that the machine is ready for unloading. Two simple push button switches comprise the entire electrical apparatus on the machine itself used to accomplish this automatic control, since no solenoids or other complicated electrical devices are necessary.

DETAILED SPECIFICATIONS, MERCURY CLEAR TOP EXTRACTOR

Size of basket, in.	Motor hp.	Vol. of basket, cu. in.	No. of bands	Basket r.p.m.	Drain, in.	Height to top of water ring, in.	Floor space, in.			Ship'g. weight, lbs.
							L	W	H	
48	5	35,700	6	800	(2) 6	36¾	74½	83	48	6800

Premier Drying Tumblers, Motor or Belt Driven

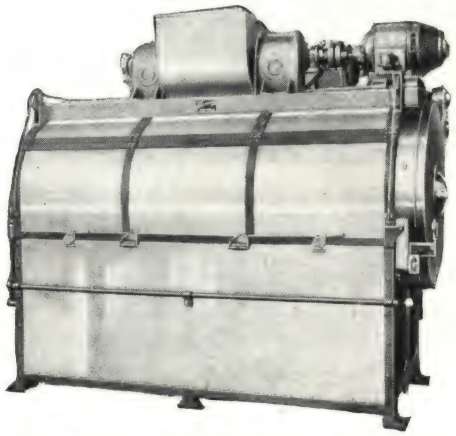
The Premier Drying Tumbler, utilizing the most modern, nature-like drying principle, constant up-draft suction of great volumes of fresh air at low temperature, leads in drying capacity and cleanliness of operation.

High speed, high volume fans, with fan inlet ducts at the top of the tumbler, assure perfect circulation of air through wide-mesh wire cylinder. Steam coil is at bottom of machine, correctly placed. Steady up-draft suction and absence of blast-drying eliminate lint trouble, as all lint is blown away from machine through outlet piped to outside of building.

Premier Tumblers are motor or belt driven. 120-in. models are available in Type A motor drive or belt drive with elevated header only.

All other models may be had in Type A, Type B motor drives and belt drive.

For special installations all models other than 120-in. size can be had with belt driven cylinder—motor driven fan, or with countershaft drive.



Troy Premier Drying Tumbler, 42x90-in. Size, Type A Motor Drive

DETAILED SPECIFICATIONS, PREMIER DRYING TUMBLERS, TYPE A MOTOR DRIVE

Size of machine, in.	Cylinder, r.p.m.	Floor space, in.			Shipping weight, lbs.	Capacity dry load, lbs.
		L	W	H		
36x36	28	80¼	50¾	85¾	4800	30 to 40
36x48	28	87	50¾	85¾	5300	45 to 45
42x42	26	77½	53½	98	5400	55 to 70
42x60	26	88¾	53½	98	6600	85 to 100
42x90	26	112	53½	98	8600	125 to 150
42x120	26	168	53½	98	12000	170 to 200

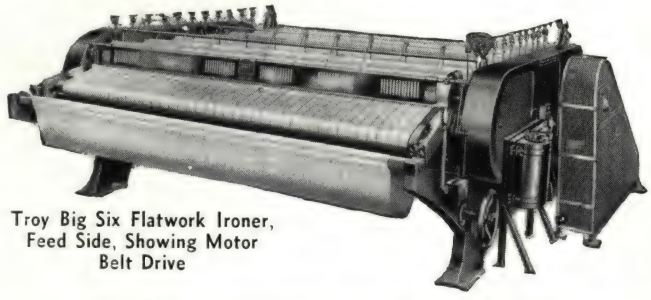
Troy Big Six Roll Flatwork Ironers

This flatwork ironer is a chest type machine, having six steam chests and six padded rolls, with the necessary canvas aprons for conveying the goods from chest No. 6 to the front side of the machine and back to the delivery table. Fully equipped with controlling and safety devices.

Driving mechanism is what is known as the *motor belt drive*. This consists of a motor located at the rear of the ironer, belted direct to the pulley on the ironer drive shaft. A drum controller or rheostat is provided, enabling the user to vary the speed of the machine according to the class of work being ironed.

Troy Big Six Ironers are made in the 110 and 120-in. widths only. The Troy Big Four Flatwork Ironer, made in 100, 110 and 120-in. widths, each having four steam chests and four padded rolls, is constructed in accordance with general specifications of the Big Six.

For heavier work there is the Troy Big Eight Flatwork Ironer with eight steam chests and eight padded rolls. Big Eight is made in 120-in. width only.



Troy Big Six Flatwork Ironer, Feed Side, Showing Motor Belt Drive

DETAILED SPECIFICATIONS, TROY FLATWORK IRONERS

Type	Size of machine, in.	Floor space, in.			Shipping weight, lbs.
		L	W	H	
Big 4	100	149	149	64	14000
Big 4	110	159	149	64	16000
Big 4	120	169	149	64	17000
Big 6	110	152	181	64	22000
Big 6	120	184	181	64	24000
Big 8	120	184	213	64	32000

Troy Dry Cleaning Machinery

Troy manufactures a complete line of dry cleaning machinery. All dry cleaning equipment is designed to afford lasting economical service to the dry cleaner and each unit is constructed in strict accordance with safety codes. Machines are belt driven or equipped with explosion-proof motors.

HASLETT CHUTE AND CONVEYOR CO.

Aluminum Laundry Chutes; Waste and Rubbish Chutes

Real Estate Trust Building, PHILADELPHIA, PA.

FACTORY: OAKS, PA.

For Fire Escapes and Conveyors, see Manufacturers' Index

Haslett Waste or Rubbish Chute Specifications

Waste paper or rubbish chute with positive acting gear and cam interlocking door hoppers as manufactured by the HASLETT CHUTE & CONVEYOR CO., Oaks, Pa.

Stack—14-gauge steel, all seams flanged out and riveted. Standard sizes 22, 28, 34 and 46 in. square.

Cap—14-gauge steel with collar for vent.

Interlocking Door Intakes—Hoppers and doors 14-gauge steel, welded construction. Intakes have two doors, one through which rubbish is placed in hopper and other opening into stack. Doors connected to operating handle by interrupted cut tooth gears and cams, so that one door is securely locked in closed position, while other opens and closes.

Sprinkler Protection—Accessible recesses for sprinkler heads provided where required. (For average chute locate one at top of stack and one immediately above outlet.)

Outlet—90-degree elbow, 12-gauge steel sides and ¼-in. plate bottom. 12-gauge steel hinged door with heavy double latch. Elbow and door reinforced with angles.

Supports—Elbow supported by structural steel strut from foundation. Stack carried and stayed at each floor by angles across floor opening.

Painting—One shop coat gray lead and oil paint.

Work Not Included—Vent, sprinkler appliances, field painting; foundations and openings through floors. Enclosing walls not to be constructed until chute is erected.

Haslett Aluminum Laundry Chute Specifications

Aluminum laundry chute as manufactured by the HASLETT CHUTE & CONVEYOR CO., Oaks, Pa.

Tube—Furnished in three standard diameters, 18, 20 and 24 in. Built of 16 B&S gauge, aluminum plate rolled to Haslett standards for linen chute construction. Vertical seams lock joined, horizontal seams slip joined, all seams leakproof. No exposed rivets inside of tube.

Intake Throats—16 B&S gauge aluminum plate welded to tube, forming an integral part of chute. Throats to have sloping bottoms.

Tube Cap—Flat aluminum plate with collar for 3-in. standard vent welded to center.

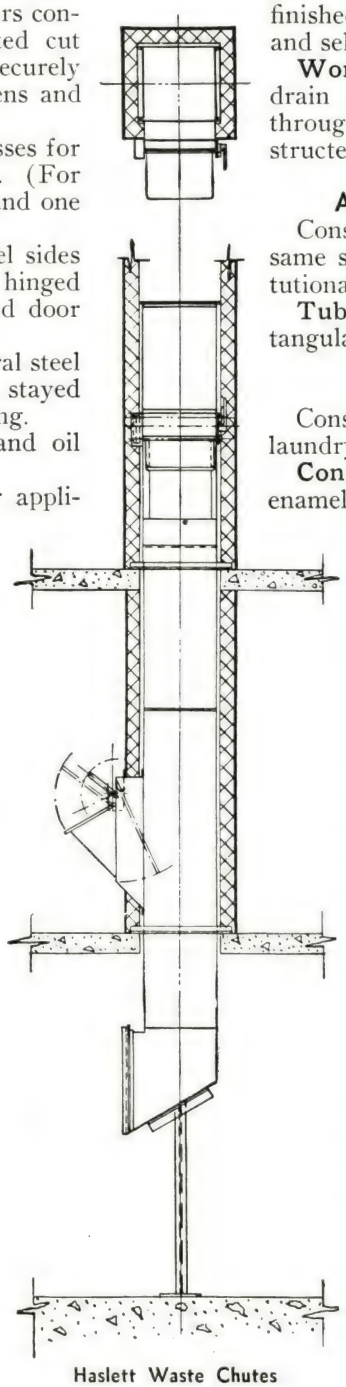
Supports—Outlet supported by structural steel strut from foundation. Tube supported and stayed by four hanger rods from angle frame at each floor.

Flushing Ring—¾-in. brass pipe flushing ring provided with tee for water connection.

Intake Doors—Solid cast aluminum intake doors buffed and polished, located approximately 4 ft. above each floor. Doors furnished in sizes indicated by table on opposite page, provided with soft rubber cushions closing against polished cast aluminum frames set flush with partition walls. Doors equipped with chromium plated latches.

Outlet—90-degree elbow same diameter as chute, 16 B&S gauge aluminum plate welded into single unit, encased in 14-gauge steel, equipped with standard 2-in. cast iron flange for drainage connection. Sand finished cast aluminum door, with rubber cushion and self-latching lever, same type as intake doors.

Work Not Included—Vent, flushing and drain connections. Foundations and openings through floors. Enclosing walls not to be constructed until chute is erected.



Haslett Waste Chutes

Aluminum Household Laundry Chutes

Constructed of the same materials and to the same specifications of workmanship as the institutional chutes.

Tube—12 in. diameter only. Square or rectangular chutes built to meet space requirements.

Ceramic Steel Laundry Chutes

Constructed of the same design as the aluminum. laundry chute with the following exception:

Construction—Tube to be built of 16-gauge enameling steel with all joints welded and ground smooth. Intakes and other appliances to be welded to tube sections as required.

Glass enamel to be fused to the entire inner and outer surface of the chute sections. No rivets employed in this construction.

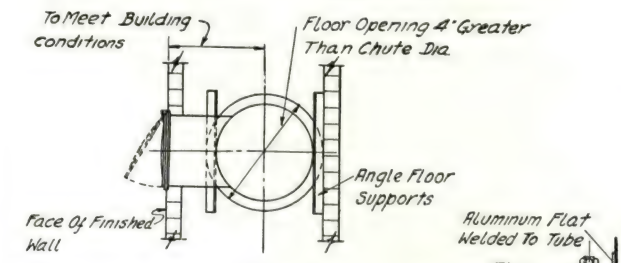
Haslett Installations

Hotels

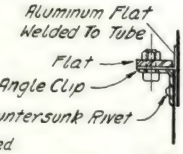
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Governor Clinton, New York, N. Y. Murgatroyd & Ogden	30
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American Women's Club, New York, N. Y. Benj. Wistar Morris	25
N. Y. Athletic Club, New York, N. Y. York & Sawyer	18
Breakers, Palm Beach, Fla. Schultze & Weaver	9
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Hospitals

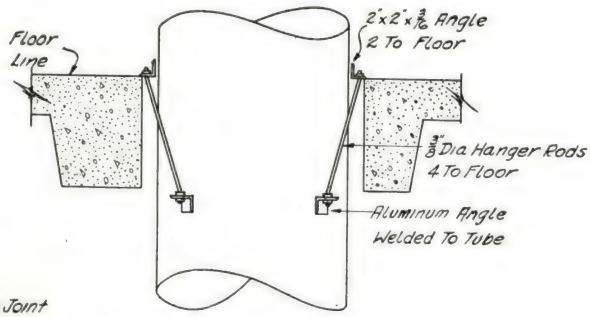
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New York State Hospitals State Architect	135
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Johns Hopkins, Baltimore, Md. Jos. E. Sperry	3
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Battle Creek Sanitarium, Battle Creek, Mich. M. J. Morehouse	2
Mt. Sinai, New York, N. Y. Kohn & Butler	1
Arnot Ogden Memorial, Elmira, N. Y. York & Sawyer	1
Beth Israel, Newark, N. J. Frank Grad	1



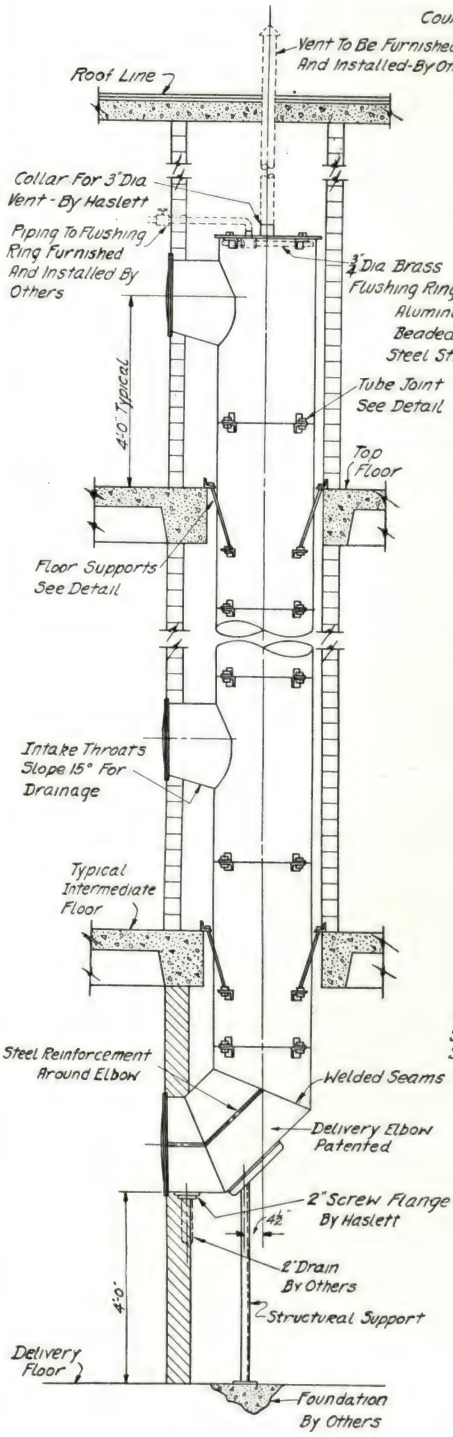
Typical Floor Plan



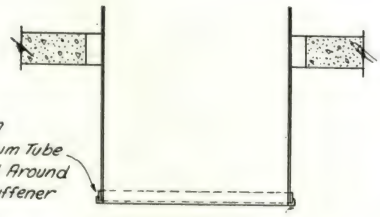
Detail Of Tube Joint Patent Applied For



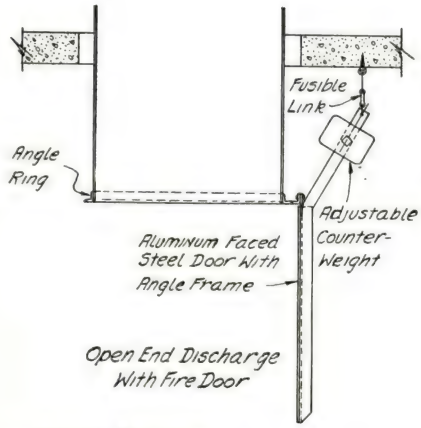
Detail Of Floor Supports



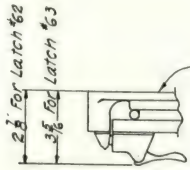
Typical Elevation



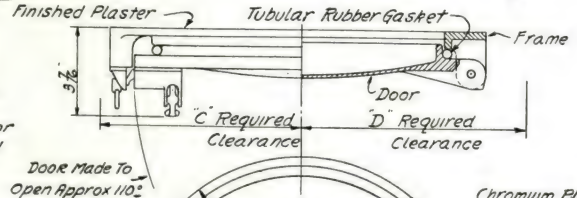
Open End Discharge

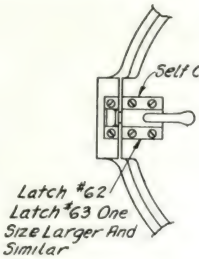


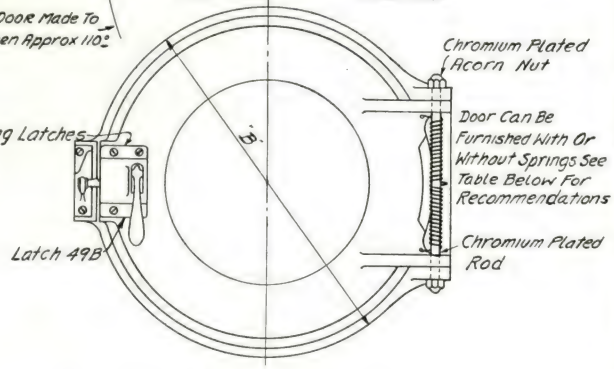
Open End Discharge With Fire Door



Cast Aluminum Door And Frame Buffed And Polished







Intake Door

Door Dia	B	C	D	Latch	Springs	Chute Dia
12	1'-2 3/4"	8½"	1'-1"	#62	Without	12" and 18"
16	1'-6 3/4"	10½"	1'-4 3/8"	#62	"	18"
18	1'-8 3/4"	11½"	1'-6"	#62	"	20" and 24"
20	1'-10 3/4"	1'-0½"	1'-8 1/8"	#63	"	24"
22	2'-0 3/4"	1'-1½"	1'-9 7/8"	#63	"	24"
24	2'-2 3/4"	1'-2½"	1'-11½"	#63	"	24"
18	1'-8 3/4"	11½"	1'-6½"	#49B	With	20" and 24"
20	1'-10 3/4"	1'-0½"	1'-8 1/8"	#49B	"	24"
22	2'-0 3/4"	1'-1½"	1'-9 7/8"	#49B	"	24"
24	2'-2 3/4"	1'-2½"	1'-11 1/8"	#49B	"	24"

Discharge Doors To Be Of Chute Diameter Unbuffed Without Springs Using #62 Or #63 Latch As Shown In Table For Polished Doors

Details of Aluminum Laundry Chute

METAL-VITRIX COMPANY

201 North Wells Street, CHICAGO, ILL.

Representatives in All Principal Cities, see Local Telephone Directory

Products

METAL GLASS LAUNDRY CHUTES; METAL GLASS RESIDENCE LAUNDRY CHUTES; LOCKSEAM METAL LAUNDRY CHUTES; LOCKSEAM METAL RUBBISH CHUTES.



Metal Glass Laundry Chutes

Standard—A clean, glistening enameled tube built of Armco Ingot Iron and Glass Enameled, both *inside* and *outside*. Non-riveted.

Residence—Made of same material and constructed in same manner as standard Metal Glass Chutes, except not provided with vent and drain connection and flushing ring.

Lockseam Metal Laundry Chutes

For use as linen chutes in institutions, hotels, hospitals, etc. Made of aluminum, Allegheny, monel, copper, galvanized steel, etc. Vertical joints are lockseamed. The horizontal joint is made by telescoping the upper into lower section. A 1-in. flange is turned at top of the lower section and an angle iron riveted on near bottom of the upper section. The flange and angle are bolted together. When galvanized steel is used all raw edges on inside are covered with tin or solder.

All steel work not galvanized is painted one coat before leaving the factory.

Lockseam Metal Rubbish Chutes

For waste and paper chutes in buildings of any type. Made square in four sizes. For details of construction, see specifications below. Intake hopper is made with two doors—when outer door is opened, inner door automatically closes; when outer door is closed, inner door opens to allow rubbish to enter chute.

Sprinkler Jet

As a standard accessory to the Lockseam Rubbish Chute and to *all* laundry chutes, there is offered a connection for a fusible sprinkler jet placed in an offset in the chute. As many jet connections as may be desired can be placed at different locations.

(A) METAL GLASS LAUNDRY CHUTE—SPECIFICATIONS

Note: *This same specification applies to our Welded Armco Iron Chutes except that in (A1) (A2) Glass Enameled is omitted and chute is painted one coat of metallic paint inside and out.*

(A1) General—Furnish and install where indicated on plans (specify number) Standard Metal Glass Laundry Chute(s) (state which) [12 in.] [18 in.] [20 in.] [24 in.] inside diameter as manufactured by the METAL-VITRIX COMPANY, Chicago, Ill.

(A2) Materials and Construction—The entire area of chute, both *inside* and *outside*, shall be surfaced with Glass Enamel fused into the metal. Chute shall be made of 18-gauge Armco Ingot Iron with all seams welded and ground perfectly smooth before enameling. *No rivets shall be employed.* Chutes shall be made in suitable sections to meet building requirements. Sections shall be flanged at ends and joined together securely with galvanized bolts. Provide flat rubber gasket between all joints.

(A3) Door Throats—The throat sections to which service doors are attached shall be welded to and form an integral part of the chute proper. They shall be of lengths required on plans to bring the door frames flush against the finished wall. Each throat shall be made with a groove in the bottom side sloping downward in the direction of travel to insure prompt drainage when the chute is flushed.

Note: *Throats are 20-in. diameter on 24-in. size, 18-in. diameter on 20-in. and 18-in. sizes, and 12-in. diameter on 12-in. size.*

(A4) Service Doors—At each floor to be served, provide one solid, polished, Cast Aluminum Door and Frame, the center of which shall be 47 in. above the finished floor line. Each door and frame shall be cast with hinge lugs and fitted with one ⅜-in. brass nickelplated hinge rod. The door frames shall be securely fastened to throat flanges by brass nickelplated screws and aluminum backer rings. Each door shall be furnished with quick acting refrigerator latch and with round rubber cushion gasket. All doors shall be water- and smoke-tight.

Note: *Doors are 20-in. diameter on 24-in. chute, 18-in. diameter on 20-in. and 18-in. chutes and 12-in. diameter on 12-in. chute.*

(A5) Outlet—***Note:*** *Select type desired.*

(A5a) The bottom of chute shall terminate in a 90° elbow of same diameter as the chute proper, center of which shall be 47 in. above the finished floor line. It shall be fitted with a heavy cast aluminum door, attached to chute in the same manner as service doors. The door shall be provided with a round rubber cushion gasket and shall seal watertight when closed. In the elbow there shall be a standard 2-in. iron pipe connection with strainer, for connecting drain pipe to sewer.

(A5b) The bottom of the chute shall terminate in a 45° elbow of same diameter as the chute proper, without a door.

(A5c) The bottom of the chute shall terminate in a straight run .... inches below basement ceiling, without a door.

(A5d) Furnish outlet with an automatic fire door.

Note: *Adapted to (A5c) only.*

(A6) Top—Approximately 24 in. above top floor service door provide enameled disc top with 3-in. standard iron pipe connection in center for vent pipe. Top shall be bolted to flange of chute section and provided with a flat rubber gasket.

(E) LOCKSEAM METAL RUBBISH CHUTE—SPECIFICATIONS

(E1) General—Furnish and install where indicated on plans (specify number) Lockseam Metal Waste Chute(s) as manufactured by the METAL-VITRIX COMPANY, Chicago, Ill.

(E2) Materials and Construction—The tube shall be constructed of No. 14 U. S. gauge steel (galvanized, or blue annealed—state which), 13x13 in., 22x22 in., 28x28 in., 31x31 in. square (state which). All seams horizontal and vertical shall be flanged and bolted together.

(E3) Inlets—(Patents pending.) At a convenient point above each floor there shall be provided an inlet hopper made of No. 14 U. S. S. gauge steel equipped with an inner and outer door. Opening of hopper shall be 2 in. less than size of tube hopper. Hopper doors shall be so arranged that one door will always be closed when the other door is open. The lug holding the inner door closed shall be provided with an adjusting screw to maintain the proper tension.

(E4) Outlet—At a point approximately 4 ft. above the delivery floor the chute shall terminate in an elbow boot made of No. 12 U. S. S. gauge steel with a heavy hinged door provided with a substantial latch.

Note: *The following are alternate items for the outlet:*

(1) Outlet to be furnished with automatic fire door.

(2) Outlet to terminate in 45° elbow.

(3) Outlet to terminate in straight run ... inches below basement ceiling.

(E5) Top—The top of chute shall be a cover made of No. 14 U. S. S. gauge steel. This top shall be fitted with a 3-in. diameter cast iron screw flange for vent.

(E6) Supports—At each floor the chute shall be supported by two angles, bolted to the flanges. The end of these angles shall be supported to the floor. The bottom of the chute shall be supported by a structural steel cradle resting on floor.

(E7) Sprinkler Jets—Provide (specify number and location) standard 1-in. size automatic sprinkler jet(s) set in (an) offset recess accessible from the inlet door.

(E8) Painting—All steel work not galvanized shall be painted one coat before leaving factory.

(E9) Piping—All piping to and from chute (including vent pipe and ventilator) shall be furnished and installed by others.

ESTABLISHED 1888

THE PFAUDLER CO.

Glass Lined Steel Laundry Chutes

ROCHESTER, N. Y.

SALES OFFICES

NEW YORK, Suite 1103, 8 West 40th Street SAN FRANCISCO, Pfaudler Sales Co., 122 New Montgomery Street CHICAGO, 1422 Conway Building
CANADIAN SALES OFFICE: The Pfaudler Co. of Canada, Ltd., Dominion Square Building, MONTREAL, QUE.

FOREIGN SALES OFFICES

LONDON, W. C. 2, ENGLAND, Enameled Metal Products Corp., Ltd., 56 Kingsway BUENOS AIRES, ARGENTINA, Borgo and Kubli, 666 Cangallo

FACTORIES: ROCHESTER, N. Y.; ELYRIA, OHIO, and SCHWETZINGEN, BADEN, GERMANY

Products

GLASS LINED STEEL LAUNDRY CHUTES for hospitals, hotels, apartments, clubs, residences.

GLASS LINED or PLAIN STEEL DUST or RUBBISH CHUTES.

GLASS LINED STEEL TANKS.

(Reg. U. S. Pat Off.)

Improved Pfaudler Glass Lined Steel Laundry Chute

The Pfaudler laundry chute will meet every condition exacted in the disposal of soiled linen in the most sanitary, permanent and economical manner. Basic materials are open hearth steel, ⅛ in. in thickness, on to which is fused a genuine *glass enamel.* This provides a degree of rigidity and sanitation which is unsurpassed by any other chute. Steel is used in preference to light-gauge pliable metals because it is essential to its durability.

The combination of steel and glass also makes the Pfaudler chute corrosion proof and fireproof, and hence the need of ever repairing it is at once eliminated.

Construction Data—A Pfaudler glass lined chute is made of ⅛-in. open hearth steel in sections not exceeding 6 ft. long. It is made in two standard diameters: 18 in. inside, 20½ in. outside; 24 in. inside, 26½ in. outside (including flanges).

Note: Please state dimensions from center of chute to face of finished wall as chute is installed just before floors and walls are finished.

Chute sections are properly flanged and punched. Pfaudlerite gaskets are provided for joints to make chute watertight. Glass lining extends well beyond inner edges of gaskets and to outer edges of door throats and facings. Top section is furnished with special spray nozzle for cleaning inside of chute. The top section of chute is provided with 3-in. coupling for ventilator pipe. No other fittings furnished for this section.

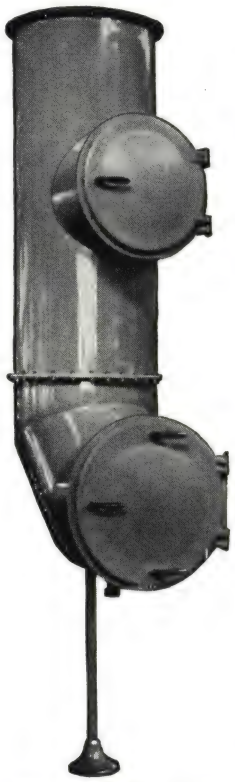
A gray lacquered finish aluminum door with flat aluminum handle, rubber cushioned and secured by cam-type combination clamp and handle, is located at each floor approximately 47 in. above the floor level. Throat to which door is attached is integral with chute proper, approximately 20 in. inside diameter, and of sufficient length to bring its outer edge flush with face of finished wall.

Bottom of chute is an elbow, closed watertight with cast aluminum door. This door is secured by three cam-type combination clamp and handles, and is provided with supporting hinges.

Chute has 2-in. standard pipe outlet threaded for drain connection (no other fittings furnished).

Chute is supported by one 2-in. standard steel pipe leg with cast iron base, and by ⅜-in. tie rod on each floor connected to angle irons set in steel work of floor construction.

Note: Floor openings and plumbing connections to be provided by owner.



New Pfaudler Glass Lined Steel Laundry Chute

Fitted with gray lacquered doors and quick closing door clamps

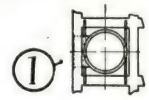




Diagram B Cross Section at Floor Level



Diagram C

Schedule of Chute Prices Reduced

As the result of an entirely new method of fabrication and without sacrifice to quality, the new Pfaudler glass lined laundry chute is offered at greatly reduced prices. Consequently, the most sanitary and direct method of disposing of soiled laundry can now be incorporated into the plans of hotels, hospitals and similar buildings at a very reasonable figure.

Key to Diagrams

Diagram A—General drawing of chute.

(1) 3-in. coupling for ventilator pipe (no other fittings furnished).

(2) ¾-in. pipe for connection to water service pipe (for spray nozzle).

(3) Lacquered door, fitted with combination clamp and handle.

(4) Standard Pfaudlerite gasket for each joint.

(5) 2-in. standard pipe outlet (threaded for drain connection).

Diagram B—Cross section floor (showing method of securing chute at each floor).

(1) Supporting angle irons.

(2) Tie rods.

Note: Floor openings and plumbing connections to be provided by owner.

Complete details covering Pfaudler chutes are contained in Bulletin No. 717.

Diagram C—Slanting door throat which may be had as an alternative. Inside diameter 18 and 24 in.; G, 17⅜ and 21⅜ in., respectively.

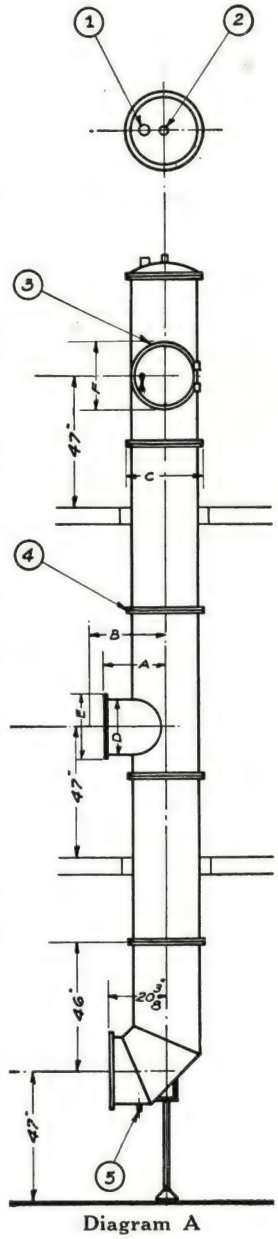


Diagram A

Steel Dust and Rubbish Chutes

A glass-lined or plain steel dust or garbage chute is also manufactured and is constructed along the same principles as the laundry chute. Details will be furnished on request.

Glass Lined Mixing Tanks

A complete line of glass lined mixing, heating, cooling and storage tanks also manufactured. Capacities 2 to 7000 gals. Such equipment embraces milk pasteurizers, transportation tanks, cookers, mayonnaise mixers, vanilla percolators, chemical stills, etc.

Complete Details Furnished on Request

For complete information on all products, address THE PFAUDLER CO., 89 East Avenue, Rochester, N. Y.

C. M. WILKINSON COMPANY

Sole Manufacturers and Licensee for Wilkinson Chutes

Citizens Building, CLEVELAND, OHIO

REPRESENTATIVES IN PRINCIPAL CITIES

Products

WILKINSON SOILED LINEN or LAUNDRY CHUTES for hospitals, hotels, apartment hotels, dormitories, institutions and residences.

WILKINSON RUBBISH CHUTES for hospitals, hotels, apartment hotels, institutions, schools, office buildings, department stores and residences.

WILKINSON DUST CHUTES for hospitals, hotels, institutions, schools and department stores.

WILKINSON WASTE TOWEL CHUTES for office, loft and mercantile buildings.

WILKINSON SPIRAL CHUTES for department stores, warehouses, etc.

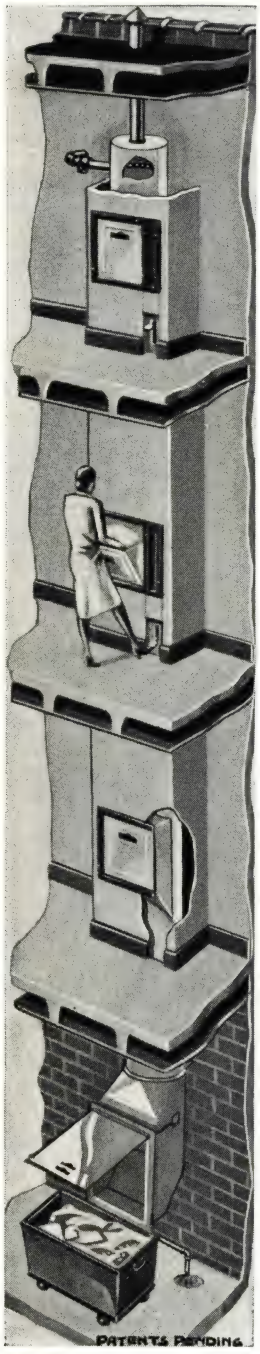
General Features

Wilkinson Chutes are better chutes because they represent more than the putting together of material and labor. They combine design with results of many years' experience in chute engineering. **They link convenience, service, design, durability and low costs.**

All Wilkinson Chutes are made throughout of a homogeneous metal which will not chip or crack. They always have a smooth inside surface. They are fabricated strong and durable without rivets. Flanged bolted joints or connections with gaskets are entirely eliminated.

Built to the right design, they are a standardized product and require no complicated engineering to fit them into any building. They require no maintenance or repairs, and thereby receive the general acceptance of architects, engineers and building owners. With their patented, thoroughly proven features, Wilkinson Chutes comply with ordinances and laws governing such devices.

Specify Wilkinson Chutes with the general contract or as a separate item under building equipment.



Wilkinson Aluminum Soiled Linen Chutes—Specifications and Layouts

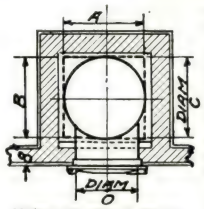
(S1) General—Furnish and install where shown on the plans (state number) *aluminum soiled linen chute (s)*, Type (see table), of size (see table), as designed and manufactured by C. M. WILKINSON COMPANY, Citizens Building, Cleveland, Ohio, and as detailed in the following:

(S2) Material—Made of 16-gauge sheet aluminum throughout.

(S3) Fabrication—Chute sections fabricated with vertical lock seams and turned inside lap roundabout joints, with an expansion joint at each story. All joints fabricated entirely without rivets or flanged bolted connections and gaskets, made leakproof and positively smooth on inside without projections of any kind.

(S4) Supports—Each story height of chute securely supported at its respective floor by structural angles locked into clips welded to side of chute and fastened across each floor opening.

(S5) Intakes—Each intake to be Wilkinson hopper type with foot operated and noiseless self-closing hinged outer hopper door of *aluminum*, with opening (state size—see table). These intakes to consist of a unit constructed steel frame, all joints welded, with smooth sloping *aluminum* extension welded to chute intake section. They are to be assembled complete as a unit, with hopper door and foot operating device properly fitted, ready to set in place flush with finished wall enclosure, then securely fastened to the floor. A formed metal trim, of approved finish and neatly fitted around each intake, to be included.



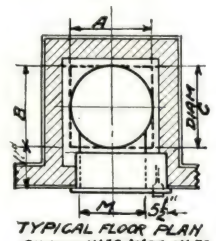
TYPICAL FLOOR PLAN
CHUTES W-2S, W-4S, W-6S

(S5-Alternate) Intakes—Each intake to have Wilkinson type cast *aluminum* door and frame with opening (state size, see table). Door to be self-closing on concealed spring hinges and equipped with suitable rubber cushion gasket and with nickelplated brass refrigerator type latches. This door and frame to be fastened to smooth sloping *aluminum* extension welded to chute, making the entire intake section an integral unit ready to set in place so frame is flush with finished wall enclosure. Exposed portions of door and frame to have satin finish.

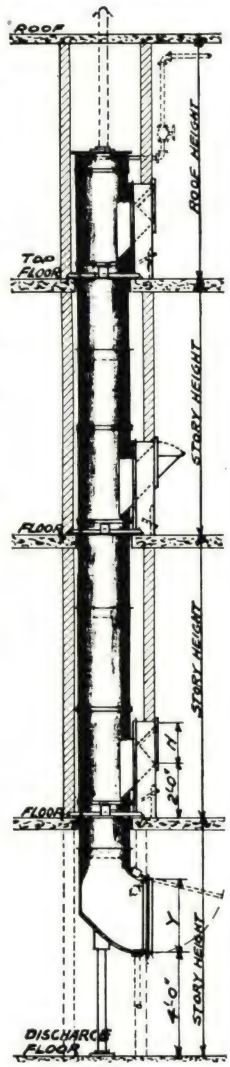
(S6) Discharge Hopper—At the bottom of chute install a Wilkinson type discharge hopper made of the same material as chute, with welded joints and smooth sloping bottom having full bearing on steel impact plate, welded securely to substantial pedestal extending to floor. The discharge opening to be 4 ft. above floor, of size (see table), and to have counterbalanced *aluminum* door hinged at top with nickelplated brass cam lever latches and rubber cushion.

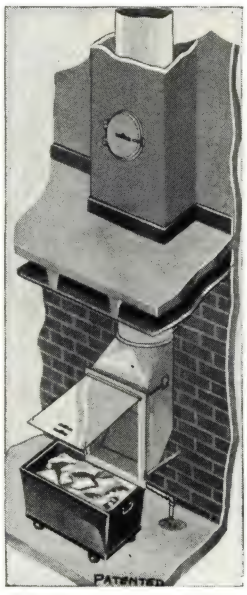
(S7) Cleaning—Above top intake is to be provided a ¾-in. perforated brass pipe flushing ring formed to inside contour of chute. A 2-in. drain flange to be provided in the bottom of the discharge hopper. Connections to flushing ring and drain installed by others.

(S8) Vent—Over top of chute to be provided a properly fastened *aluminum* plate having a 3-in. flange for vent extension installed by others.



TYPICAL FLOOR PLAN
CHUTES W-1S, W-3S, W-5S.
CHUTES W-1R, W-3R, W-5R.





SIZES AND DIMENSIONS OF WILKINSON CHUTES

Type for soiled linen	Chute, in.			Intake, in.			Disch. hopper opening, in.		Type for rubbish
	A	B	C	M	N	O	X	Y	
W-1S	27	27	...	22	18	..	28	36	W-1R
W-2S	....	....	28	....		24	28	36	.....
W-3S	22½	22½	...	18	18	..	24	30	W-3R
W-4S	....	....	24	....		18	24	30	.....
W-5S	18	18	...	15	18	..	18	30	W-5R
W-6S	....	....	18*	....		18	24	30	.....
W-7S	14	14	...	12	15	..	24	30	W-7R
W-8S	....	....	14	12	15	..	24	30	W-8R
W-9S	11	9	...	9	12	..	24	30	.....

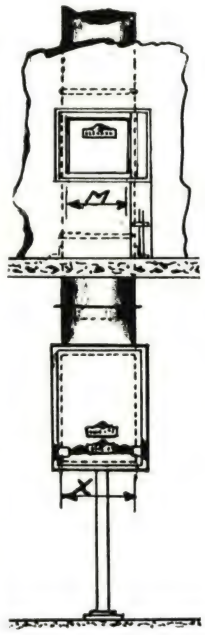
*for 20

Note: Intakes with square openings on soiled linen chutes, except W-7S and W-9S, have foot-operated aluminum hopper doors. Intakes with round openings have cast aluminum frames and doors side hinged. (See specifications S-5 Alternate.)

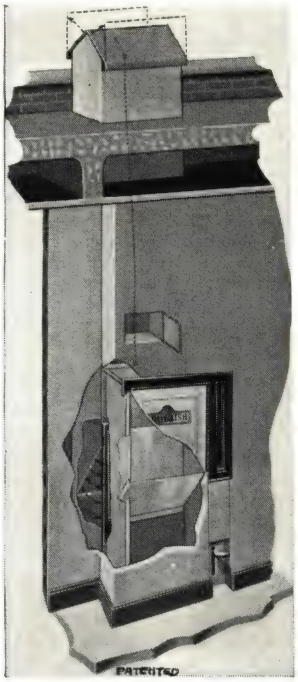
Intakes on rubbish chutes, except W-7R, W-8S and W-9R, have foot-operated *aluminum* outer hopper door interlocked with inner door at chute.

Intakes for W-7S, W-8S, W-9S, W-7R, W-8R and W-9R have hand-operated *aluminum* hopper doors.

Every intake plainly marked for use intended. Floor openings 3 in. larger than size of chute. Partitions around chute installed after chute is erected.



Wilkinson Rubbish Chutes—Specifications and Layouts



(R1) General—Furnish and install where shown on plans (state number) *rubbish chute(s)* Type (see table), of size (see table) as designed and manufactured by C. M. Wilkinson Company, Citizens Building, Cleveland, Ohio, and as detailed in the following:

(R2) Material—Made of 16-gauge Galvannealed iron throughout (or 16-gauge Armco, 16-gauge Toncan, 16-gauge Standard) (state which) galvanized iron.

(R3) Fabrication—Same as (S3).

(R4) Supports—Same as (S4).

(R5) Intakes—Each intake to be Wilkinson hopper type having foot-operated and noiseless self-closing hinged outer hopper door of *aluminum*, for opening (state size—see table), automatically interlocked with inner door at chute. These doors so arranged that removing foot from lever allows the outer hopper door to close and, in doing so, the inner door automatically opens long enough to let material pass into the chute, then closes automatically. These intakes to consist of a unit constructed steel frame, all joints welded, with smooth sloping extension of same material as chute welded to chute intake section. They are to be assembled complete as a unit with doors and foot-operating device properly fitted ready to set in place flush with finished wall enclosure, then securely fastened to floor. A formed metal trim, of approved finish and neatly fitted around each intake to be included.

(R6) Discharge Hopper—Same as (S6).

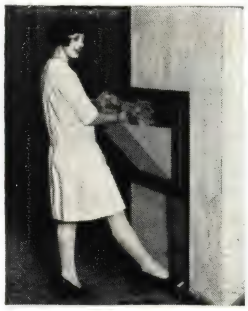
(R7) Roof Damper—The chute to be extended full size through roof of building to a height approximately 3 ft. above roof and automatic opening counterbalanced damper doors provided at top. These doors to be held shut with chain and fusible link fastened inside the chute at convenient access height above top floor. A 6x6-in. opening with hinged access door and extension through partition wall, of same material as chute and welded to it, to be provided opposite the fusible link. Suitable copper flashing and counterflashing around chute at top of roof to be included and installed before roofing is placed.

(R8) Sprinkler—Directly above discharge hopper and close to ceiling is to be provided an offset at one side of chute into which is properly fitted a low temperature sprinkler head on ¾-in. pipe extending outside chute. Valved connection from this pipe extension to water system of building to be installed by others.

Special Features to Note—(S2 and R2)—*Aluminum* is non-corrosive, rustproof, and is a permanent, smooth, homogeneous metal. Galvannealed is zinc coated, rust-resisting, sheet iron. Its smooth surface will not flake and it is more durable than ordinary galvanized sheet iron. Armco is an ingot sheet iron with hot dipped galvanized coating. Toncan is copper bearing, molybdenum ingot iron with hot dipped galvanized coating.

(S3 and R3)—This joint construction gives a shop fabricated, smooth chute. Trimming, grinding, filing or smoothing joints and connections when erecting Wilkinson Chutes are not necessary. The expansion joints eliminate the cracking of plaster or partition walls under all service conditions.

(S4 and R4)—Weight of chute distributed to each floor, and all possibility of any concentration of weight is entirely eliminated.





(S5 and R5)—Intakes with foot-operated hopper doors make access easy. Pressing the foot lever opens the hopper door. Merely drop material into opened hopper—shifting of load in hands or inconvenience otherwise is unnecessary. Self-closing hopper door quietly shuts out of the way when foot is removed from lever. No part of intake projects into room or corridor. The two interlocking doors on rubbish chutes prevent back draft and minimize fire hazard, especially necessary in good rubbish chute design.

(S6 and R6)—The impact plate and pedestal prevent bottom of chute from being punctured or injured when heavy objects are thrown into chute. The top hinged counterbalanced door is a decided advantage—it does not obstruct access or passageways when open. The discharge hopper is shop assembled and shipped as a complete unit.

(S7 and S8)—The flushing pipe, drain and vent are necessary for sanitary reasons.

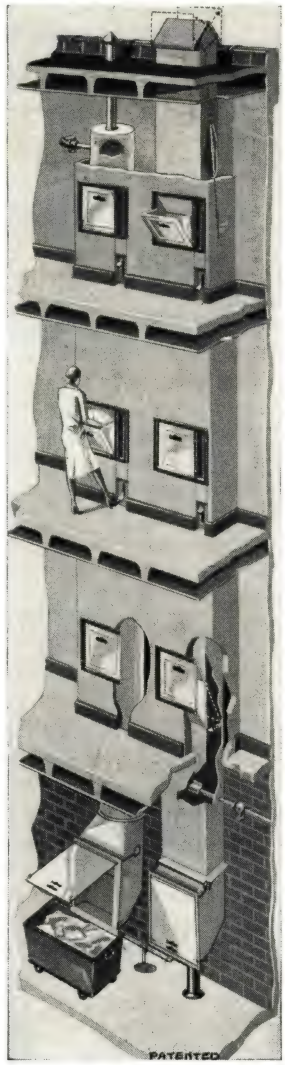
(R7)—The automatic roof damper arrangement is important in the proper control of fire inside the chute.

(R8)—The sprinkler will quench fires inside the chute before they get fairly started.

Incinerator Intakes

Intakes for Rubbish Chutes W-3R and W-5R are made smokeproof by having the two interlocking doors, which minimize fire hazard and eliminate back-draft. These foot-operated intakes are decidedly convenient and most practical for use with incinerators.

Combined Installations of Soiled Linen and Rubbish Chutes



Many progressive architects and building owners for hospitals, hotels, apartment hotels and institutions are finding a decided advantage in the use of two or more chutes installed together, each chute being used individually for its separate purpose to handle either soiled linen, rubbish, paper or debris.

With Wilkinson hopper type intakes, each intake plainly marked for the use intended, a serviceable, efficient, and practical combination can be obtained. Their attractive, uniform appearance is evident.

Modern efficiency methods require soiled linen chutes in hospitals and hotels. Equally as important is the need for rubbish chutes. The salvage values of paper, magazines, etc. earn dividends consistently when efficiently collected, sorted and sold. Wilkinson Chutes pay for themselves in three to five years. They are neither expensive nor an expense.

Residence and Domestic Soiled Linen and Rubbish Chutes

Types W-7S, W-8S, W-7R, W-8R. Built to fit into walls, between studding and floor joists, Wilkinson Residence and Domestic Soiled Linen and Rubbish Chutes are fabricated and shipped in assembled sections ready to set in place. Intake sections have Wilkinson hopper type doors, hand-operated and self-closing, with trim, all of *aluminum* and assembled as a complete unit.

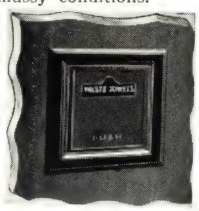
For Soiled Linen—Chute terminated 1 ft. below basement ceiling and furnished with wood or *aluminum* (as specified) slatted discharge hopper with top hinged door, built as a unit and arranged to hang from basement ceiling.

For Rubbish—Chute is extended into adjustable metal hood, fitted over suitable container of 20-gauge galvanized iron, placed on basement floor. Specify Wilkinson Chutes for residence and domestic use under the sheet metal or the carpenter contract.

(See cut below).

Waste Towel Chutes

Office, loft and mercantile buildings having a stack of three or more toilet rooms, one above the other, require the ready disposal of waste paper towels. Wilkinson Waste Towel Chutes save janitor service and prevent unsanitary and mussy conditions.



These chutes, of *aluminum*, are similar to Wilkinson Rubbish Chutes. Intakes have doors and frames made of *aluminum, bronze,* steel or other metals, finished as specified. They have single doors, top hinged, of the inside swinging type. These intakes are attractive, convenient and serviceable. Sizes and details of waste towel chutes gladly furnished on request.

Spiral Chutes

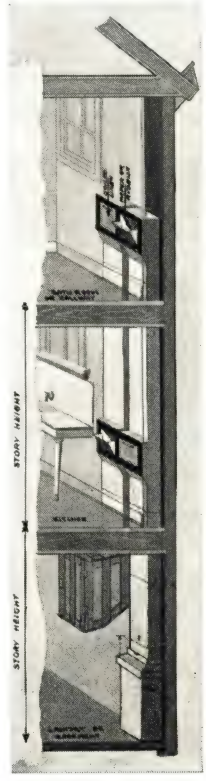
Wilkinson Spiral Chutes embody many improved features outstandingly important in the proper handling of packages, boxes, crates, bags, cartons, etc. in stores, warehouses and industrial plants. Our many years' practical experience in the use and application of spiral chutes brings properly engineered results to your requirements. Every inquiry gets individual attention on design and price, plus recommendations that are right.

Information for Prices

When requesting prices on Wilkinson Chutes, tell us:

Size and purpose of chute.
Story heights of building.
Number of intakes.

Wire, telephone or write and we will gladly furnish prices or have our Engineer Representative, without obligation, advise with you.



TUBULAR CHUTE SYSTEMS

Manufacturers of "Indestructible" Laundry and Waste Chutes

Suite 1569, 20 North Wacker Drive, CHICAGO, ILL.

Products

COPPER LAUNDRY and WASTE CHUTES (Tinned or Plain).

Chutes made of Aluminum, Allegheny, Galvanized Iron and other metals.

Copper Laundry and Waste Chutes

"Indestructible" non-corrosive metal chutes possess all the advantages of more expensive equipment in this field. They have been designed to meet the growing insistence on the part of architects and builders for equipment that is positively non-corrosive in itself, sturdy, sanitary and moderately priced. The chutes are rugged and strongly anchored in place. The interior of the tube is perfectly smooth and will permanently remain so. The doors are of polished aluminum and highly ornamental. Each chute is provided with a brass spiral flushing device, with connection at top for vent pipe and at bottom for drain pipe. In addition, provision is made in our construction for inserting an automatic sprinkler jet above the outlet, at slight additional cost.

Standard "Indestructible" copper chute specifications following, apply exactly to standard chutes made of aluminum, Allegheny and galvanized iron with the exceptions only that in our standard equipment we use $\frac{1}{16}$-in. aluminum and ascoloy and No. 18 U.S.S. gauge galvanized iron.

We are equipped to manufacture chutes of heavier or lighter weights than above standards, if desired, and to meet any special construction requirements.

Standard Specifications

Tube—Shall be 18 in. [24 in.] inside diameter, made of 24-oz. cold rolled copper, tinned over entire inner surface [plain], and constructed in sections of required lengths. All vertical joints shall be lock seamed. All horizontal joints shall be lapped and riveted to angle iron braces so that at no point in chute proper will two sheets of thin metal be joined together. Only copper rivets shall be used, all countersunk and ground smooth. All riveting shall be done at the factory. Sections shall be telescoped in the direction of travel and adjacent angle irons bolted together to assure smooth and tight joints.

Intakes—Center of intake door throats shall be approximately 45 in. above the finished floor line. All throats shall be 18 in. in diameter. The bottom side of each throat shall descend at an angle of 30° to facilitate quick evacuation of linen. Where the throat is joined to the chute proper it shall be lapped, riveted, ground smooth and soldered, so as to make a perfectly smooth joint on the inside. The door assembly shall consist of backer ring, frame and door proper, each part made of aluminum. Intake doors shall be of artistic design, highly polished and watertight, hinged and fitted with quick acting refrigerator type latch.

Outlets—The chute shall terminate at the bottom in a 90° elbow (see note) fitted with a heavy polished watertight aluminum door, center of which shall be approximately 48 in. above the finished floor. This elbow shall rest in a steel cradle designed to give ample reinforcement against impact. The cradle in turn shall be supported from the floor by a steel leg. A 2-in. drain pipe connection with strainer is to be provided in the outlet elbow.

Note: The Chute may be terminated at bottom in a 45° elbow or in a direct run without elbow, with or without automatic fire door.

Automatic Jet Sprinkler—(Furnished only when specified). In an accessible offset in chute, opposite and slightly below the first intake door install one 1-in. fusible sprinkler jet through chute.

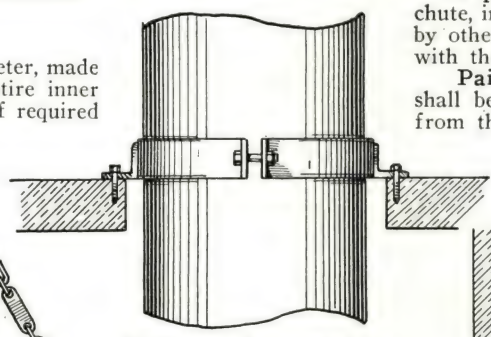
Top—Above the top intake provide a flat top of the same material as the chute, provided with 3-in. pipe connection for vent pipe, in center.

Flushing Ring—Near the top of chute install a 1-in. circular perforated brass flushing ring with 1-in. pipe connection for water line.

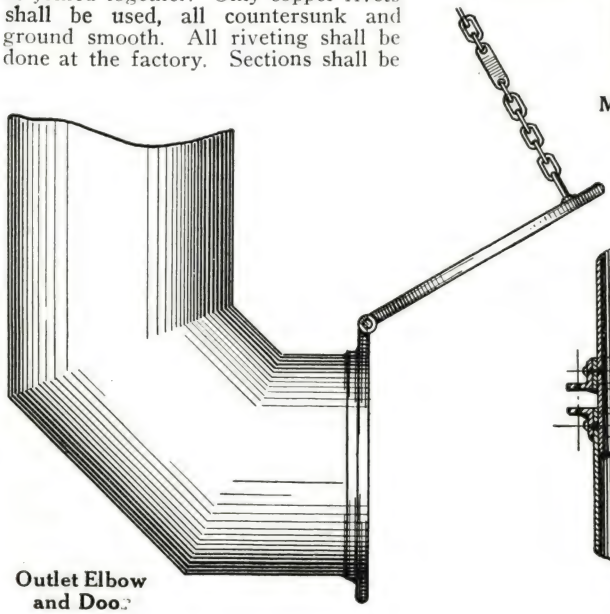
Supports—In addition to cradle and leg support at bottom elbow the chute shall be supported at each floor by two steel lugs resting on the floors. These lugs shall be welded to steel bands, clamped firmly around the chute proper.

Piping—All piping to and from the chute, including vent pipe, shall be provided by others. Connections only are furnished with the chute.

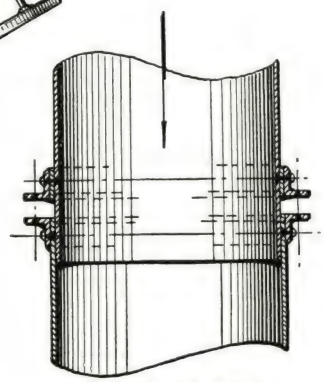
Painting—All steel not galvanized shall be painted one coat before shipment from the factory.



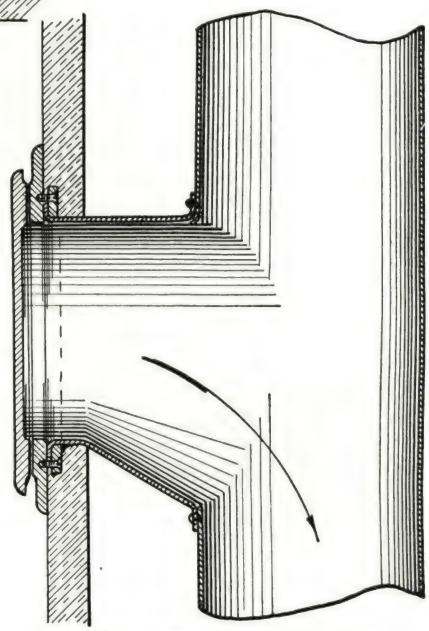
Manner of Supporting at Floors



Outlet Elbow and Door



Method of Joining Sections



Intake Door Throat Section

ARCO VACUUM CORPORATION

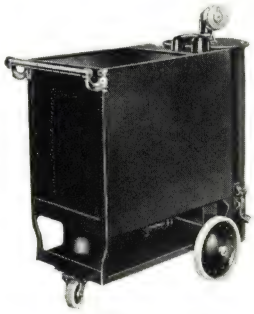
DIVISION OF AMERICAN RADIATOR COMPANY

40 West 40th Street
NEW YORK, N. Y.

Products and Services

A complete line of PORTABLE and STATIONARY VACUUM CLEANERS and VACUUM CLEANING SYSTEMS.

In specifying or planning a vacuum cleaning system for any type of building, satisfactory results depend upon the selection of the most suitable equipment. Architects and others having vacuum cleaning problems are invited to utilize the services of our consulting engineers who are qualified through long experience to render helpful assistance in this connection.



Portable Type

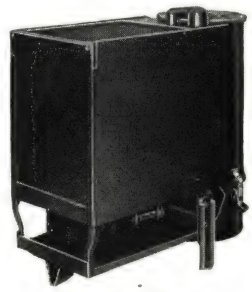
ARCO WAND VACUUM CLEANERS

Portable and Stationary

For twenty years, Arco Wand Vacuum Cleaners have rendered efficient and economical service in many diversified fields. During this period, constant experimentation has resulted in the development of outstanding improvements so that the Arco Wand of today is well adapted to maintain the standard of satisfactory and trouble-free service established by its predecessors.

Arco Wand Vacuum Cleaners are available in two types—the *Portable Cabinet Type,* with the entire machine mounted on an easy-rolling, ball-bearing carriage; and the *Stationary Type,* with the machine installed in the basement and connected to risers through baseboard hose couplings in various rooms throughout the building.

Arco Wand Cleaners range in size from ½ to 2 hp. for residential, industrial and commercial use, and depend for their efficiency upon the positive air displacement produced by the Arco Vacuum Producer and the patented method of dust separation accomplished partly by gravity and partly by screening.



Stationary Type

The following schedule is suggestive of the many applications of the Arco Wand Cleaners. Further assistance in the selection of the most suitable machine will gladly be given.

ARCO WAND VACUUM CLEANERS—MODELS AND CONDENSED SPECIFICATIONS

Model No.	Type	Hp.	Vacuum, in. hg.	Displacement, cu. in. per rev.	Pump speed, r.p.m.	Dimensions, in.			Capacity of dust bucket, cu. in.	*Color	Shipping weight, (approx.) lbs.	Recommended for
						Length	Height	Width				
40	Portable	½	4.0	64	1375	28	35	21	700	A	225	Hotels, hospitals, theatres, churches, stores
3	Stationary	½	4.5	97	900	43	38	17½	1130	A	375	Small residences employing single vertical riser and no horizontal mains. 1½-in. pipe
4	Portable	1	6	97	1150	43	38	17½	1130	A	430	Hotels, hospitals, theatres, churches, schools, stores office buildings, interior auto cleaning (all kinds of auto service stations)
475	Portable	¾	5.75	97	1100	43	38	17½	1130	B	420	Hotels, hospitals, theatres, churches, schools, stores, office buildings, interior auto cleaning (all kinds of auto service stations)
6	Stationary	1	6	97	1150	43	38	17½	1130	A	410	Residences, theatres, churches. 1½-in. pipe
675	Stationary	¾	5.75	97	1100	43	38	17½	1130	B	400	Residences, theatres, churches. 1½-in. pipe
7	Stationary	2	8	356	500	58	58	24	735	A	850	Large residences, schools, churches. 2-in. pipe

*Colors: A—Green. B—Red and black.

All models listed above on single sweeper.

TRIPLE "A" STATIONARY VACUUM CLEANING SYSTEMS

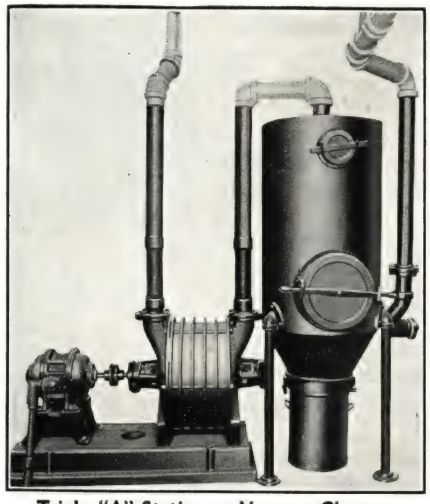
TRIPLE A TRADE MARK

Made in a complete range of sizes and types, suitable for all classes of buildings, from the smallest to the largest. Standard sizes, most frequently used, are shown in the accompanying schedule. Complete data concerning these, or special types of systems for unusual conditions, will be promptly forwarded upon request.

The illustration shows a typical heavy duty stationary machine, of the multi-sweeper type complete with dust separating tank.

Attention is called to the substantial cast iron construction throughout, both exhauster and motor being mounted on a common cast iron base, and directly connected by means of a high grade, flexible shaft coupling. The exhauster itself is of cast iron sectional construction, and is provided with outboard ball bearings of the self-lubricating type, requiring the minimum of attention.

The shaft is of heavy steel, accurately ground to size and supported by ball bearings at both ends. The impellers are one-piece aluminum castings, accurately finished and balanced, and with ample clearances throughout.



Triple "A" Stationary Vacuum Cleaner

Standard "Triple-A" Dust Separators are of the combination precipitation and filtration type, insuring practically 100% separation of dust before the air enters the exhauster.

Our Triple "A" Data portfolio for architects and engineers will be gladly sent upon request.

CONDENSED SCHEDULE OF STANDARD SIZES

*Sweeper capacity	Machine No.	Motor hp.
2	50-A	5
3	75-A	7½
4	100-A	10
6	150-A	15
8	200-A	20
10	250-A	25
12	300-A	30
16	400-A	40
20	500-A	50
24	600-A	60
30	750-A	75
40	1000-A	100

*By "Sweeper Capacity" is meant the maximum number of sweeping nozzles to be operated at one time

THE SPENCER TURBINE CO.

Member of the Producers' Council

Manufacturers of Vacuum Cleaning Systems Blowers and Exhausters

488 New Park Avenue
HARTFORD, CONN.

Products

CENTRAL VACUUM CLEANING SYSTEMS; SWIMMING POOL CLEANING EQUIPMENT; BOILER FLUE CLEANING APPARATUS.

Also Turbo Compressors; Organ Blowers (Orgoblo).

The Spencer System of Vacuum Cleaning

The Spencer Central Cleaning System has met with the approval of architects and engineers, and has been installed in thousands of hotels, theatres, office buildings, hospitals, schools, banks, etc. List of important installations sent on request.

The system consists of a vacuum producer, a piping system with inlet valves throughout the building, and equipment of lightweight hose and tools for cleaning all floors, walls, furniture, etc.

Advantages—Powerful suction draws all dust and dirt into the cleaning tool and through the system to the dirt container in the basement.



¾ Hp. Spencer Residential Vacuum Producer

No exhaust air or any of the cleaning dust is blown back into the room. The stale air drawn through the system is discharged up the chimney or flue after passing through the separator.

The operator handles only the lightweight hose and cleaning tool.

All the machinery is in the basement where it is not moved or handled, and is therefore not skimped in size, weight or efficiency.

Spencer Vacuum Producers—The Spencer Vacuum Producer is of the turbine type but differs from most turbine exhausters in that it is designed and built especially for vacuum cleaning and with extra wide clearances throughout.

The impellers are made of the best sheet steel or duralumin; carefully balanced and tested. They are so proportioned that they will not clog or wear out and are mounted in the turbine casing with extra wide clearances on both sides. Thus no cloth bags, fine screens or similar devices are required or recommended, the especially designed centrifugal separator being all that is necessary or desirable for the average installation.

The use of several impellers in series makes it possible to obtain any desired volume and vacuum with low peripheral speeds.

It is also characteristic of the machine that the desired volume may be delivered without changing the vacuum. This makes possible uniform results in all parts of the largest and highest buildings.

Sweeper Capacity — It should be borne in mind that the Spencer System provides a capacity of 2½ hp. per sweeper up to and including 30 hp. and above 30 hp., 2 hp. per sweeper.



Cleaning Tile Floor

Separators—The principle of centrifugal separation is standard on Spencer Systems. It has been found from actual tests that centrifugal separators will separate from 95% to 98% of the dust which is picked up by the cleaning tool.

They are so constructed that no part of the separator receives the direct impact of the dust and dirt. Thus all danger of sandblast wear or other difficulties is eliminated. Since there are no moving parts, there is nothing about them which will wear or give out and consequently these separators will give lifetime of service.

Motors—Are of the highest grade and the most approved makes.



5 Hp. Motor-Operated Vacuum Producer



Carpet Cleaning

Tools—Superiority of cleaning implements and accessories is universally acknowledged. Spencer tools are designed with openings in correct proportion to the rest of the system; also with special consideration as to convenience and fitness of the various requirements. Strong in construction, light in weight, and shaped for fast and effective work. Tools are equipped with Spencer universal controllable swivel, which enables operator to remove dirt beyond the reach of the rigid tool.

All wearing surfaces are renewable. Tools are attached to handle by means of a convenient locking chuck.

Specifications—While our Engineering Department prefers to examine each particular job before making definite recommendations regarding layouts or specifications, the following may serve as a general guide when this is not possible:

Piping System—The piping should be of black mild steel or wrought iron, and all fittings of the long turn recessed drainage type, except where it is impossible to get them into the available space—in which case, short turn recessed fittings should be used. Where the piping is below the separator and dirt must be drawn up, long radius pipe bends must be used instead of elbows.

Easily accessible horizontally disposed cleanout plugs must be placed at the bottom of all risers, and at the end of every long horizontal run.

Size of Machine to Install—Depending on the size and type of building under consideration, a plant of a certain sweeper capacity should be specified. Since accepted cleaning practice varies in each type of building, it is suggested that a Spencer representative be consulted for his recommendations as to the proper size of plant to install, in any structure which is under consideration.

Truck Type Cleaners

The Spencer portable truck machine embodies the same principles of design and construction as characterize the larger stationary equipment. It is intended that these portable machines should provide efficient vacuum cleaning that is comparable with the results of the Central System, where for structural reasons it is impractical to install the stationary plant.

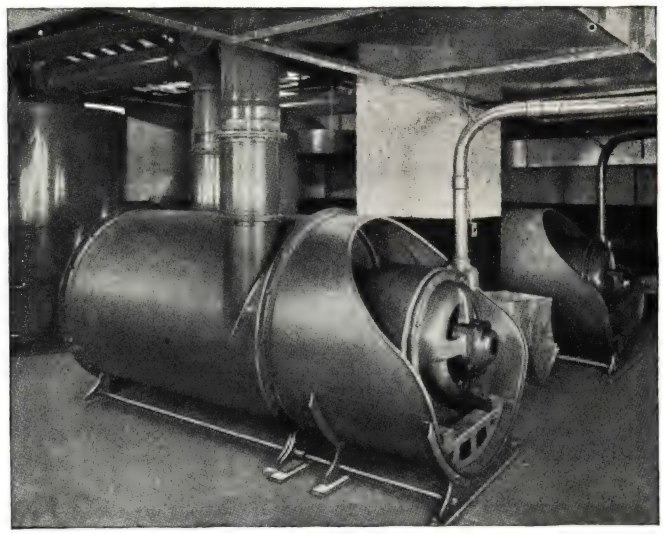
The equipment offers the maximum of power consistent with reasonable weight and ease of handling.



Swivel Handle Reaches Under Furniture and in Out-of-the-way Corners

Boiler Flue Cleaning Apparatus

With special attachments available, the Spencer system can be used in cleaning horizontal return tubular and cast iron sectional boilers with a remarkable economy in fuel consumption. The saving in fuel alone frequently amounts to a liberal return on the entire investment for the cleaning system.



Two 100 Hp. Spencer Vacuum Producer

Swimming Pool Cleaning Equipment

The use of vacuum cleaning equipment for swimming pools is most desirable since it permits the removal of sediment from the bottom of the pool without lowering the water level appreciably. Designed on the same high standards as the central systems, the Spencer Pool Cleaning Equipment offers every advantage of efficiency and ease of handling.

Engineering Service

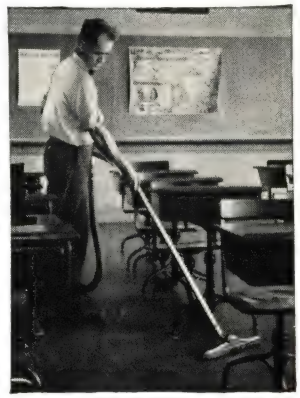
The Engineering Department offers its services without obligation in recommending the proper size and type of equipment, piping layout, or other engineering details.

Installations

The Spencer System is installed in thousands of the foremost hotels, office buildings, theatres, schools and residences throughout the United States and Canada. Lack of space prevents mentioning any of these particular buildings but full information will be gladly furnished on inquiry.

Data for Architects and Engineers

Spencer bulletins on modern cleaning methods and specific data on the application of central vacuum cleaning to various types of buildings, are available and will be sent on request.



Cleaning Linoleum Floor

PORTABLE ELECTRIC SUPER SUCTION CLEANERS

Manufactured by
THE NATIONAL SUPER SERVICE CO.
1946 North 13th Street
TOLEDO, OHIO

Uses

Portable Electric Super Suction Cleaners are used in schools, churches, theatres, office buildings, banks, public buildings, hotels, lodge rooms, clubs, stores, garages, large residences and industrial plants.

Description and Advantages

Portable, electric, easy-to-operate Super Suction Cleaners, have demonstrated for many years, in thousands of the finest buildings of this country, their high efficiency, low initial cost, low operating cost and all round general satisfaction.

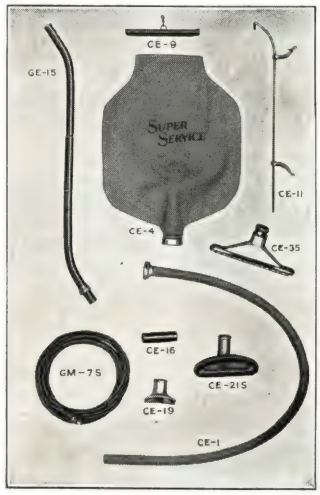
Excellent in design and construction, they are built to operate for years with a minimum of care and attention, and they meet every requirement of efficient, economical and speedy cleaning. Powerful and reliable; easily handled by men or women; pronounced time savers; moderate in first cost and truly economical in operation throughout the many years of work they will deliver.

These remarkable machines are operated with no more effort than ordinary household cleaners, yet their efficiency is not surpassed by the much more costly built-in systems. Operating from ordinary lighting outlets, their power never varies, no matter how high the buildings they serve. No heavy copper power circuit required. Plug in anywhere.

The proven efficiency, low first cost, convenience and great savings in labor and time are on record over many years. Super Suctions were selected for use by the New York Central and Knickerbocker Buildings in New York, General Motors and Fisher Buildings in Detroit, Terminal Tower in Cleveland, Dixie Terminal in Cincinnati and many others.



Heavy Duty Type Super Suction Cleaner and Attachments



Types

Super Suctions are made in two types—Heavy Duty and Industrial. The illustration shows the Heavy Duty and usual attachments. There are other attachments for walls and hangings, or for rough places where time is short. The Industrial is the same, plus mounting on an easy rolling chassis which carries a large metal container that traps heavy refuse, plus special attachments for floors, walls, bins, overhead piping, etc. Industrials weigh only 58 pounds. See both in AIA File No. 31-H-41.

The Architect Should Specify Portable Cleaners

In spite of the growing demand for the portable type of cleaning equipment in buildings, only rarely are portables included in initial specifications and contracts. They should be included, because the owner is entitled to the saving of over 75% in his investment compared to the built-in plants; he does save too, and greatly, in his costs of operation, and his building need not earn so much and can yet pay dividends.

By including portables in the specifications for the electrical wiring or apparatus, the architect is rightly protected in his fee which he otherwise loses.

The electrical contractor understands cleaners, can deliver and explain them if required, can be of worthwhile service to the owner and assure full satisfaction to the architect. The architect, contractor and owner are finding it decidedly to their advantage to so include them.

Specifications for Portable Cleaners

Contractor shall supply, delivered at the building,..... portable Super Suction Cleaners (or alternates as below) manufactured by THE NATIONAL SUPER SERVICE CO., Toledo, Ohio; complete with bag and bag rod; hose and coupling; fiber tube handle, double bend; floor tool, 12 ins., serrated, with locking swivel, and bumper; 50 ft. No. 16 twin conducting cord—with protected connector plug.

.....Wall brushes

.....All-Floors Adapters, shod with fiber, or felt, or bristles

The electric current at the convenience outlets in said building to be furnished by the owner, and to be alternating current .....cycles, ...volts; or/and direct current.....volts.

Deliveries—To be made at the building named, on date or dates as architect or owner shall specify.

Tests—Cleaners to be attached to electrical outlets and demonstrated by bidder to the satisfaction of the architect or owner.

Guaranty—The bidder shall guarantee the Super Suction Cleaners, both motors and equipment, except hose, against all imperfections in material or labor, and to operate satisfactorily on the electrical circuit named above. He shall supply and install free, any parts of the Super Suction Cleaners which, within one year from date of sale, show any defect. Thereafter, for a period of one year, if any part shows any defect, he shall supply a new part free, charging only for necessary labor. Always, natural wear excepted, and transportation to and from factory to be paid by the owner.

Alternate Proposals

Where any equipment or material is designated by the name of the manufacturer or product, it is so designated for fixing a standard of material and equipment required.

Alternate proposals of other manufacturers' equipments or material of same standard and quality are invited in addition thereto.

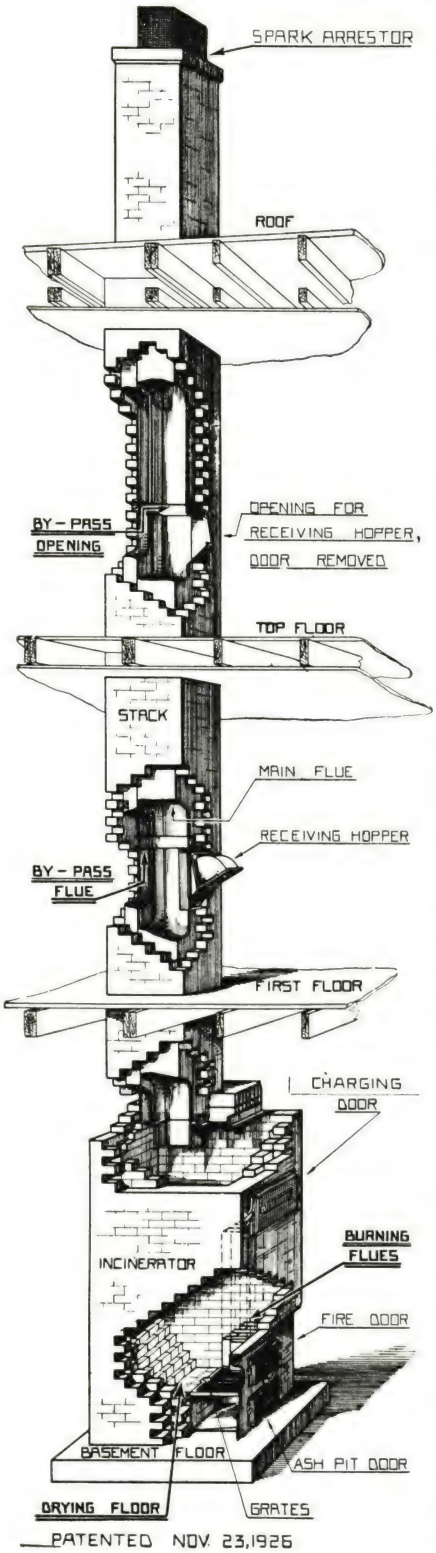
When alternates are submitted, price in addition or deduction should be made from the price of equipment or materials herein so specified.

GOODENOW INCINERATOR MFG. CO.

1059 Beaufait Avenue, DETROIT, MICH.

DISTRIBUTERS

NEW YORK, N. Y., C. E. Elmore & Associates, Inc., 420 Lexington Avenue
WASHINGTON, D. C., Building Equipment Co., 221 G Street N. W.
ST. LOUIS, MO., A. E. Mayer Plumbing & Heating Co., 3163 South Grand Boulevard
ST. PAUL, MINN., Building Products Co.



Built-in Incinerators

Embodying every incinerator requirement, and capable of complete disposal of all household refuse, without the necessity for auxiliary fuel, Goodenow Equipment possesses several distinctive features.

Outstanding of of these is the fire brick hearth in place of grates.

Wet garbage is deposited on a heat storing fire brick hearth that effects a thorough drying, and vertical "burning flues" immediately inside the fire door supply a draft for combustion of refuse from the bottom, instead of smoldering at the top.

The Goodenow Hopper Door is designed to meet all demands of modern requirements, closing of flue when door is open, self-closing, silent in operation, and handsome in appearance.

DIMENSIONS OF GOODENOW BUILT-IN INCINERATORS

No.	Use	Dimensions	Flue size	Fire brick	Common brick
A-1	6-room residence.....	3′ 4½″x3′ 4½″	13″x13″	270	500
B-1	10-room residence.....	3′ 9″ x3′ 9″	*13″x13″	340	600
B-2	15-room residence.....	4′ 1½″x4′ 1½″	*13″x13″	400	640
B-2	2-family flat.....	4′ 1½″x4′ 1½″	18″x18″	400	640
B-3	4-family flat.....	4′ 6″ x4′ 6″	18″x18″	475	750
B-3	9 to 12 kitchenette apts.	4′ 6″ x4′ 6″	18″x18″	475	750
B-4	13 to 27 kitchenette apts.	4′10½″x4′10½″	20″x20″	550	850
B-5	28 to 35 kitchenette apts.	5′ 7½″x4′10½″	20″x20″	600	940
C-1	36 to 43 kitchenette apts.	7′ 5″ x5′ 2½″	24″x24″	690	1750
C-2	44 to 52 kitchenette apts.	7′ 9½″ x5′ 7″	24″x24″	770	1900
C-3	53 to 63 kitchenette apts.	7′ 9½″ x5′11½″	24″x24″	815	2100
C-4	64 to 75 kitchenette apts.	8′ 6″ x5′11½″	24″x24″	885	2250

*If additional receiving hopper is used on the second floor, flue size should be 18x18 in.

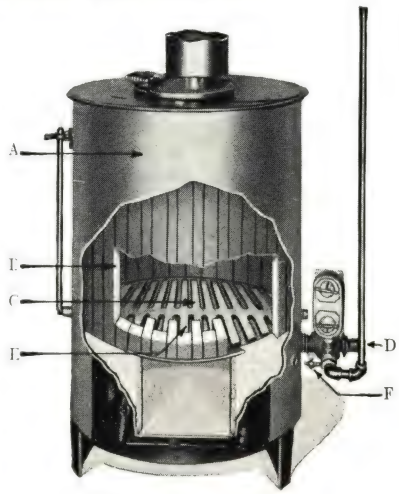
By-pass flue optional. When used should be constructed of 4½x13-in. flue lining.

Height of incinerator above basement floor, 6 ft. 7½ in. minimum.

Portable and Wall Type Incinerators

Sheet metal shell, lined with fire brick, which absorbs and retains heat to assist in drying the refuse and garbage. Can be equipped with a gas burner to complete the drying process, also a Time-O-Stat for automatic gas control.

Gas is introduced under the grate through an atmospheric mixer and the flame passes up through flues built into the front, to mix with and consume the smoke and odor. The full dump grate permits cans, bottles, etc., to be emptied into the ash pit.



A—Sheet Iron Shell
B—Fire Brick Lining
C—Full Dump Grate
D—Gas Inlet
E—Gas Lighter
F—Draft Flues

The *Portable Incinerator* is placed in any convenient location in the basement, a pipe connection to the chimney and connection to the nearest gas line being the only installation required.

The *Wall Type Incinerator* is set into the masonry of the basement, and can be fed through hopper openings from above or used as a basement-fed incinerator, as desired.

DIMENSIONS OF PORTABLE INCINERATORS

Model	Capacity, bu.	Diam., in.	Height, in.	Weight, lb.
S	2½	24	35	450
L	5	27¾	46	600
* M	2½	21	35	225

*Low priced, metal lined household incinerator.

DIMENSIONS OF WALL TYPE INCINERATORS

Model	Capacity, bu.	Diam., in.	Height, in.	Weight, lb.
K-2	2½	23x23	38	400
K-4	4	23x23	48	500

DUPLEX INCINERATOR DIVISION

OF THE CONSOLIDATED IRON-STEEL MFG. CO.

Manufacturers of Duplex-Krause Incinerators

1291 East 53rd Street, CLEVELAND, OHIO

LOCAL REPRESENTATIVE

DUPLEX KRAUSE

The Company

The Consolidated Iron-Steel Manufacturing Company, of which DUPLEX INCINERATOR COMPANY is a Division, is a substantial organization with nearly fifty years of successful manufacturing experience.

The improved features of Duplex-Krause Incinerators, which are made complete in our own foundry and shops, have been developed from long, intimate experience with garbage and waste burning equipment. They are sold as a proven product and guaranteed by an institution worthy of confidence.

Engineering Service

In selecting a Duplex-Krause Incinerator, the owner secures the services of a skilled sales engineer who understands the technique of incineration and has been thoroughly trained in the service of this company. This insures an adequate, properly adapted installation, with permanent satisfaction—guaranteed by the name, "Duplex-Krause".

In addition to our standardized, chimney-fed incinerators, we also design and furnish special incinerators and destructors. An engineering department, trained in this work, is maintained for the benefit of architects and engineers. This service is without obligation, and we welcome the opportunity to consult with you.

DUPLEX-KRAUSE INCINERATORS

Description

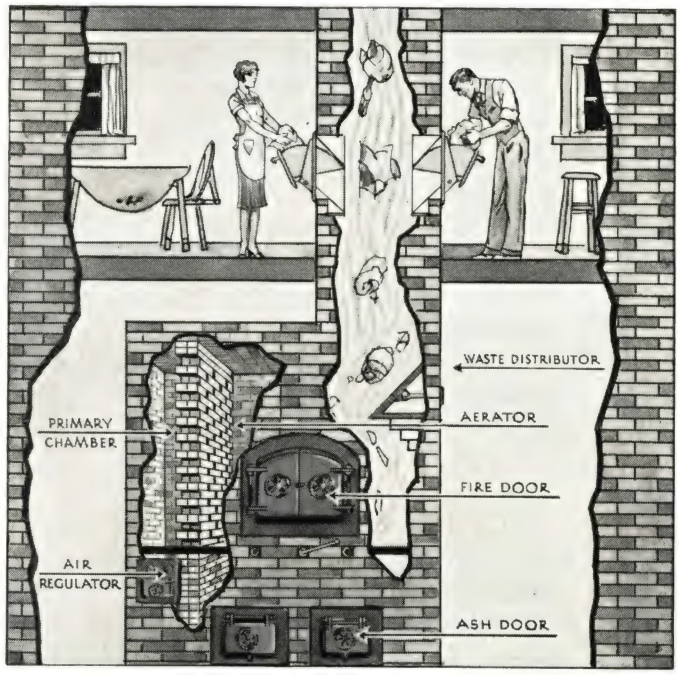
The Duplex-Krause Incinerator is arranged with a brick combustion chamber of highly efficient, though simple, design having a fire brick lining. It is located at the base of a chimney, usually in the basement of the building. Into this chamber are built grate rests with full dumping grates, wall bearings, stops, waste distributor, access doors, draft regulator and miscellaneous supporting iron.

The chimney starts on top of the incinerator and extends straight up through the building, usually in the kitchen wall or convenient to corridor or rear porch. Service or receiving hopper doors, readily accessible, are built into chimney wall at the most convenient point on the floor or floors above.

All metal parts are furnished by us with ¾-in. scale installation detail drawings for the guidance of the mason in setting the parts.

Where Used

Duplex-Krause Incinerators are designed for use in apartments, residences, hospitals, stores, schools, telephone exchanges, clubs, lodges, and institutions of all kinds. This multiple waste disposal service from a single unit not only provides a most necessary convenience, but is a profitable investment.



Operation

The Duplex-Krause Incinerator performs a triple function in the disposal of waste in that it—(a) provides sanitary concealed storage for waste until it is dried, ready to be burned; (b) provides fuelless, odorless burning, and (c) provides storage for the ashes, flame-sterilized tin cans, broken glass and crockery for timely removal.

Garbage, waste paper, broken boxes of wood and paper, wilted flowers, discarded newspapers, sweepings, and all the other miscellaneous waste is deposited in the receiving doors, right at hand on upper floors of building, where it falls to the incinerator chamber.

As it falls it strikes the waste distributor, which scatters the material over the grates, preventing the packing which would interfere with drying and combustion.

Then follows the drying out process by means of the chimney draft and the aerator lattice, described on the following page.

When lighted, the waste paper, broken wood and other readily combustible matter contributes a hot fire which completes the drying and consumes the contents of the incinerator chamber, as garbage is then readily combustible.

FEATURES OF DUPLEX-KRAUSE INCINERATORS

Important Advantages

Duplex-Krause Incinerators have been designed to afford the user these many advantages:

To provide an incinerator in the basement, with service doors immediately at hand in kitchen or service hall, affording every feature of convenience and usefulness;

To provide odorless, top-burning incineration through aeration, insuring complete and efficient combustion without the use of commercial fuel;

To provide large capacity to handle bulky waste, and reduce attention to a minimum;

To be fire-safe and permanent, a fixture that will give service over a long period of years.

Receiving Hopper Doors

Standard Duplex-Krause Receiving Hopper Doors are finished in vitreous porcelain enamel with polished chromium trim. They have separate wall sleeve frames which are built into chimney wall (F). (Details on page 3.)



PRINCIPLES OF CONSTRUCTION

The Aerator Lattice

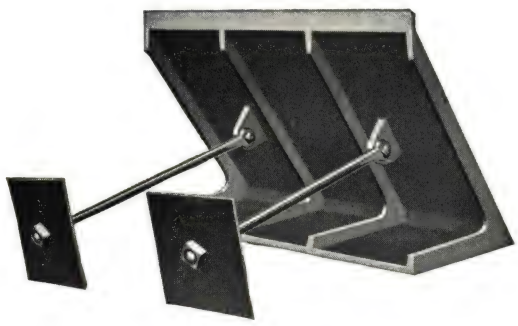
Primary Chamber, and Draft Regulator for Complete, Odorless, Controlled Burning.

Air is drawn by the chimney through the draft regulator (R) into the primary chamber (PC) and is distributed by the aerator lattice (L) which extends the full width and height of the incinerator. This current of air passes through and over *all* the garbage and other waste in the main incinerator chamber.

Between Burnings, this greater air circulation prepares the waste for burning by evaporation of moisture.

During Burning, the incoming air is heated by the hot fire brick in the aerator lattice which is in contact with the fire, and which feeds a perfectly distributed supply of preheated oxygen to maintain combustion *on top* of the waste accumulation. Odorous gases released by the heat approaching waste below must pass through the fire and be sterilized or consumed.

The draft regulator provides separate control of updraft through horizontal grates, and top draft through Aerator, to obtain controlled burning and maximum results under all conditions.



Cast Iron Waste Distributor
The "Automatic Fireman"

The Waste Distributor

The Automatic Fireman that Gives Doubled Efficiency to Duplex-Krause Incinerators.

The efficient, fuelless incineration accomplished in Duplex-Krause Incinerators is the result of positive aeration of all waste secured as follows:

First—by air distribution the entire height and width of the incinerator.

Second—by placing air intake and distribution on side opposite chimney so that air current acts on *all* the waste.

These two results are accomplished by the Duplex-Krause Aerator Lattice in a highly satisfactory manner.

Third—by avoiding the compression of the accumulation of waste due to the impact of its fall from upper floors of the building.

Fourth—by shifting the waste in a loose pile toward the point of incoming air to insure its contact with the drying air current.

The latter two results are secured by the unbreakable heavy iron waste distributor (W), which prevents packing and shifts waste into a loose pile to dry.

These functions, with consequent complete aeration of waste, set a new standard of performance in fuelless, chimney-fed incinerators.

RECEIVING HOPPER DOORS



The vitreous porcelain enamel and chromium finish of Duplex-Krause Receiving Hopper Doors make them permanently decorative fixtures that add much to the attractiveness of the kitchen or service hall.

A separate wall sleeve frame is built into the chimney wall. After the building is completed, the hopper door is secured in place by the Duplex-Krause concealed fastening which is absolutely proof against loosening.

The hopper apron closes the chimney opening when receiving door is open. This feature with carefully fitted and ground parts, and the normal suction of the chimney draft, prevents any possibility of leakage of smoke or gases into the room.

Types—*No. 1*—Suitable for use in residences, apartments and other buildings where receiving doors are located in individual kitchens.

No. 3—Preferable in apartments, hospitals, schools, and other buildings when receiving doors are located in service corridors, etc., under such conditions waste is deposited in larger quantities at a time than where each kitchen has its own door.

No. 4—Primarily for use in stores and other first floor service, or to deposit bulky waste from outdoors, when incinerator is located in the basement. It does not, therefore, usually require the same attractive finish so desirable for use in the kitchen or service hall.

Receiving doors can be equipped with concealed, silent automatic operators for hospital and similar service.

DIMENSIONS AND FINISH

Standard types	NO. 1	NO. 3	NO. 4
Net hopper throat opening, in.	8 x 9	10 x 12	16 x 14
Extreme outside casing, in.	10¾ x 16	13 x 19¼	19 x 22¾
Minimum flue size, in.	12 x 12	16 x 16	24 x 24
Min. wall Thickness, in.	6	8	9
Finish	*Standard	*Standard	Aluminum Bronzed

*Standard finish: Porcelain enamel frame and panel. Polished chromium lid and fittings.

CONSTRUCTION INFORMATION

Footings for Incinerators—Should be of depth necessary to support proportion of chimney load not carried by walls of building, and should extend 6 in. beyond incinerator walls. Top of footings should preferably be 4 in. below finished floor level.

Walls of Incinerator Chamber—Are of common brick, lined with firebrick from 3 courses below grates up to, and including header course of top, as follows:

Models S to T, inclusive: minimum 4 in. common brick—½ in. air space—4½ in. firebrick—9 in. total.

Models N to K, inclusive: minimum 8 in. common brick—1 in. air space—4½ in. firebrick—13½ in. total.

Firebrick—Must be laid in fireclay, dipped and *not* buttered, to obtain thin joint and avoid crumbling of fireclay. Proper bonding is shown on construction details.

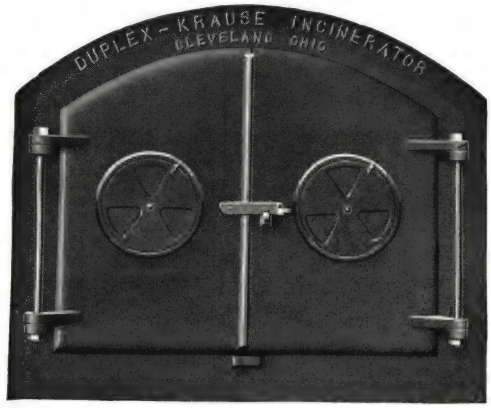
Chimney—*Minimum flue size* required for different models and different height buildings are shown on layouts on following pages.

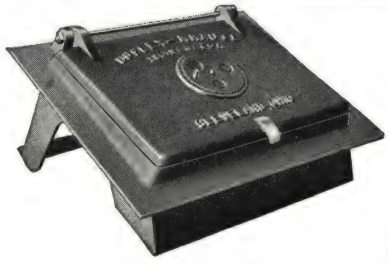
Flues having inside dimensions of 16 in. x 16 in. or less may be lined with standard flue tile. Larger flues must be lined with 4½ in. firebrick for 20 to 30 ft. above top of incinerator chamber.



Receiving Door Assembly

Wall sleeve frame, trim frame, and hopper door.





Above:

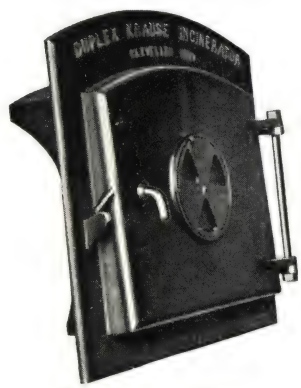
No. D-3 Fire Door

30 x 24-in. opening. Standard on Models N and K.

Left:

No. D-1 Fire Door

17 x 12-in. opening. Standard on Models S, B and D.



No. D-2 Fire Door

22 x 18-in. opening. Standard on Models L, T and F.

HOW TO SELECT AND SPECIFY DUPLEX-KRAUSE INCINERATORS

From the information given on pages 5 and 6, select the model suited to the building under consideration. Note that the minimum chimney size inside varies for buildings of different heights.

Your selection of one of the alternate plan layouts for this model will be determined by the chimney location, and the neighboring space, freedom from obstructions, etc.

The incinerator should be located where the chimney will run up through a kitchen wall or corridor or rear porch accessible to all tenants.

In an apartment building where a receiving door is desired in each kitchen, a separate incinerator must be installed for each tier of suites, or for each tier of adjoining suites if the kitchens are back to back.

Large scale detailed installations drawings will be furnished showing exactly how the Duplex-Krause Incinerators should be installed, when we obtain the following information:

Type and Size of Building—Residence, apartment building (number of rooms and number of floors).

Number of Incinerators Required—Specify number.

Model and Plan Layout—(Refer to pages 5 and 6).

Number and Size of Receiving Doors—(See description and use of sizes).

Chimney Size—Our schedule gives minimum sizes. (It may be larger—not smaller).

Architect's Specifications

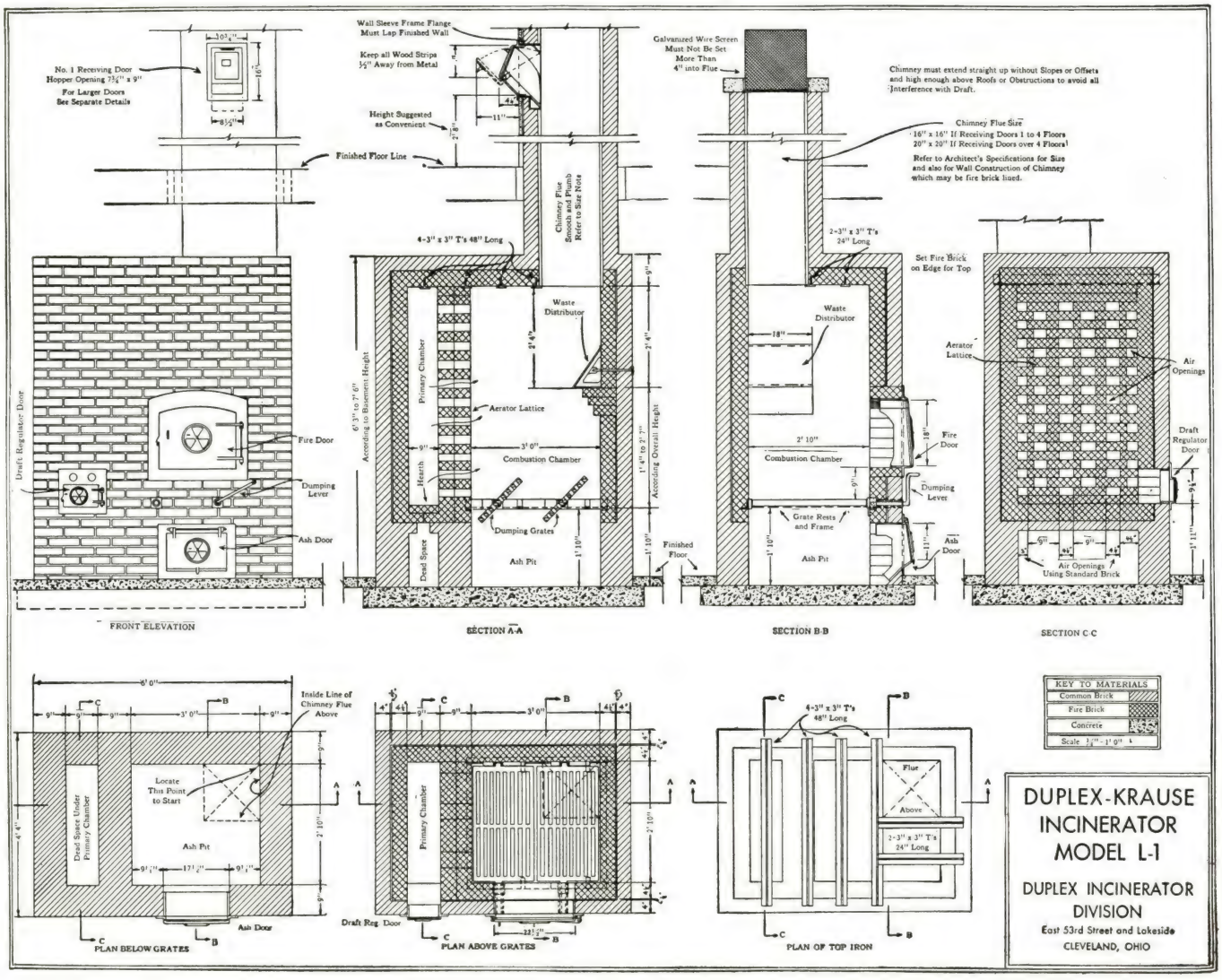
The contractor shall furnish all metal parts, firebrick, masonry materials and labor, to install complete where shown on plans—

( ) Model ( ) Duplex-Krause Incinerator, having ( ) No. ( ) Receiving Doors.

Incinerator (s) to be installed according to the detail plans and specifications of DUPLEX INCINERATOR COMPANY, 1291 East 53rd Street, Cleveland, Ohio.

STANDARD MODELS

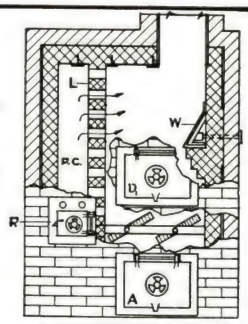
Typical Installation Detail



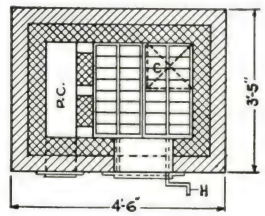
STANDARD MODELS

Model S

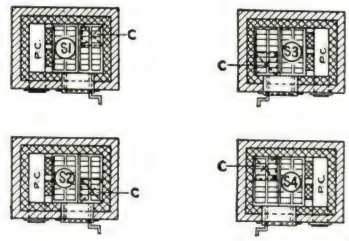
Residences not exceeding 10 Rooms
Consult us for Other Uses
Minimum Chimney Flue
12" x 12" If Receiving Door 1 Floor
Standard Fire Door
D-1 Opening—17" x 11"
Incinerator Chamber
Height 6'3" to 6'10"



ELEVATION AND SECTION



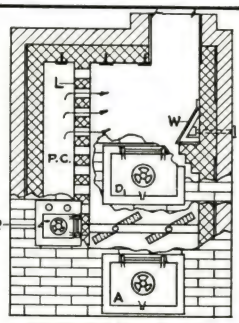
Plan Above Grates—Scale ¼"=1'0"



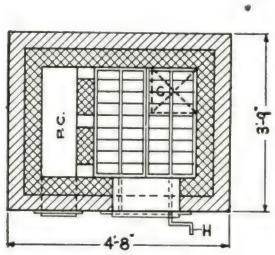
Alternate Plan Lay-outs—Scale ⅛"=1'0"

Model B

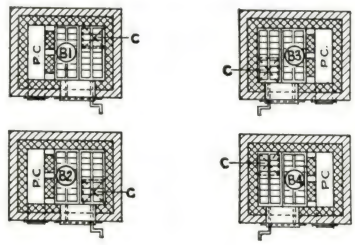
Residences of 10 to 14 Rooms
Apartments under 18 Rooms
Minimum Chimney Flue
12" x 12" If Receiving Door 1 Floor
16" x 16" If Receiving Door 2 to 4 Floors
Standard Fire Door
D-1 Opening —17" x 11"
Incinerator Chamber
Height 6'3" to 6'10"



ELEVATION AND SECTION



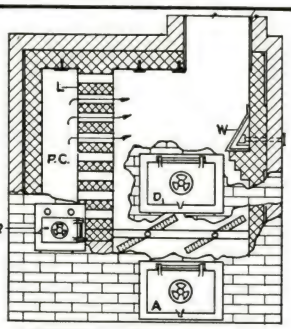
Plan Above Grates—Scale ¼"=1'0"



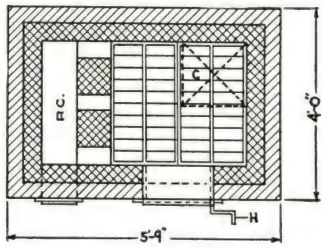
Alternate Plan Lay-outs—Scale ⅛"=1'0"

Model D

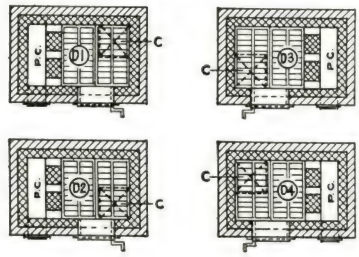
Very Large Residences
Apartments 18 to 40 Rooms
Consult us for other Uses
Minimum Chimney Flue
16" x 16" If Receiving Doors 2 to 4 Floors
Standard Fire Door
D-1 Opening—17" x 11"
Incinerator Chamber
Height 6'3" to 7'6"



ELEVATION AND SECTION



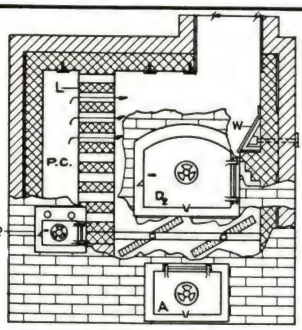
Plan Above Grates—Scale ¼"=1'0"



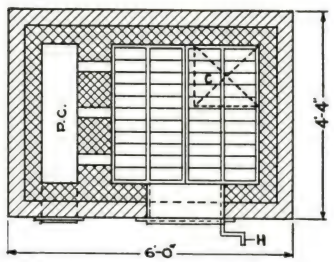
Alternate Plan Lay-outs—Scale ⅛"=1'0"

Model L

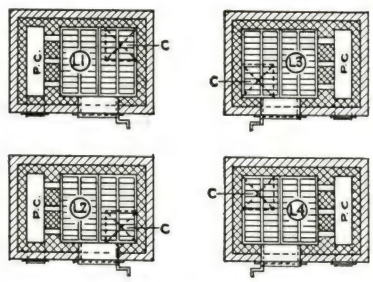
Apartments 40 to 80 Rooms
Hospitals under 50 Beds
Schools under 300 Students
Small Stores 1 to 6 Av. Group
Use for Model D Requirements when 22" x 18" Fire Door Desired
Minimum Chimney Flue
16" x 16" If Receiving Doors 1 to 4 Floors
20" x 20" If Receiving Doors 5 to 7 Floors
Standard Fire Door
D-2 Opening—22" x 18"
Incinerator Chamber
Height 6'3" to 7'6"



ELEVATION AND SECTION



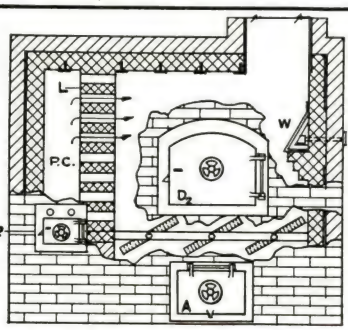
Plan Above Grates—Scale ¼"=1'0"



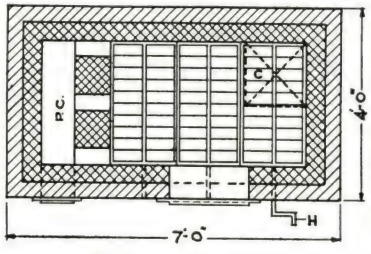
Alternate Plan Lay-outs—Scale ⅛"=1'0"

Model T

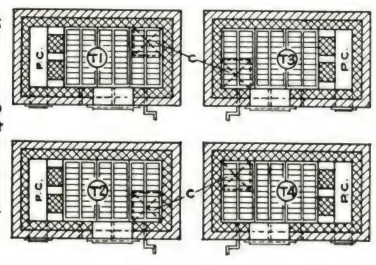
Apartments 80 to 120 Rooms
Hospitals 50 to 90 Beds
Schools 300 to 500 Students
Small Stores 6 to 8 Av. Group
Minimum Chimney Flue
16" x 16" If Receiving Doors 1 to 4 Floors
20" x 20" If Receiving Doors 5 to 7 Floors
Standard Fire Door
D-2 Opening—22" x 18"
Incinerator Chamber
Height 6'10" to 8'2"



ELEVATION AND SECTION



Plan Above Grates—Scale ¼"=1'0"



Alternate Plan Lay-outs—Scale ⅛"=1'0"

Common Brick Fire Brick PC—Primary Chamber L—Aerator Lattice C—Chimney Flue W—Waste Distributor H—Dumping Lever R—Draft Regulator A—Ash Door D—Fire Door

STANDARD MODELS

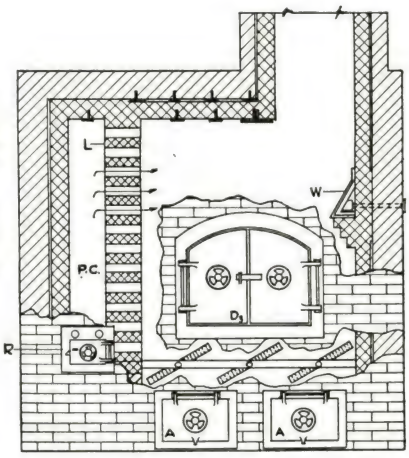
Model N

Apartments 120 to 160 Rooms
Hospitals 90 to 120 Beds
Schools 500 to 700 Students
Small Stores 8 to 10 Av. Group
Use for Model T Requirements When 30" x 24" Fire Door Desired

Minimum Chimney Flue
16" x 16" If Receiving Doors 1 to 4 Floors
20" x 20" If Receiving Doors 5 to 7 Floors
24" x 24" If Receiving Doors Over 7 Floors

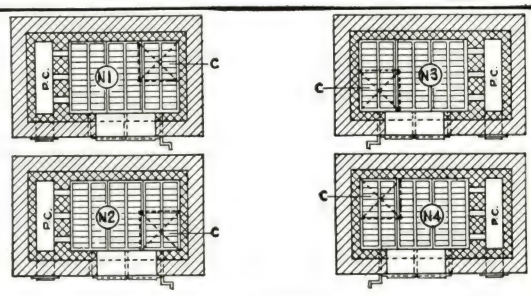
Standard Fire Door
D-3 Opening—30" x 24"

Incinerator Chamber
Height 7' 6" to 8' 2"

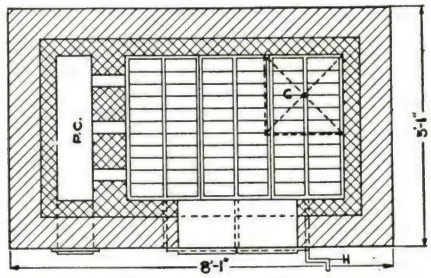


ELEVATION AND SECTION

Alternate Plan Lay-Outs
Scale ⅛"=1'0"



Plan Above Grates
Scale ¼"=1'0"



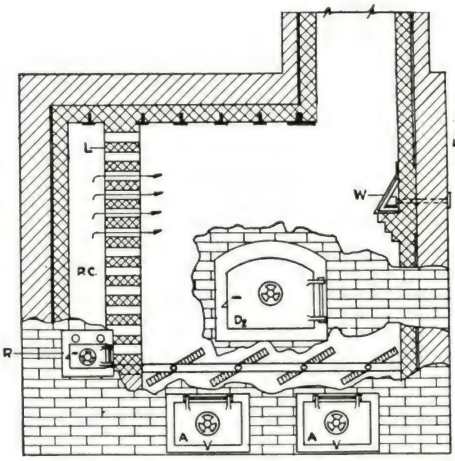
Model F

Apartments 160 to 240 Rooms
Hospitals 120 to 180 Beds
Schools 700 to 1,000 Students
Small Stores 10 to 15 Av. Group
Consult us for other uses

Minimum Chimney Flue
16" x 16" If Receiving Doors 1 to 4 Floors
20" x 20" If Receiving Doors 5 to 7 Floors
24" x 24" If Receiving Doors Over 7 Floors

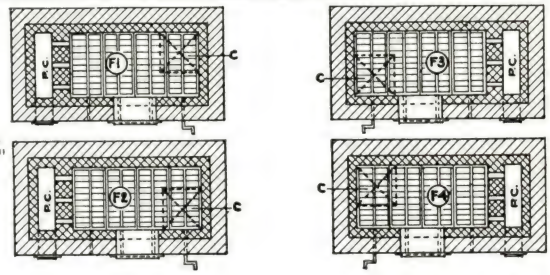
Standard Fire Door
D-2 Opening—22" x 18"

Incinerator Chamber
Height 7' 6" to 8' 2"

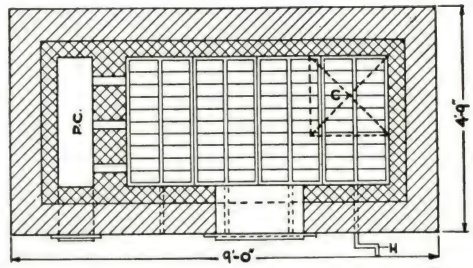


ELEVATION AND SECTION

Alternate Plan Lay-Outs
Scale ⅛"=1'0"



Plan Above Grates
Scale ¼"=1'0"



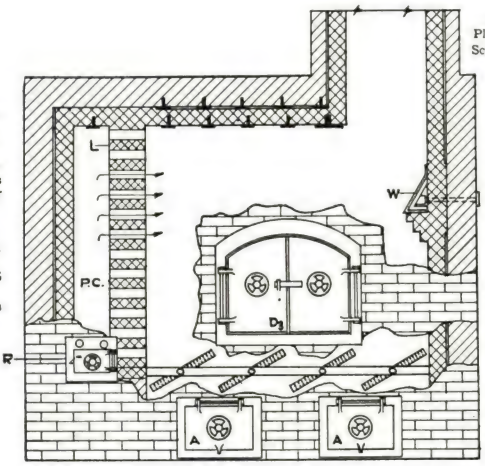
Model K

Apartments 240 to 320 Rooms
Hospitals 180 to 260 Beds
Schools 1000 to 1200 Students
Small Stores 15 to 18 Av. Group
Use for Model F Requirements When 30" x 24" Fire Door Desired

Minimum Chimney Flue
16" x 16" If Receiving Doors 1 to 4 Floors
20" x 20" If Receiving Doors 5 to 7 Floors
24" x 24" If Receiving Doors Over 7 Floors

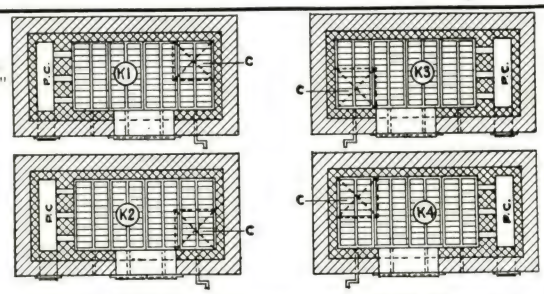
Standard Fire Door
D-3 Opening—30" x 24"

Incinerator Chamber
Height 7' 6" to 8' 2"

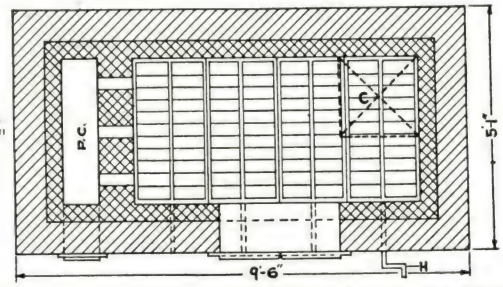


ELEVATION AND SECTION

Alternate Plan Lay-Outs
Scale ⅛"=1'0"

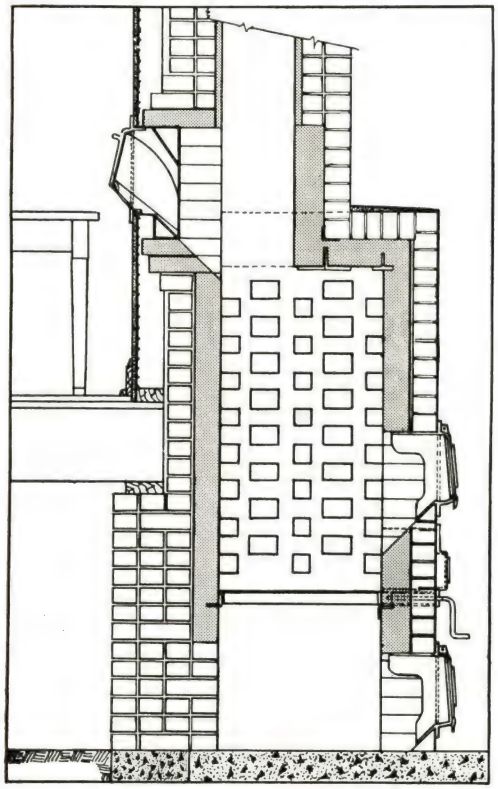


Plan Above Grates
Scale ¼"=1'0"



Common Brick Fire Brick PC—Primary Chamber L—Aerator Lattice C—Chimney Flue W—Waste Distributor H—Dumping Lever R—Draft Regulator A—Ash Door D—Fire Door

OTHER ARRANGEMENTS



DUPLEX-KRAUSE CHIMNEY-CHARGED OUTDOOR INCINERATOR

When there is no basement in the building with available space for the incinerator chamber—or when it is desired to install a Duplex-Krause Incinerator with the chimney-charged feature in an existing building and it is more economical or convenient to have chimney run up outside the house, the Duplex-Krause Incinerator can be installed as shown by drawing at the left. Where the distance from the grade line to first floor level is less than 3 ft. 6 in., a concrete pit in front of incinerator should be provided.

Sizes and plan layouts are the same as standard chimney-charged Incinerators as shown on pages 5 and 6.

DUPLEX-KRAUSE DIRECT CHARGED BASEMENT INCINERATORS

For homes, apartments, and other buildings where it is not possible to have the chimney-charged feature due to economical or other reasons, the Duplex-Krause Incinerator can be built against the heater chimney in the basement or connected to it with a pipe.

Sizes and plan layouts are the same as standard incinerators as shown on pages 5 and 6, except that opening to the chimney is located in the side or end of incinerator instead of the top.

WHERE DUPLEX-KRAUSE INCINERATORS ARE GIVING SATISFACTORY SERVICE

Duplex-Krause Incinerators are sold on a basis of guaranteed satisfaction. Many thousands are in service in many types of buildings, including: apartments, residences, apartment hotels, hospitals, infirmaries, offices, store buildings, dormitories, recreation buildings, lodge and club buildings, telephone exchanges, factories, public garages, terminals, banks, florists, and many others.



Left:

Benjamin Lake Ave. Apartments, Cleveland, Ohio

LYMAN R. WALKER, Architect
7th installation for this owner

Right:

Hamilton Arms Apartments, 16th and Morrison Streets, Portland, Ore.

DE YOUNG & ROALD, Architects





Left:

Molly Arms Apartments, Crescent Street off Broadway, New York, N. Y.

WM. HOHAUSER, Architect

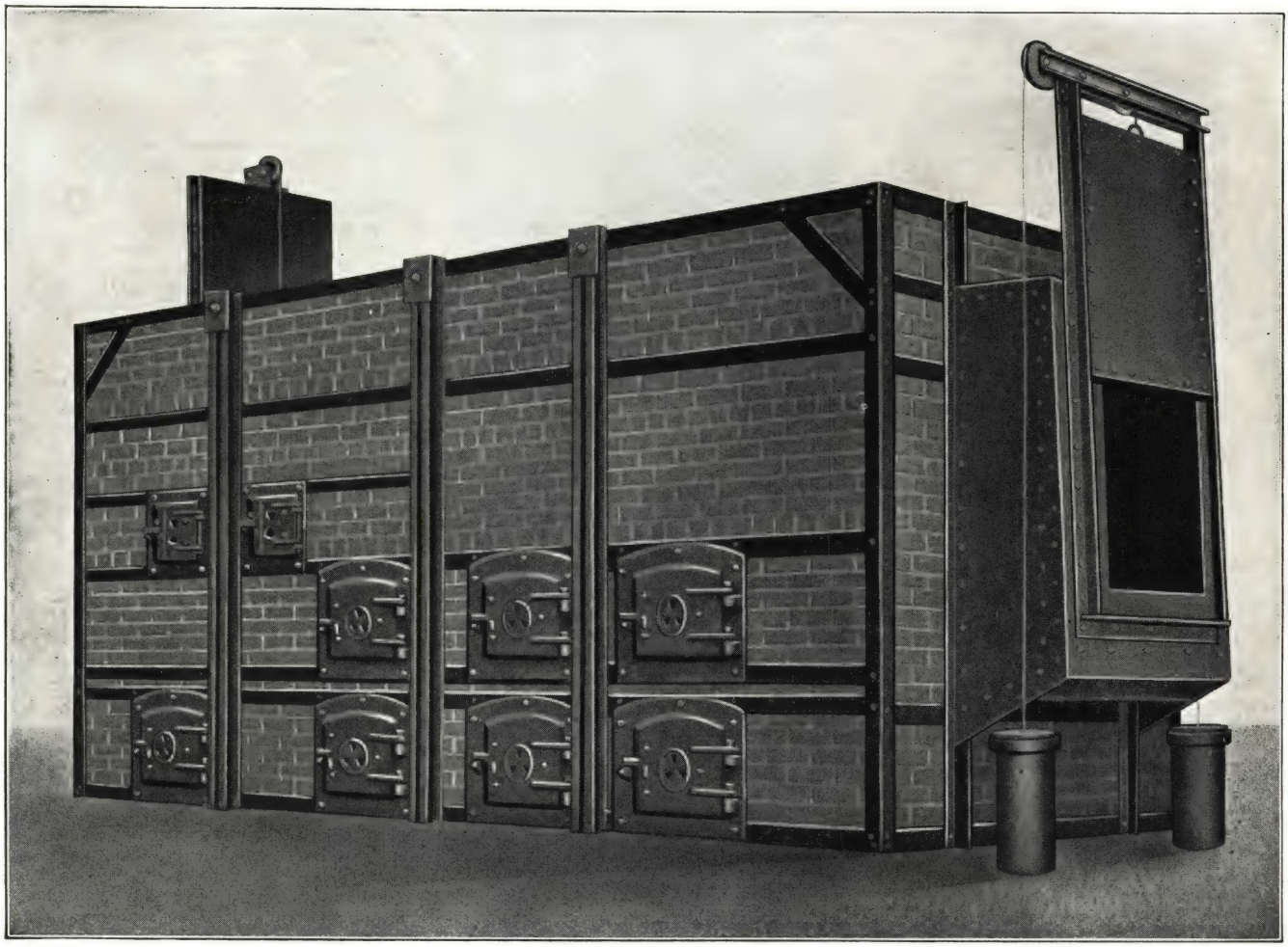
Right:

Adrian Ettinger Residence, 16850 Parkland Drive, Shaker Heights, Ohio

MONROE E. DEANE, Architect



HIGH TEMPERATURE INCINERATORS



A Typical Duplex-Krause High Temperature Incinerator

Duplex-Krause High Temperature Incinerators, or Destructors as they are sometimes called, are furnished in various types for burning bulk central kitchen garbage in hotels, hospitals and institutions of all kinds. Also, they are used for burning rubbish and factory waste in large quantities and for many other purposes, such as crematories, pathological laboratories, financial institutions, etc.

The feature of feeding the waste through the chimney is not practicable in these types due to the extremely high temperatures either encountered or necessary.

The design and layout of these classes of incinerators is subject to many variations to meet the particular requirements of convenience and economy, relative position of chimney, clearances, etc.

The experience of our Engineering Department is at the service of architects and engineers to assist in making selections of the type, size and arrangement and providing details and specifications when we are informed of the character and size of the job.

Duplex-Krause High Temperature Incinerators are installed complete by us. We furnish all masonry materials, labor and appurtenances such as breechings, charging pans, can washers, pyrometers, etc., to provide a complete job ready for operation.



Medico-Dental Building, San Jose, Calif.
W. H. WEEKS, Architect

KERNER INCINERATOR COMPANY

3551 North Richards Street, MILWAUKEE, WIS.

BRANCH OFFICES AND AGENCIES AND THEIR TELEPHONE NUMBERS

ALBANY—3-4840
ATLANTA—Hemlock 4487
BALTIMORE—Vernon 3478
BIRMINGHAM—3-1711
BOSTON—Hubbard 1727, 1728
BUFFALO—LaFayette 7760
CANTON—Canton 35990
CEDAR RAPIDS—1123
CHARLOTTE—3-5820
CHATTANOOGA—Dial 2-5638
CHICAGO—Superior 0810-11
CINCINNATI—Parkway 0070
CLEVELAND—Cherry 7866
COLUMBUS—AD 8247
DALLAS—7-4272
DAVENPORT—Ken. 1070
DAYTON—Garfield 701
DENVER—Tabor 7622
DES MOINES—4-5251
DETROIT—Randolph 1788
DUBUQUE—2859
EAST CHICAGO—2036
EL PASO—Main 7
ERIE—23-364
FARGO—361
FLINT—94351
FOND DU LAC—900
FORT WAYNE—Anthony 2233
FREEPORT—Main 43
FORT WORTH—4-3485
GRAND RAPIDS—4638
HARTFORD—2-3138
HELENA—1500
HOUSTON—Lehigh 4350
HUNTINGTON—8123-24
INDIANAPOLIS—Belmont 4783
JACKSON—2-1539
JACKSONVILLE—7-3784
KANSAS CITY—Harrison 8800
KNOXVILLE—2-5727
LA CROSSE—451
LEXINGTON—Ashland 4881
LOUISVILLE—Magnolia 7480
MADISON—Badger 1518
MANISTEE—Manistee 211
MUSKEGON—23-540
MEMPHIS—8-5121
MIAMI—4926
MICHIGAN CITY—581
MILWAUKEE—Edgewood 3351
NEW ORLEANS—Raymond 4551
NEWARK—Mitchell 2-2867
NEW YORK—Vanderbilt 3-2797
NORWICH—700
OKLAHOMA CITY—4-3111
OMAHA—Atlantic 8561
PEORIA—6681
PHILADELPHIA—Walnut 3741
PITTSBURGH—Atlantic 0893, 0730
PORTLAND—Forest 5910
READING—3-2221
RICHMOND—Dial 4-2037
ROCHESTER—Main 6406-7-8
ST. LOUIS—Central 8664
ST. PAUL—Emerson 5974
SALT LAKE CITY—Was. 7805
SHREVEPORT—3806
SCRANTON—3-1271
SPRINGFIELD—Main 113, 114
ST. PETERSBURG—42767
SYRACUSE—Syra. 2-8255
TOLEDO—Jeff. 2477
WASHINGTON—Nat. 9336
WEST PALM BEACH—Dial 2-0375
WILKES-BARRE—3-0144
WICHITA—5-1521
YOUNGSTOWN—4-3191

LOCAL REPRESENTATIVE

Products

FLUE-FED KERNERATOR—with flue either inside or outside of building; hopper doors on each floor, conveniently located.

BASEMENT-FED KERNERATOR—built where it is impossible to use a flue of proper size to serve as fallway.

HEAVY DUTY TYPE KERNERATOR—flue-fed or basement type; installed where there is a large amount of highly combustible material.

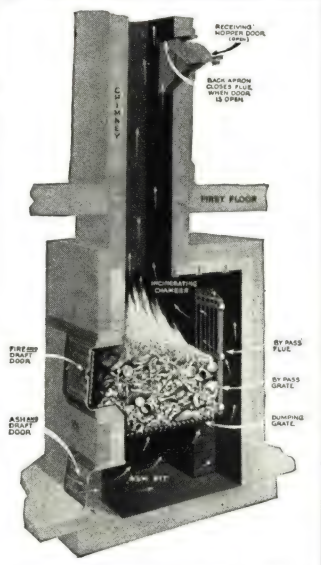
ESTATE (DOWN-DRAFT) TYPE KERNERATOR—separate grates for rubbish and for wet material—secondary combustion and settling chamber (special design).

Guaranteed Incineration Service for

Auto sales and service
Apartments
Apartment hotels
Bakeries
Banks, brokers and trust companies
Bar-be-cues
Beach resorts
Camps
Candy factories
Cemeteries
Clinics
Clubs
Corset manufacturers
County courthouses, jails, asylums
Country clubs
Dairy plants
Department stores
Doctors' offices
Dormitories
Drug stores
Duplexes
Estates
Factories
Fire stations
Five and Ten Cent stores
Floral shops
Fraternal organizations
Funeral parlors
Garages
Glass plants
Groceries (retail and wholesale)
Homes
Hosiery mills
Hospitals
Ice cream plants
Jewelry (manufacturing and retail)
Knitting mills
Laboratories
Libraries
Laundries
Mail-order houses
Markets, fruit, meat and vegetables
Nurses' homes
Nursery farms
Offices and office buildings
Optical goods
Overall mills
Paper mills
Piano factories
Poultry farms
Public buildings
Publishers and printers
Radio factories
Recreational buildings
Residences
Sanatoriums
Sausage manufacturers
Schools
Sheet metal works
Shoe factories
Silk mills
Soap factories
Spice mills
Stores
Stores and apartment buildings
Tailoring plants
Telephone exchanges
Terminals (bus, electric and railroad)
Theatres
Tire factories
Tourist camps
Undertakers
Variety stores
Warehouses (grocery, hardware and storage)
Woodworking plants

KERNERATOR INCINERATION

"Garbage and Waste Disposal for New and Existing Buildings"



Interior Construction and Operation of Kernerator

Patents No. 1,108,184 and 1,297,360

Notice the draft reaching the point of burning through by-pass grate. Fire is always on top of the burning material, consuming offensive odors

Kernerator Service

Through nearly twenty years of contact with every phase of incineration, and as a result of exhaustive and constant study of conditions essential to successful flue-fed incineration, the KERNER INCINERATOR COMPANY is enabled to render valuable service in connection with this equipment.

Kernerator Service begins with the proper location—layout of adequate equipment to take care of needs, both present and future; it supervises the construction to insure against carelessness or poor workmanship; attends to the initial burnings; it instructs employees in proper use of the equipment. The service also carries with it, a periodical inspection as to satisfactory operation, a readiness to respond to any calls for additional assistance due to unforeseen circumstances. We are in a position to supply authoritative information, drawn from original sources on important features of successful incineration—factors of moisture, air movement, smoke control, gas distillation and draft and flame control. A trained organization of experts in incineration who know what will and what *will not work* successfully, will promptly co-operate with the architect to the fullest extent.

Kernerator Guarantee

The Kernerator is made by the largest and oldest Incinerator Company providing flue-fed incineration service. The KERNER INCINERATOR COMPANY is the pioneer organization in this field; originators of the by-pass flue; the incinerator room and settling chamber for draft control; "Silent" hopper door; porcelain enameled receiving doors, etc.; and has developed to a science the disposal of waste products by incineration. The Kernerator is *the* incinerator, backed by a stable and trained world-wide organization of incineration experts with over 150 offices—an organization with ample financial resources to offer *valid* guarantee that every Kernerator installation will be permanently satisfactory.

Description of the Kernerator

The Flue-fed Kernerator consists of a brick combustion chamber, with fire brick lining, located in the basement of the building at the base of a straight chimney flue. It is constructed in accordance with clear, detailed Kernerator working drawings and specifications.

Into this incinerating chamber is built a special arrangement of grates with a distinctive by-pass flue which provides proper draft control and insures complete combustion of garbage and waste.

One or more receiving hopper doors are located in the flue on the floor or floors above, opening into kitchens, pantries or adjacent halls. The flue serves as a fallway for the refuse deposited in the hopper doors and also as a chimney to carry off the products of combustion during the burning periods.

Kernerator Operation (Flue-fed)

No gas, coal or other commercial fuel is *ordinarily* required.

All garbage and waste (sweepings, waste paper, tin cans, broken crockery, bottles, etc) are placed in the hopper doors. When the doors are closed this refuse falls down the flue into the incinerator combustion chamber where it spreads out on the grates into a more or less separated and loose pile, permitting the constant flow of air up the by-pass to circulate through and around it, causing a large amount of evaporation between burnings.

When the combustion chamber is nearly full the refuse is lighted from the top (a match does it) and the whole mass burns without further attention. Due to the by-pass flue, combustion is from the top downward and all unpleasant odors are destroyed.

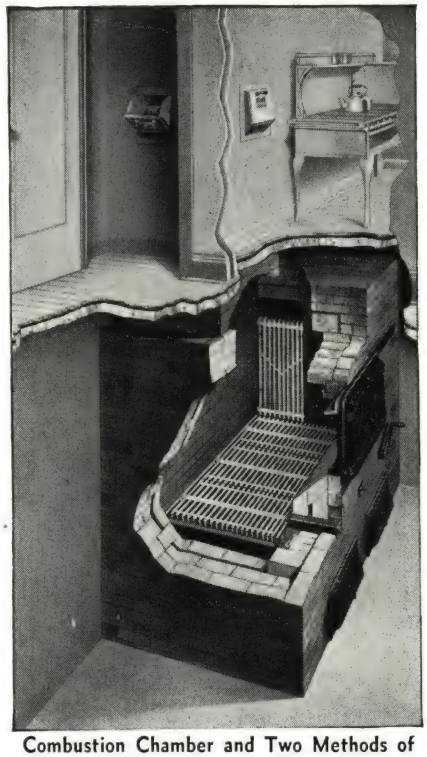
The fire feeds upon the waste paper and the other combustible material and gradually dries the damp substances so that they also are reduced to ash. After several burnings the ashes (along with cans, bottles and other non-combustible articles, which are thoroughly flame sterilized) are dumped into the ash pit for removal.

Importance of the By-pass Flue and Vertical Grate

At the side of the horizontal grates, upon which the refuse falls, is the by-pass or upright grate. Behind this is the by-pass or secondary flue. This distinctive Kernerator feature permits air to pass up from the ash pit through and over the refuse material spread on the horizontal grates. Between burnings this circulation of air causes considerable evaporation. During burnings air comes up the by-pass flue, passes through the vertical grate and feeds heated oxygen to the top of the fire. As the heat liberates the gases from the refuse beneath they pass up through the flames, are mixed with a plentiful supply of heated air at this point and are consumed.

No Heat, Smoke or Odor Escapes into the Building

There is always a draft into and up the chimney, consequently when the hopper doors are open, either between burnings or during burnings, *the air is drawn from the rooms into and up the flue.* There is never a possibility of either heat or smoke escaping into the room—the suction of the chimney draft prevents it.



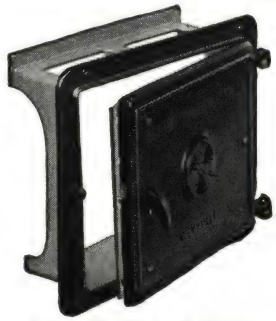
Combustion Chamber and Two Methods of Placing Hopper Doors on Floors Above
One in kitchen, the other in apartment corridor service closet



Silent Hopper Doors
Patent No. 1,804,788
A gentle impulse will close the balanced Kernerator receiving hopper door. The slight metallic clang of the door can be stilled by another exclusive Kernerator feature—the Silent Door. This is equipped with a device which eliminates unnecessary noise, a desirable feature



Hopper Door and Frame Complete
Back apron closes off opening into flue when door is open



Large Single Leaf Firing Door
Standard on Models G, O and L

Flue is Always Clean and Sanitary

The heat from the burning sterilizes the entire chimney flue, maintaining a clean, sanitary condition. The oily soot and creosote on the inside of the flue walls prevent waste particles from adhering. Falling waste prevents any large accumulation of soot.

Kernerator Hopper Doors

Kernerator hopper doors are of heavy gray iron castings with edges, and seats on which they rest, emery ground, carefully fitted to make them as airtight as possible. The heavy frames, weighing from 27 to 47 lbs., depending on size, are firmly anchored into the masonry. The back aprons (hoppers) on doors are so constructed that the opening into the flue is closed when the door is open. The hopper limits the size of the package which can be deposited in the flue but leaves sufficient opening to take ordinary packages of garbage and waste.

Door	Over-all dimensions to edge of frame, in.	Daylight opening, in.	Over-all width wall frame, in.	Minimum flue size inside dimensions, in.
*001	10x14	7x8	9	12x12
003	11¼x14¼	8¼x8¼	10	16x16—(1 story 12x12)
005	15x19	11¼x12	13½	20x20—(6 stories 24x24)
1A3	18x18	14½x11½	16½	24x24

*Standard on Model R.

Note: 003 doors are available in a porcelain enamel finish—white, ivory, green and gray. All doors may also be finished with nickel or chromium plating.

Double and Single Leaf Firing or Charging Door

In the larger apartment houses, apartment hotels, hospitals and institutions the Kernerator Fire Door opening into the combustion chamber in the basement is frequently used for feeding purposes. The larger this fire door the more satisfactory the incinerator installation, and the greater the saving of janitors' time.

Door No.	Standard on Models	Clear opening, in.
D1	R, C and F	17x10
Single leaf	G, O and L	22x18
Double leaf	M and P	30x22

Note: Doors larger than those specified as "standard equipment" may be substituted on any model, for feeding large crates, boxes and bulky waste directly into incinerator combustion chamber in the basement, also providing an adequate opening for convenient stoking of the fire.



Double Leaf Firing Door
Standard on Models M and P

Basement-fed Type Kernerator

There are buildings in which it is not possible to install a flue-fed Kernerator because there are no available flues of proper size to serve as fallways and provision cannot be made for them. Fire Underwriters' regulations may also require a separate rubbish chute. In these buildings a Basement-fed Kernerator may be installed.

While this type does not have the hopper doors on the floors above, it otherwise offers the same advantages in waste disposal as does the flue-fed type.

The garbage and waste is deposited in the incinerator in the basement through a hopper door placed in the upper part of the brick combustion chamber (shown at right).

The combustion chamber has the distinctive Kernerator by-pass flue as described above. The Basement-fed type may be built up against a regular chimney or located a short distance away.

Heavy Duty Type Kernerator

This is available in flue-fed and basement-fed types. The installation of Heavy Duty Kernerators is indicated where there is a considerable amount of highly combustible material and where the standard Kernerator must be supplemented by arched roof, buckstays and other reinforced construction. (Write for special drawings.)

Estate Type Kernerator (Down-draft)

The Estate Type Kernerator was originally developed to meet the need for a satisfactory method of waste disposal for country homes, small and large estates, where there is a large percentage of wet material in proportion to the dry, combustible rubbish, where collections are irregular, and where additional fuel is required at times.

The Estate Type was soon found to be well adapted to incineration problems in the commercial field. It has been installed in larger groceries and meat markets, large soda fountains, in tea rooms, inns, nurseries and cemeteries, giving highly satisfactory results. The Estate Type has also found a place in certain types of schools, hospitals and in pathological laboratories.

The Estate Type Kernerator embodies a cast iron rubbish grate for burning dry material, firebrick *drying hearth* for garbage and other wet material, the original Kernerator by-pass flue, and a *secondary* combustion and settling chamber.

The hot gases resulting from the incineration of the rubbish are passed over and under the firebrick hearth, down into an expansion chamber. In this manner the wet material on the firebrick hearth is attacked by the heat from above and below, insuring drying and incineration.

Due to the spaciousness of this secondary chamber beneath the drying hearth, the gases of combustion expand and reduce their velocity, depositing in the chamber light particles which the draft otherwise would carry up the flue. This makes it possible to burn large quantities of waste in a short time with adequate control of ash emission through the flue, and to reduce smoke to a minimum.

The Estate is not a flue-fed type, although it may be charged from the floor above. It is a continuous operating incinerator—both rubbish and garbage may be charged during operation.

The Estate Type provides a sanitary and economical method of waste disposal in any establishment where the daily waste accumulation does not warrant the installation of a heavy duty destructor, and where the standard Kernerator construction does not meet the requirements.

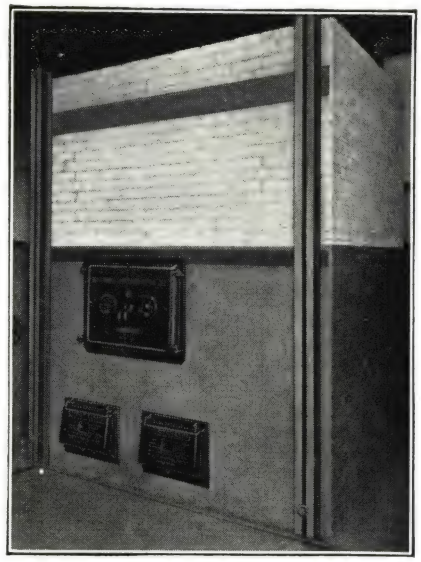
The Estate Type may be installed in a basement, in a shed, in the open—alongside of any building—depending entirely upon the available locations, the circumstances, and the personal desires of the client.

In writing, please give us an idea as to the amount and kind of waste to be disposed of—also a sketch of the conditions surrounding the proposed location.



Basement-fed Kernerator Built Up Against Regular Chimney

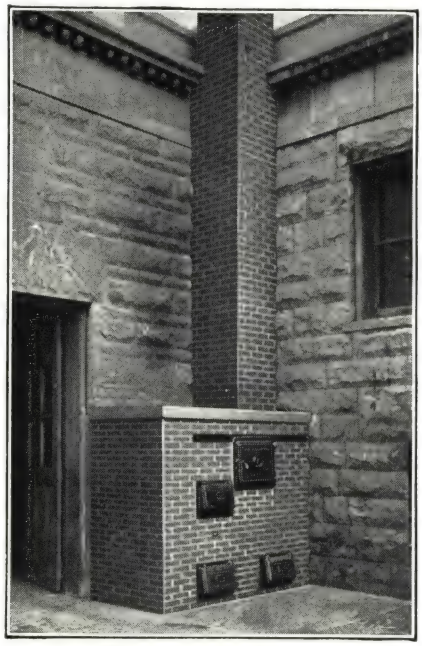
Can also be located at distance from chimney and piped to it



Heavy Duty Kernerator

Installed in plant of Ceco Manufacturing Co., well-known makers of radio tubes

FRANK B. PERRY, INC., Providence, R. I., Engineers and Architects



Estate Type Kernerator

Used by Pathological Laboratory, State Board of Health, Springfield, Ill., for burning dogs' heads, calves, chickens, etc.

Draft Control

In buildings of six stories and over, the excess draft developed in the Kernerator flue is apt to cause the emission of papers and fly-ash. This can be eliminated by the installation of the *Kernerator System of Draft Control,* consisting of the airtight incinerator room (in the basement) and settling chamber above the highest hopper door. This is an original Kerner development and is available only to Kernerator users. In writing for details, mention the height of the building and the size of the flue.

Auxiliary Fuel

The Kernerator is designed to operate without the use of additional fuel, under *ordinary* circumstances.

However, the summer season produces a larger proportion of very heavy garbage (cantaloup and watermelon rinds, green corn husks and cobs). Servants and other employees sometimes fail to follow instructions. There may be a preponderance of wet material over dry, combustible waste.

These, and other unusual conditions, may necessitate the use of added fuel for brief periods, to secure the proper drying for complete combustion.

Kernerator engineers have developed a *gas drier* to take care of these exceptional conditions. This *gas drier* may be equipped with a Time-O-Stat regulator.

Ask the Kernerator representatives for details of installation, or write direct to the Milwaukee office.

Selection of Model—Kernerator Detailed Plans

Select the correct sized model from the capacities noted on layouts on Kernerator pages 4 to 8, inclusive. Then choose the basement arrangement of that model which will best meet the building conditions. On application, the KERNER INCINERATOR COMPANY will furnish ½-in. scale working drawings and specifications of the model and basement arrangement selected.

Special Installations

Where none of the standard arrangements meet the particular conditions consult the local Kernerator Representative or send to the home office a sketch of the conditions surrounding the flue to be used (basement and typical floor plan and clear basement height) and our drafting department will prepare special drawings to fit these conditions.

Note particularly descriptive text on Kernerator pages 7 and 8 under headings "General Information," "Construction Details" and "Flue Construction." Observe carefully the flue size requirements given with each standard model and plan arrangement.

Incinerator Specifications

(A) Work Included—The work included under this heading is the furnishing of all materials and labor for the complete Incineration System consisting of *(state number)* flue(s) and combustion chamber(s) *(give locations)* and hopper doors opening into the following rooms *(list or locate)*.

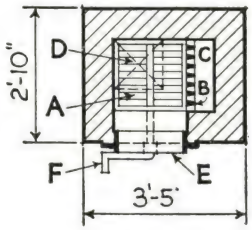
(B) General—The Incineration System shall be *Kernerator* as manufactured by the KERNER INCINERATOR COMPANY, Milwaukee, Wis.

(C) Materials and Workmanship—All materials and workmanship shall be the best of their respective kinds meeting fully the standard specification requirements of the KERNER INCINERATOR COMPANY.

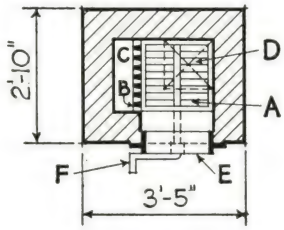
(D) Installation—Construction of flues, combustion chamber(s) and the installation of grates, combustion chamber doors and flue hopper doors shall be in strict accordance with the detailed working drawings furnished by the KERNER INCINERATOR COMPANY.

MODEL-R FOR RESIDENCES OF NOT MORE THAN 6 ROOMS

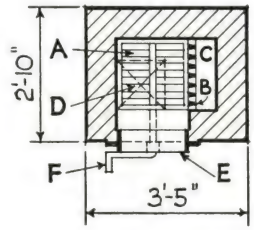
R-7



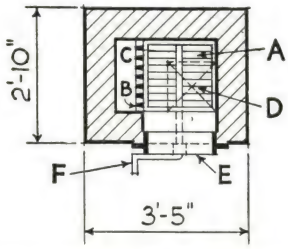
R-8



R-9

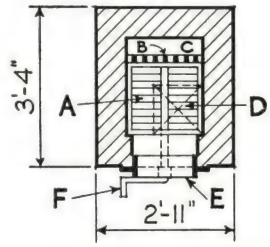


R-10



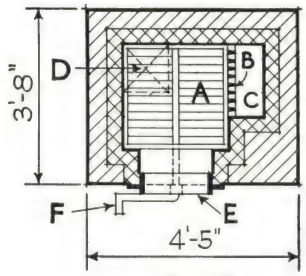
STANDARD HEIGHT OF INCINERATOR 5'-11" above basement floor.
FLUE SIZE must be not less than 12"x12". If an additional receiving door is desired on the second floor, flue must be at least 16"x16".
BRICK QUANTITIES
930 common brick required.

R-12

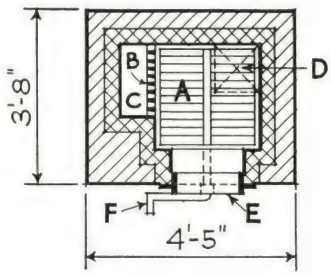


MODEL-C FOR RESIDENCES OF NOT MORE THAN 10 ROOMS

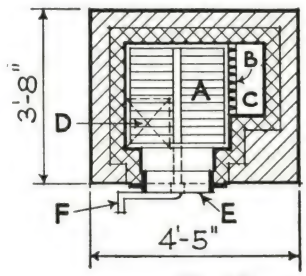
C-7



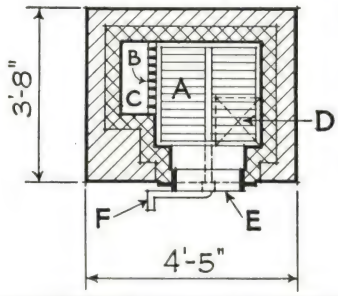
C-8



C-9

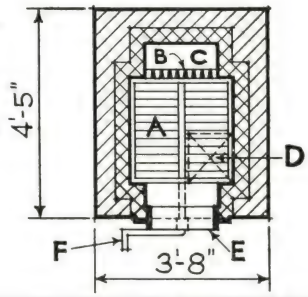


C-10



STANDARD HEIGHT OF INCINERATOR 6'-2" above basement floor.
FLUE SIZE must be not less than 12"x12". If an additional receiving door is desired on the second floor, flue must be at least 16"x16".
BRICK QUANTITIES
980 common brick required.
360 fire brick required.

C-12



A - Dump grate
B - Vertical grate
C - Bye-pass flue

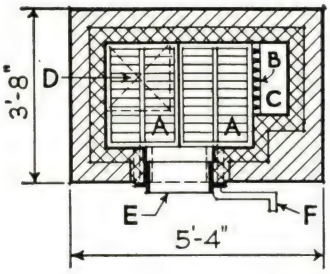
KERNERATOR STANDARD MODELS
Scale - ¼"=1'-0"

D - Chimney flue
E - Fire & Ash door
F - Dumping lever

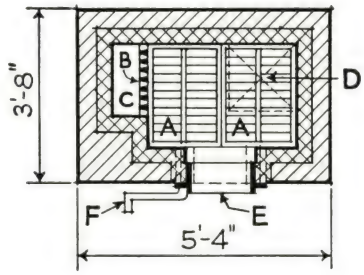
MODEL-F

FOR RESIDENCES OF NOT MORE THAN-12-ROOMS. UP TO-16-EFFICIENCY APARTMENTS. ALL OTHER APARTMENT BUILDINGS CONTAINING NOT OVER-32-ROOMS IN ALL.

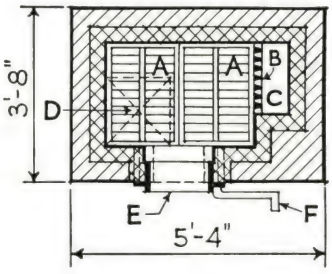
F-7



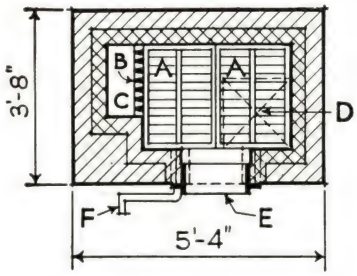
F-8



F-9

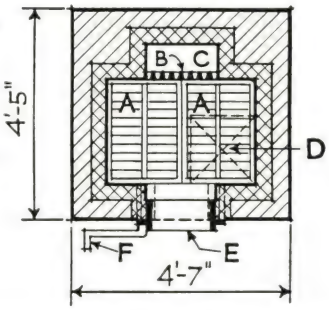


F-10



STANDARD HEIGHT OF INCINERATOR
6'-2" above basement floor.
FLUE SIZE must be not less than 16"x16", except in residences with only one receiving door on the first floor, where a 12"x12" flue may be used.
BRICK QUANTITIES
1065 common brick required.
425 fire brick required.

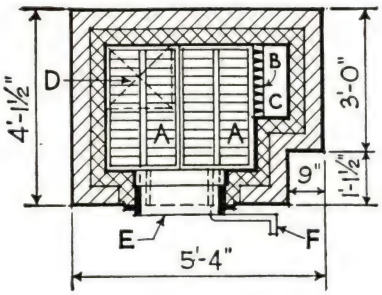
F-12



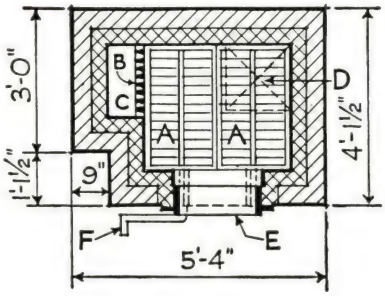
MODEL-G

UP TO-24-EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER-50-ROOMS IN ALL.

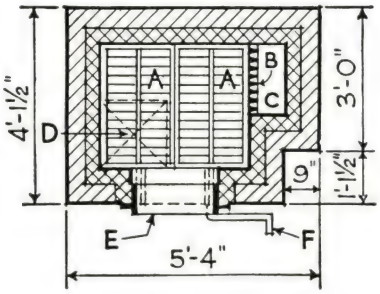
G-7Z



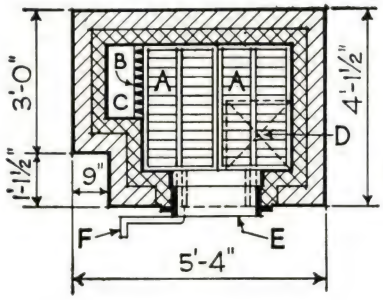
G-8Z



G-9Z

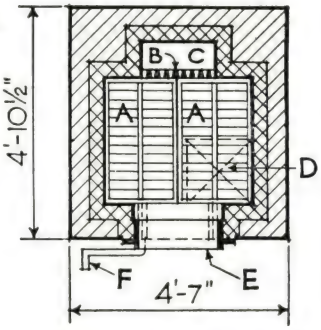


G-10Z



STANDARD HEIGHT OF INCINERATOR
6'-2" above basement floor.
FLUE SIZE must be not less than 16"x16". For buildings four or more stories in height, flue size must be not less than 20"x20".
BRICK QUANTITIES
1080 common brick required.
455 fire brick required.

G-12Z



A-Dump grate
B-Vertical grate
C-Bye-pass flue

KERNERATOR STANDARD MODELS

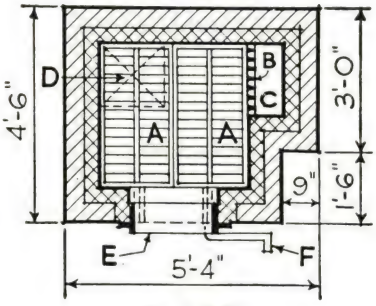
Scale - ¼"=1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

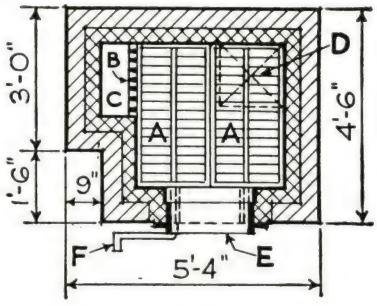
MODEL-O

UP TO-36-EFFICIENCY APARTMENTS. ALL OTHER APARTMENT BUILDINGS CONTAINING NOT OVER-90-ROOMS IN ALL. HOSPITALS UP TO-35-BEDS. SCHOOLS UP TO-500-PUPILS.

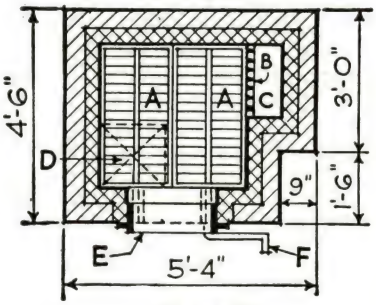
O-7Z



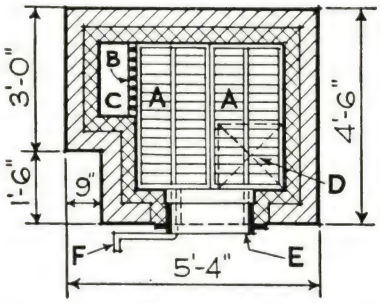
O-8Z



O-9Z

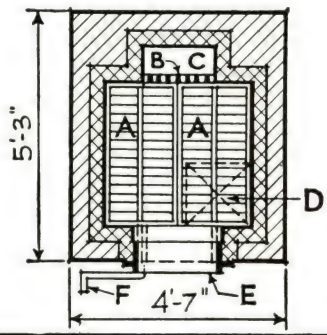


O-10Z



STANDARD HEIGHT OF INCINERATOR
6'-2" above basement floor.
FLUE SIZE must be not less than 16"x16". For buildings four or more stories in height, flue size must be not less than 20"x20".
BRICK QUANTITIES
1150 common brick required.
485 fire brick required.

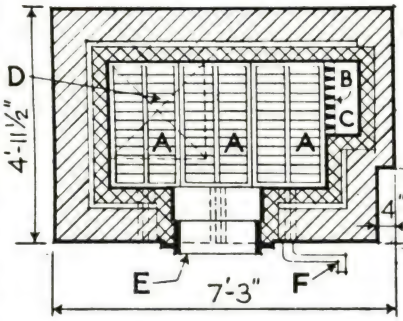
O-12Z



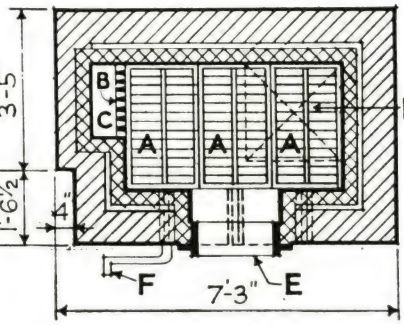
MODEL-L

UP TO-60-EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER 130 ROOMS IN ALL. HOSPITALS WITH FROM 35 TO 60 BEDS. SCHOOLS WITH FROM 500 TO 800 PUPILS.

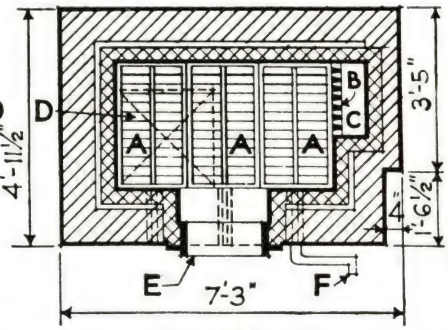
L-7AZ



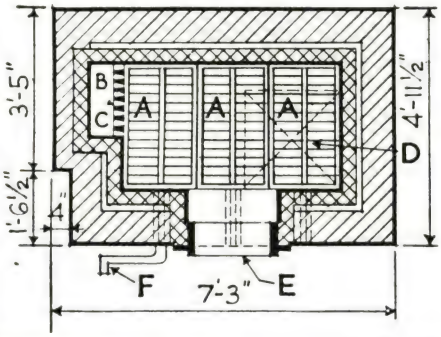
L-8AZ



L-9AZ

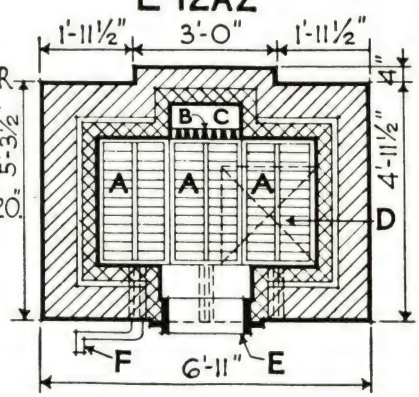


L-10AZ



STANDARD HEIGHT OF INCINERATOR
7'-7" above basement floor.
FLUE SIZE must be not less than 24"x24" except for buildings less than seven stories in height, where flue size must be not less than 20"x20".
BRICK QUANTITIES
2145 common brick required.
650 fire brick required

L-12AZ



A-Dump grate
B-Vertical grate
C-Bye-pass flue

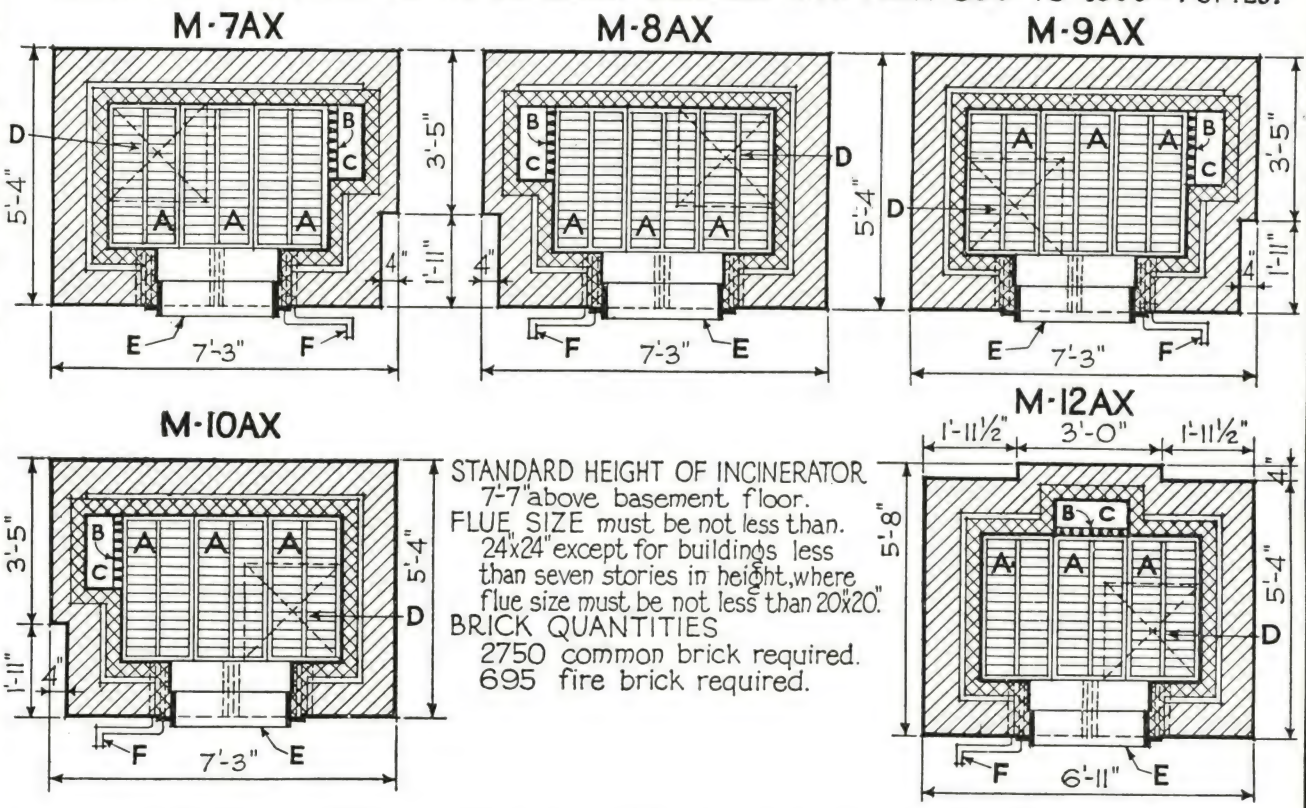
KERNERATOR STANDARD MODELS

Scale - ¼"=1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

MODEL-M

UP TO-80-EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER 170 ROOMS IN ALL. HOSPITALS WITH FROM-60-TO-80-BEDS. SCHOOLS WITH FROM-800-TO-1000-PUPILS.



STANDARD HEIGHT OF INCINERATOR
7'-7" above basement floor.
FLUE SIZE must be not less than. 24"x24" except for buildings less than seven stories in height, where flue size must be not less than 20"x20".
BRICK QUANTITIES
2750 common brick required.
695 fire brick required.

Construction Details

Footings for incinerators should extend 6 in. beyond the outer edges of the incinerator walls. Top of footings should be 1 in. below floor level.

In the Models "C," "F," "G" and "O," the combustion chamber is built with a 9-in. wall, the inside portion of which is built of firebrick from three courses below the grade level up to and including the inner course of the top.

Model "R" does not require firebrick lining—only a first-grade hard burnt common clay brick is needed.

In Models "L," "M" and "P" the combustion chamber is built with 14-in. walls made up of 4½ ins. of firebrick on the inside, 8 ins. of common brick on the outside, and with 1½-in. air space between. Method of bonding is shown in construction details. Firebrick shall be laid in fire clay, joints dipped and not buttered.

Outside face of the incinerator chamber walls must not be plastered.

Where an outside basement wall forms a side of the incinerator chamber, provision should be made for preventing any possible seepage into the incinerator.

Flue Construction

Note: Under no circumstances can oil and gas burning heating plants, or fireplace flues, be connected in any way to the Kernerator flue.

Flues measuring 16x16 ins. or less shall be enclosed by common brickwork 3¾ ins. thick and shall be lined with standard fire clay flue lining.

Flues larger than 16x16 ins. shall be enclosed by common brickwork 3¾ ins. thick with a lining of 4½ ins. of firebrick for a distance of not less than 30 ft. above the roof of the combustion chamber; beyond this point, flue enclosing walls shall consist of common brickwork not less than 8 ins. thick.

All flues must continue up straight from the combustion chambers to the topmost hopper door, without offsets or slopes of any kind, and shall be finished smooth on the inside.

The chimney top must extend high enough above any roof obstructions to avoid interference with draft. On flat roof buildings, the chimney should clear roof of the building by at least 10 ft. and should clear all obstructions on the roof within 10 ft. of the chimney, by at least 4 ft.

On residences, or other sloping roof construction, the top of the chimney should extend at least 2 ft. above the highest ridge of the roof.

Special Note

With plastered basements and weatherstripped basement windows and doors, consideration must be given to the admission of the 2000 cu. ft. of air required for each gallon of oil consumed by an oil burning heating plant.

Provision must be made for the introduction of this volume of air by means other than down through the Kernerator flue. The use of the Kernerator flue in this manner will cause a down-draft and interfere with the successful operation of the Kernerator.

This condition has become more frequent since the use of automatic heat has converted the oldtime basement into recreation rooms. The Kernerator Representative will be glad to work with you in solving this problem. You are also at liberty to write to the Milwaukee Engineering Office.

A-Dump grate
B-Vertical grate
C-Bye-pass flue

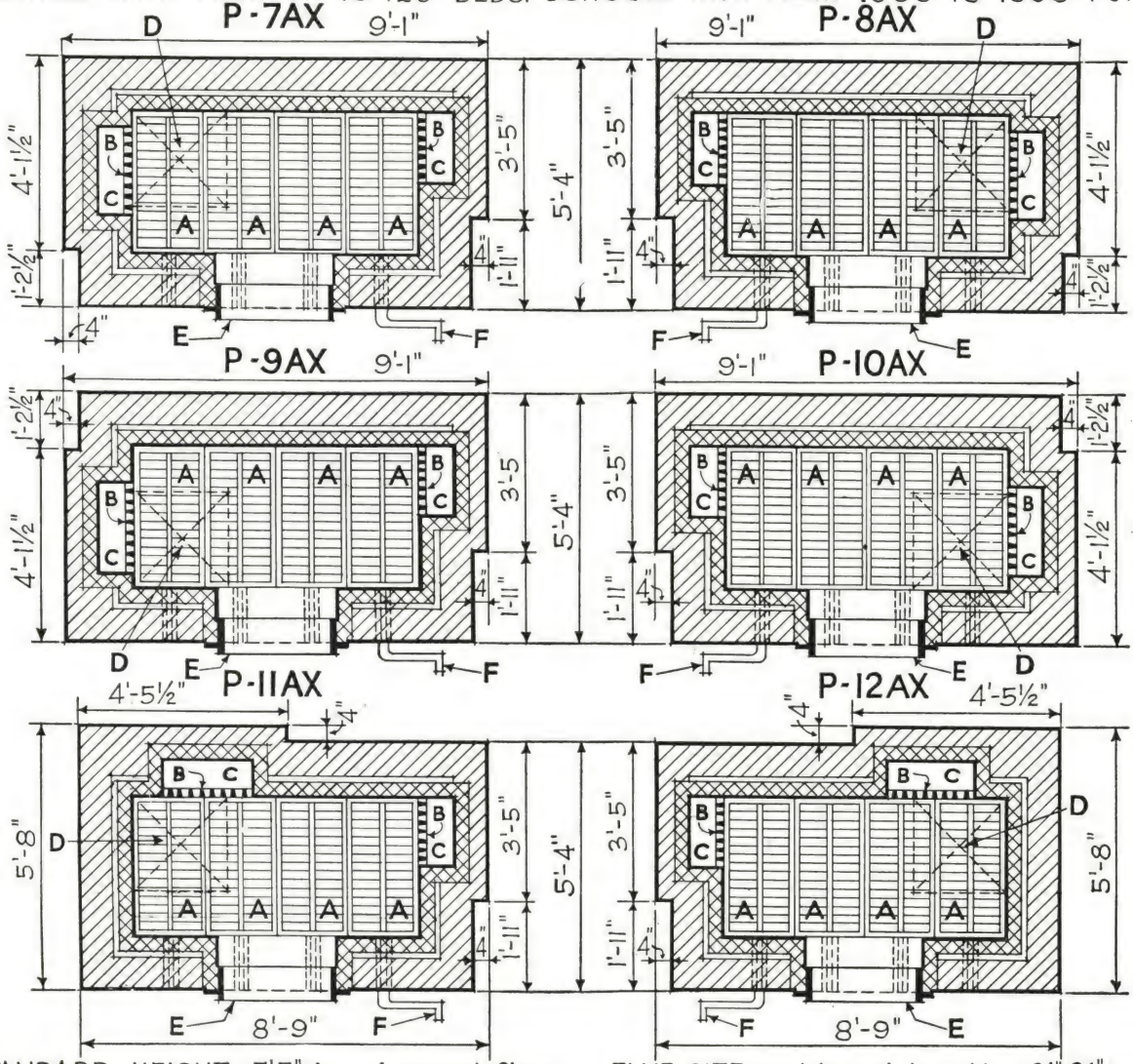
KERNERATOR STANDARD MODELS

Scale - ¼"=1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

MODEL-P

UP TO-150-EFFICIENCY APARTMENTS. OTHER APARTMENT BUILDINGS CONTAINING NOT OVER-300-ROOMS IN ALL. HOSPITALS WITH FROM-80-TO-125-BEDS. SCHOOLS WITH FROM-1000-TO-1500-PUPILS.



STANDARD HEIGHT - 7'-7" above basement floor.
BRICK QUANTITIES
3200 common brick - 880 fire brick required.

FLUE SIZE must be not less than 24"x24" except for buildings less than seven stories in height, where flue size must be not less than 20"x20."

General Information

The Kernerator becomes a permanent part of the building in which it is installed. It should therefore, be incorporated in the building plans to avoid the necessity of later changing the plans and figuring the brickwork for the incinerator as an extra.

Each of the layouts shown has a corresponding detailed installation drawing, which will be furnished together with specifications any time before installation.

The capacities listed for the various models on layouts, Kernerator pages 4 to 8, inclusive, are as near as can be figured in a general way. If in doubt about the selection of a suitable model for any particular job, or where requirements are not specifically covered in these layouts, consult the local Kernerator Representative or write to the Home Office.

The incinerators can be placed in any position, using the chimney flue as a pivot, but the relative positions of the fire and ash doors, and the by-pass flue must remain the same as shown. If desired, grates may be dumped from the side opposite that shown.

See text "Construction Details" and "Flue Construction," Kernerator page 7.

A-Dump grate
B-Vertical grate
C-Bye-pass flue

KERNERATOR STANDARD MODELS

Scale - ¼"=1'-0"

D-Chimney flue
E-Fire & Ash door
F-Dumping lever

KELLOGG MANN & CO., INC.

Manufacturers of K-M Incinerators

315 Grote Street, BUFFALO, N. Y.

BRANCH: 551 Fifth Avenue, NEW YORK, N. Y.

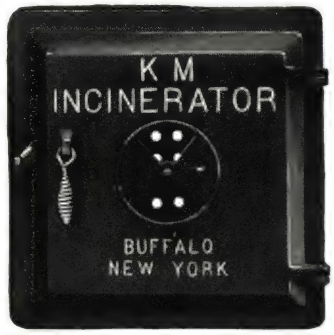
DISTRIBUTORS EVERYWHERE

Product

K-M CHIMNEY-FED INCINERATORS, of the built-in, fuelless type, for the disposal of garbage and refuse in residences, apartments, hotels, office buildings, etc.

General Description

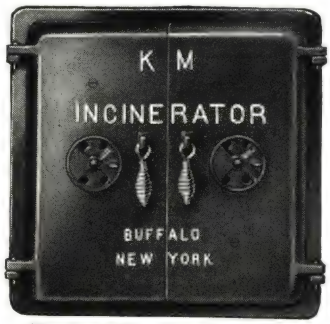
The K-M Incinerator consists of a brick combustion chamber of blast furnace design, with fire brick lining. It is located in the basement at the base of the chimney. Refuse is fed into it through a receiving door opening into the flue from the kitchen, pantry or other convenient points on the floors above. (An unlimited number of receiving doors may be used to feed one incinerator.)



Typical Single Leaf Clean Out or Fire Door (Closed)



Typical Single Leaf Clean Out or Fire Door (Open)



Typical Double Leaf Fire Door (Closed)

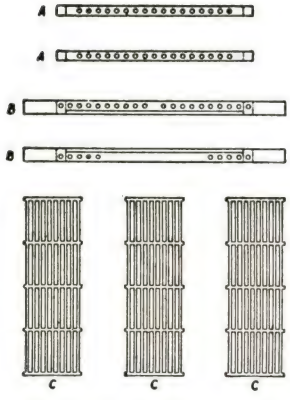


Typical Double Leaf Fire Door (Open)

Patented Grate Arrangement Speeds Drying and Promotes Strong Draft

The arrangement of the grates in the K-M Incinerator is similar to a suspended basket. The ends of two sustaining pieces B-B (see illustrations below) are embedded in the fire brick sidewalls. The ends of the two pieces A-A interlock into the two sustaining pieces forming a square support for the horizontal grate sections CCC, which form the bottom of the basket, as well as for the bottom of the vertical sides of the basket. Lugs on the bottom of the vertical grates fit snugly into holes in pieces AA and BB. A number of hooks, D, set into the fire brick sidewalls, hold the vertical grates in place at the top.

The vertical grates, or sides of the basket, entirely surround the combustion chamber with the exception of the space occupied by the clean out door. A 2-in. space between these vertical grates and the sidewalls keeps the refuse away from the brick, thus speeding the drying process and permitting the circulation of air and combustion on all sides as well as at the top of the mass.



Separate Sections of Stationary Horizontal Grates

There are either three or four sections CCC depending upon size of incinerator



Section A Fitted into Section B



Grate Sections CC Fit Snugly on Lip or Sustaining Pieces



Typical Side or Vertical Grate

Reasons for Unusually Efficient Operation

The satisfactory operation of an incinerator depends upon two things: the rapidity and the thoroughness with which the damp refuse dries out, and speedy, complete combustion. These in turn are dependent upon a satisfactory draft. There are three outstanding reasons why K-M Incinerators insure a maximum draft and hence guarantee unusually efficient waste disposal.

(1) The blast furnace design of the combustion chamber.

(2) The arrangement of the grates holding the refuse away from the sidewalls and forcing the draft from the ash pit up through the center of the mass to the sides and top.

(3) The two-point draft which comes both through the ash pit and clean out doors.

Simple in Design and Foolproof in Operation

K-M Incinerators are simple in design without bearing blocks, nuts, bolts, shakers, handles or moving parts. There is nothing which can possibly get out of order or cause annoyance in operation. Since the grates are of the non-dumping, stationary type, they never give trouble by clogging or warping. The ash pit is always clear, hence providing an unimpeded draft. Ashes and unburnable materials are easily raked out through the fire or clean out door.

K-M Parts Are Few and Simple

The grates are made in simple sections which fit snugly together without the use of nuts, bolts or rivets. They are of the finest quality gray iron of sufficient weight to eliminate the danger of breakage.

Clean out and ash pit doors are of smokeproof construction with interlocking lips and baffle plates. The receiving doors are either of gray iron or aluminum as may be desired. A sturdily constructed spark screen is provided to fit over the top of the flue to prevent sparks, unburned or burning papers, etc., from escaping and becoming a nuisance to the community.

Economical to Install

The cost of K-M Incinerator parts is extremely reasonable. Furthermore, the brickwork is simple and easily erected. The design is such that fewer bricks are required than with most other incinerators. For these reasons, the initial installation cost is less than you have probably been accustomed to figure for incineration.

Seven Models

The seven sizes in which K-M Incinerators are made care for every requirement from the smallest of private residences to the largest of apartment houses.

Guarantee

If the K-M Incinerator, installed according to factory plans and specifications, does not give complete satisfaction, all payments, including freight both ways, will be refunded on the return of the incinerator parts.

Service to Architects

The installation of an incinerator is a specialized subject. In order to assist the architect in selecting the correct type of incinerator and installing it to insure maximum efficiency and satisfaction, the Kellogg Mann engineering department will gladly study preliminary sketches and plans and recommend the correct flue size and type of incinerator and prepare specifications to insure proper installation. Supervision of the work itself is provided for through the K-M field staff and distributing organizations. There is, of course, no charge for this service.



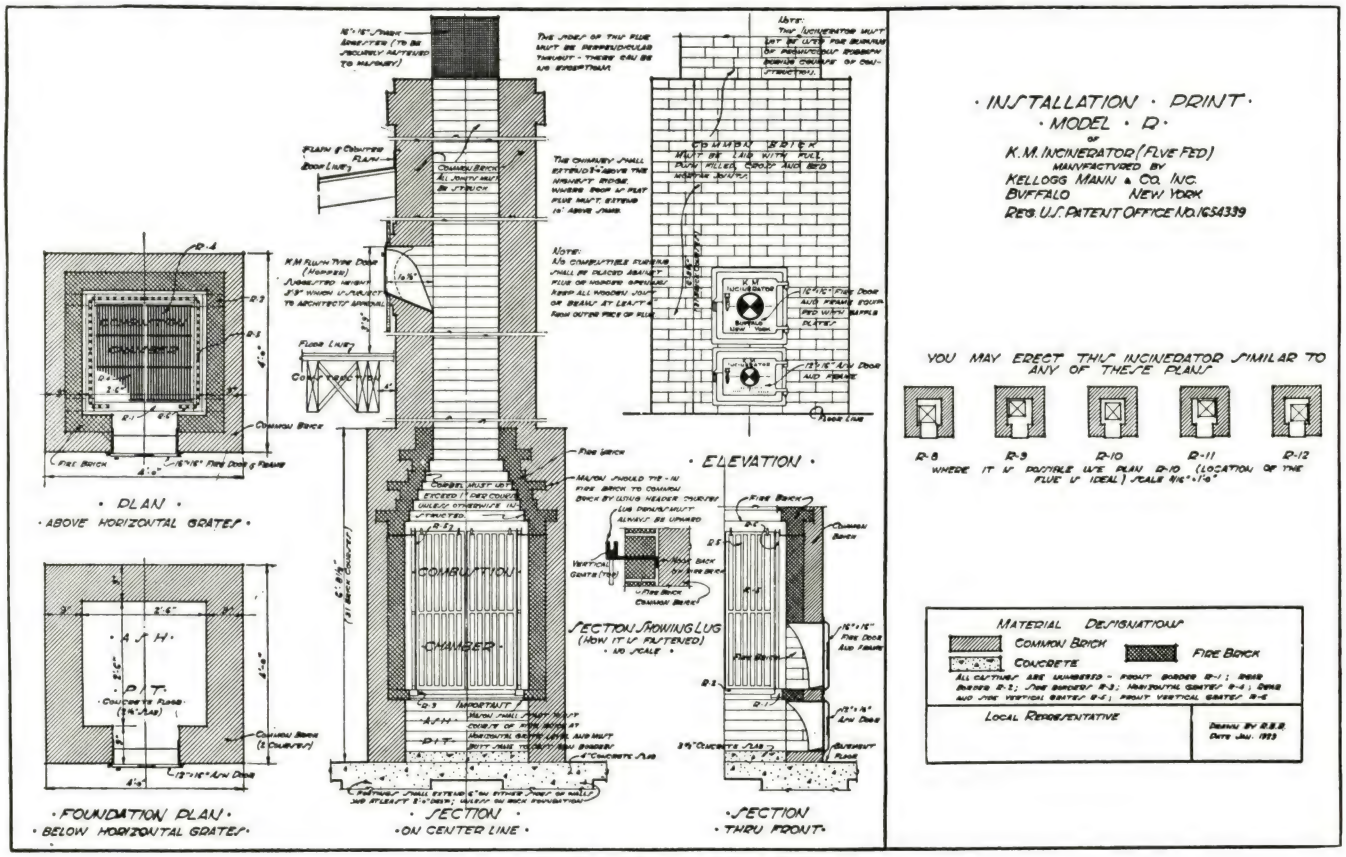
Typical Cast Iron Receiving Door



Typical Aluminum Receiving Door (Ship Design)

Typical Specifications (to Be Included Under Masonry)

The contractor shall furnish and install a K-M Incinerator as manufactured by KELLOGG MANN & CO., INC., Buffalo, N. Y. It shall be installed in the basement with receiving door(s) located in the flue at point(s) shown on the plans in accordance with the instructions and detailed drawings furnished by the manufacturer. Spark screen as furnished by the manufacturer shall be installed at the top of the flue.



Details of Typical Installation

The above sketch shows the details of a typical K-M Incinerator installation. Any of the seven K-M models may be arranged in respect to the flue according to any of the five plans shown at the right.

Full sized blue prints of any K-M model may be had on request either from the factory or your K-M Distributor

KAHN PRODUCTS CO.

Manufacturers of "Kahn" Incinerators

2216-2218 West Columbia Avenue
PHILADELPHIA, PA.

"Kahn" Incinerator

Made in seven standard sizes for installation in residences, apartment houses, schools, hospitals and institutions. The entire outfit consists essentially of a combustion chamber built in the basement, the stack or flue with receiving doors at each floor landing, and the grates, lighting and ash pit doors.

The refuse is wrapped in paper and dropped through the receiving doors to the combustion chamber. When a sufficient amount has accumulated in the combustion chamber (generally about once a day) it is ignited through the lighting door. There is no fuel required for maintenance of the "Kahn"; the garbage and refuse bundled in waste paper are sufficient to consume all materials and odors.

The "Kahn" Is Fireproof—The incinerator itself is so designed that it will create a powerful draft, and yet it is such that this draft can not in any manner operate as a fire hazard. The receiving doors, installed at each floor, are airtight and close automatically. They are lined with galvanized iron hoppers, especially designed so as to prevent smoke, flare or odors from emanating from the flue while refuse is being deposited.

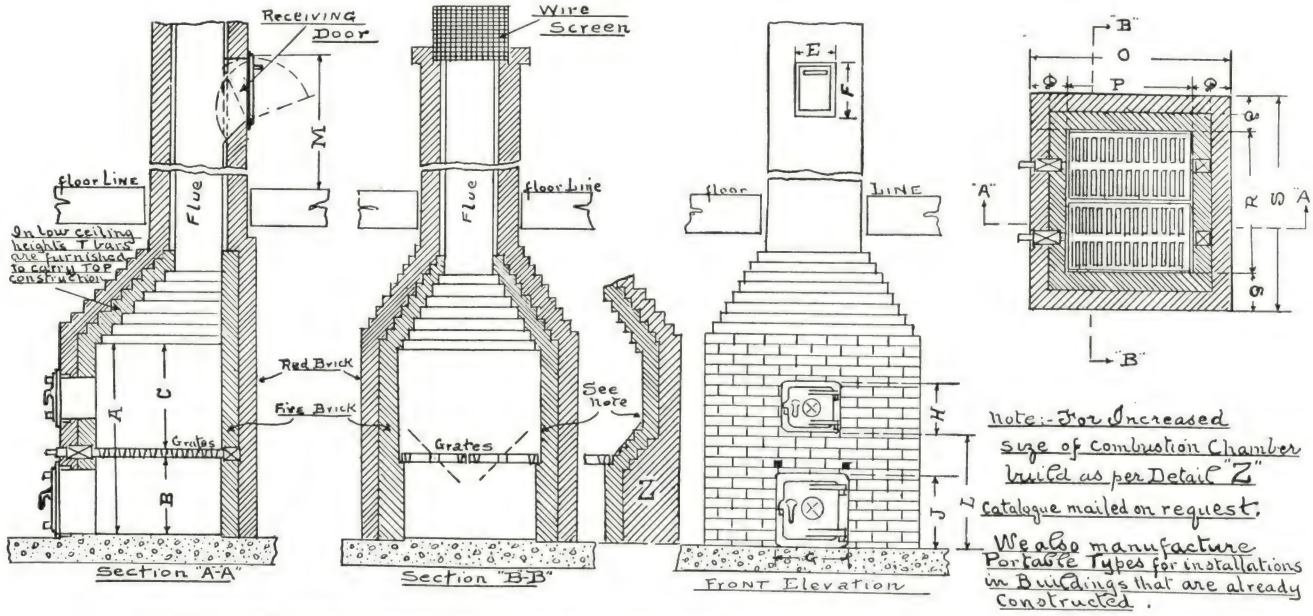
The "Kahn" Handles All Refuse—Not only garbage but broken crockery, bottles and even tin cans may be deposited in the incinerator. The ash deposits underneath can be cleaned out at regular intervals through the cleanout door.

An Absolute Guarantee—"Kahn" Incinerators are guaranteed when installed in accordance with our detail drawings and specifications. Should our Incinerator fail in any way, we will either rectify the cause of the trouble or we will refund all payments and pay all transportation charges when parts are returned to us.

Write for testimonial letters from satisfied users. They will be mailed on request.

Architects' Specifications

The Incinerator shall be the Kahn, Type .... as made by KAHN PRODUCTS CO., 2216-2218 West Columbia Avenue, Philadelphia, Pa., and shall be installed in accordance with the detail drawings as furnished by the manufacturers. All material shall be first class and the Incinerator shall be of such size to take care of the number of apartments as shown on plans.



DIMENSIONS AND SPECIFICATIONS OF THE SEVEN STANDARD SIZES OF "KAHN" INCINERATORS

Type	Suitable for	* Size flue, in.	Number of fire bricks required	Sacks of fire clay required	Equipment furnished for "Kahn"									Dimensions in in. as shown on diagram above													
					Receiving doors	Number grates	Lighting doors	Cleanout doors	Shakers	Front bearings	Rear bearings	Grate shanks	Wire screens, in.	A	B	C	E	F	G	H	J	L	M	O	P	Q	R	S
A	Residences	8x12	200	1	1	1	1	1	1	1	1	1	0	48	20	27	13	13½	21	17	21	30	45	42½	24½	9	18½	36½
B	Residences and duplex	12x12	250	1	2	1	1	1	1	1	1	1	14x14	50	20	29	13	13½	21	17	21	32	45	50	32	9	18½	35½
C	Four-flat type	16x16	450	3	2	1	1	1	1	1	1	1	16x16	50	20	29	13	13½	21	17	21	32	45	50	32	9	36	54
D	6 to 20 apartments	18x18	450	3	2	2	1	1	1	2	2	2	24x24	50	20	29	13	13½	21	17	21	32	45	50	32	9	36	54
E	24 to 60 apartments	22x22	650	4	3	2	1	1	1	2	2	2	24x24	50	20	29	13	13½	21	17	21	32	45	50	32	9	37	55
F	Schools, etc., up to 80 apartments	24x24	1050	10	3	3	1	1	2	3	3	3	24x24	50	20	29	13	13½	21	17	21	32	45	50	32	9	54	72
G	80 to 100 apartments	24x24	3000	30	3	4	2	2	2	4	4	4	24x24	50	20	29	13	13½	21	30¾	21	32	45	50	32	9	72	90
																				30¾						96	114

Note: Flues can be erected to the right or left, in the center or front, to suit any layout.
A double leaf firing door, size 24x30 in., furnished with types "F" and "G."

REX INCINERATOR CO., INC.

Baker Avenue and Belt Railway, EVANSVILLE, IND.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

REXCO INCINERATORS

Rexco Incinerators are of the brick built-in chimney-fed type, installed at the base of the chimney or flue. For residences, apartments and institutions, also for existing structures, parks, etc.

Rexco Incinerators feature the basket and wing type grate, the modern construction that allows complete air circulation to pass *through* and on all *four* sides of the waste. This insures quick drying and complete combustion, therefore requires less floor space.

All parts are of high grade cast iron; no steel parts to warp from heat.

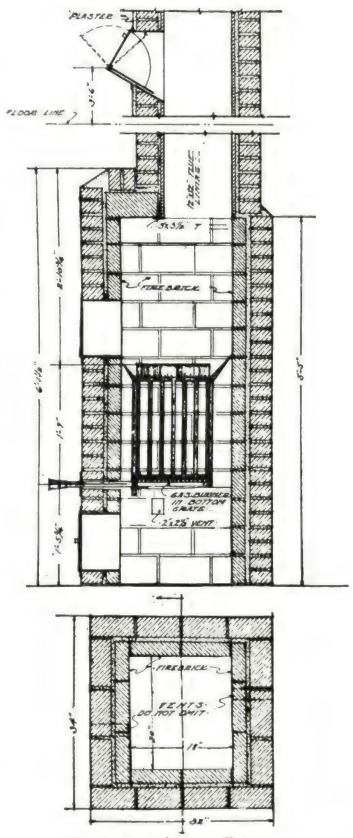
Furnace and hopper door jambs are cast with ribs so jambs can be walled in rigidly.

Hopper doors, furnished either in polished aluminum or any color enamel, are so constructed that the door cannot be removed from the hopper door frame after installation.

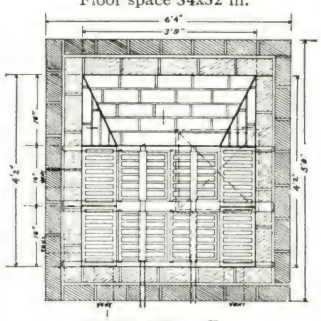
Can be arranged for gas if desired, at a very small additional cost.

Guarantee

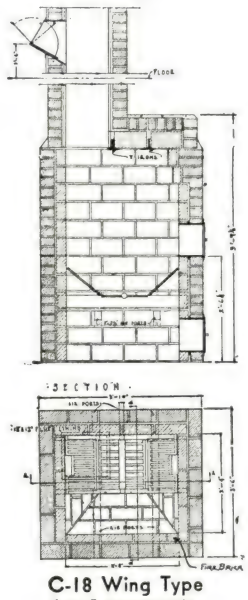
Rexco Incinerators are fully guaranteed to do the work and give entire satisfaction when properly installed according to blue prints for installation furnished with each incinerator. Easy to install, as offset of basket and grate construction acts as waste distributor, and avoids clogging the grates.



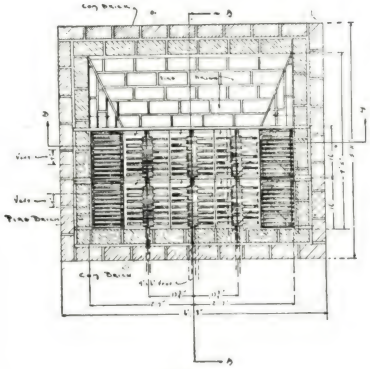
B-14 Residence Type
Floor space 34x32 in.



C-430 Wing Type
30 to 50 apartments
Floor space 66x69 in.



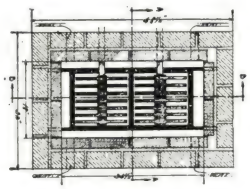
C-18 Wing Type
4 to 8 apartments
Floor space 42x46 in.



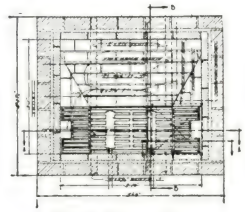
C-638
Large apartments and institutions
Floor space 80x72 in.



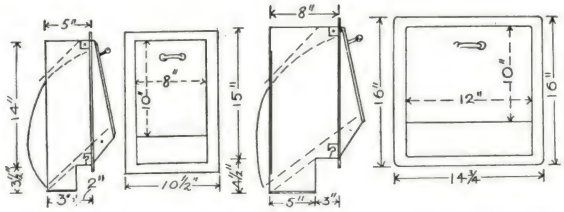
Basket Grate Assembly



B-215 Basket Type
10 to 20 apartments
Floor space 32x50 in.



C-220 Wing Type
20 to 30 apartments
Floor space 60x52 in.



No. 1 **No. 2**

Rex Improved Hopper Doors
Polished aluminum, porcelain enamel, 2 colors. Nickel handles on door. Chute heavy galvanized metal. Flue jamb high grade cast iron with ribs.

B-14, B-215 and B-325 have basket type grate. Notice offset and full dumping grates and heavy construction.

C-18, C-220, C-430 and C-638 are wing type with sloping grates, showing full dump grates with wing side grates.

Note: Portholes or vents to insure circulation.

MORSE BOULGER DESTRUCTOR COMPANY, INC.

213 East 42nd Street, NEW YORK, N. Y.

AGENCIES IN ALL PRINCIPAL CITIES

LOCAL REPRESENTATIVE

HEAVY-DUTY INCINERATION

MORSE BOULGER DESTRUCTORS

The Product

HEAVY DUTY DESTRUCTORS for the Disposal of Wastes by Incineration.

Morse Boulger Destructors are of the brickset, high temperature type. Standard types and sizes are built for the incineration of garbage and rubbish, and many special Destructors have been designed and built for reluctantly combustible or highly inflammable wastes.

Morse Boulger Destructors are built by a permanent crew of skilled workmen engaged exclusively in this work. All materials used have been proven by years of service to be particularly adapted to incineration work.

The Company

The MORSE BOULGER DESTRUCTOR COMPANY, INC., has been engaged exclusively in the design and erection of incinerating plants for over thirty-six years.

Installations have been made in 33 States and 14 foreign countries. Plants in operation vary in capacity from 50 lbs. per hour to 360 tons per day.

Every Morse Boulger destructor built is guaranteed against defects in material and workmanship and carries a permanent guarantee as to capacity and correctness of design.

All installations are inspected periodically to insure most satisfactory performance.

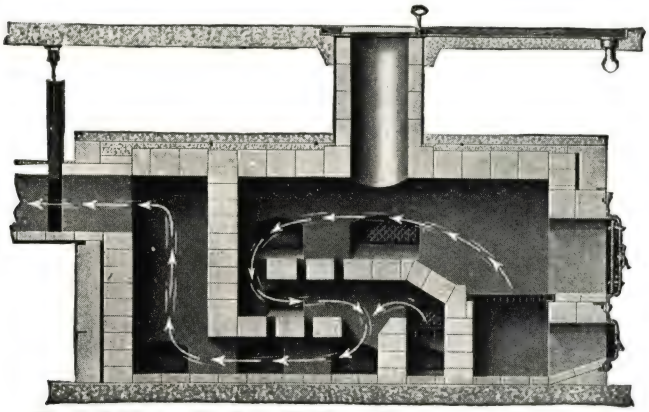
Garbage Destructors—"G" Type

Designed for the incineration of *garbage*. The garbage is burned on fire clay grate-arches; a three-way passage of the hot gases, a hot ash pit, and an adequate combustion and settling chamber are provided. The fuel grates are of cast iron and are separate from the garbage grates, assuring high temperatures and efficient use of commercial fuel. The design is long and narrow, which results in short arch spans and makes stoking and ash removal easy.

The three-way passage, with its "over and under" action, insures effective utilization of the heat for rapid drying and burning of the garbage. A long flame travel is secured and combustible gases are thoroughly mixed with air while in the heated zone. This feature enables Morse Boulger Destructors to incinerate wet garbage with no offensive odors or smoke, and with a minimum fuel consumption. Coal, oil or gas can be used. (Specify kind of fuel, so that details of design are adapted for fuel selected.) Combustible rubbish serves as fuel and frequently is all the fuel that is necessary.

Standard sizes 160 lb. per hour and up, as given in the table on the following page.

Uses—Especially designed for use in hotels, hospitals, clubs, institutions, etc.



Typical Morse Boulger Garbage Destructor—Type "G"

Rubbish Destructors—"R" Type

Designed for the incineration of *combustible rubbish*.

All the material is burned on cast iron grates; smoke and combustible gases pass through a checker wall into a large combustion chamber where they mix with air and burn, and where dust and light ashes are settled.

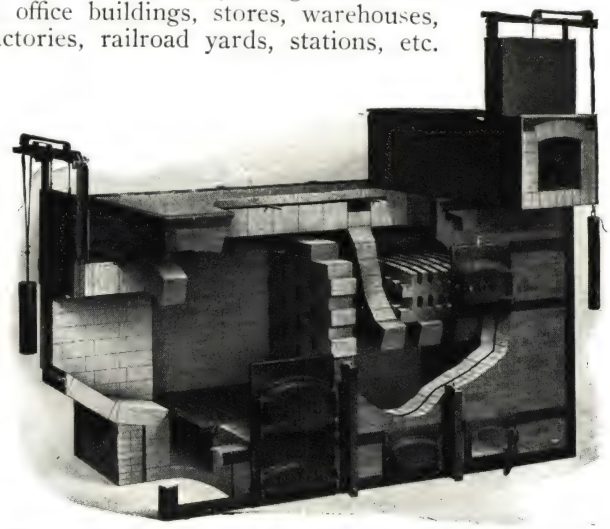
Checker work in the combustion chamber prevents funneling of gases into the flue before combustion has been completed.

The Destructor is especially designed for easy charging of materials, and the most rugged construction is used for durability.

20% of the material being burned may be ordinary garbage. No commercial fuel is required. Operation is without objectionable smoke, and no papers or cinders are discharged from the chimney.

Standard sizes 205 lb. per hour and up, as given in the table on the following page.

Uses—Especially designed for use in office buildings, stores, warehouses, factories, railroad yards, stations, etc.



Typical Morse Boulger Rubbish Destructor—Type "R"

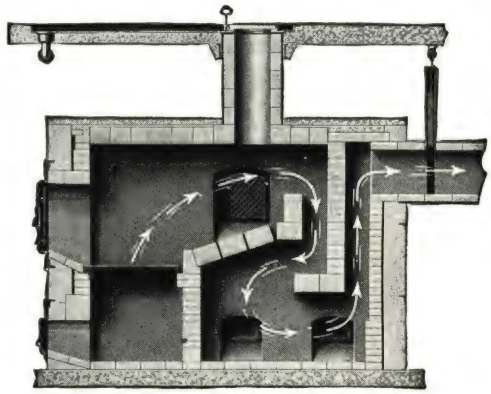
Rubbish-and-Garbage Destructors—"A" Type

Designed for work where both *garbage and combustible rubbish* must be handled in about equal quantities; also for rubbish alone. Garbage is burned on fire clay grate-arches, as in the "G" type. Rubbish is burned on cast iron grates. A large combustion and settling chamber is provided underneath the garbage grate, insuring large space for complete burning of gases and for settling of light ashes and dust. Placing this necessary chamber under garbage grate saves space and conserves heat. Garbage and rubbish are burned with no objectionable smoke or odor and with no discharge of papers or cinders from the chimney.

Under ordinary conditions, this unit operates without any commercial fuel. Garbage alone can be incinerated when necessary (up to 60% of rated capacity) using fuel in place of rubbish.

Standard sizes 125 to 600 lb. per hour, as given in table.

Uses—Especially designed for use in apartment houses, apartment hotels, schools, markets, bakeries, etc.



Typical Morse Boulger Rubbish and Garbage Destructor—Type "A"

Crematories

The Morse Boulger Crematory is of the brickset, high temperature, direct fire type and consists of two main chambers —an upper chamber for primary combustion and a lower chamber for the combustion of the gases. Cremation is rapid, economical, and odorless. Oil or gas may be used for fuel.

The standard crematory for the incineration of one body is 12 ft. 7 in. long, 6 ft. 4 in. wide, 9 ft. 3 in. high. Other units are built for morgues, medical schools, laboratories, etc.

Special Destructors

Many special destructors have been designed and built for unusual applications and waste materials. Examples of these are incinerators for sewage screenings, laboratory equipment for medical schools, etc., fume burners for ink plants and paint plants, bond burners and currency burners for destroying cancelled documents under lock and key, and destructors for burning the insulation off copper wire scrap without excessive scaling of the wire and with complete combustion of odors and all smoke.

Morse Boulger Engineers are particularly fitted, by breadth of experience, to deal with special problems.

Capacity Required

Incinerators should be rated in pounds per hour of a specified class of material. Volume means very little, because the unit weight varies between wide limits. Garbage cans vary in size—a can 18x24 in. being nearly twice as large as one 14x22 in.—so that capacity should not be specified in number of garbage cans. If the amount of waste material is not definitely known (as on a new project) a close estimate, based on experience with similar projects, can be made by Morse Boulger Engineers, when furnished with information regarding the size and character of the job under consideration.

Service to Architects and Engineers

Convenient and practical arrangement is just as essential as good equipment. A great number of incineration systems have been laid out and built by Morse Boulger Destructor Engineers, who can often save you time, space, and money if consulted when plans are in sketch state. A standard A.I.A. File with complete information will be sent on request.

Suggested Architect's Specifications

The ..... contractor shall furnish one Model No. ..... Type ..... Morse Boulger Destructor in accordance with plans and specifications in the architect's office. The Destructor and related equipment shall be erected in place by the MORSE BOULGER DESTRUCTOR COMPANY, INC.

DIMENSIONS AND CAPACITIES OF STANDARD MORSE BOULGER DESTRUCTORS

Type "G" for Garbage					Type "R" for Combustible Rubbish					Type "A" for Rubbish and Garbage				
Model No.	Capacity, lb. per hr.	Dimensions, ft. in.			Model No.	Capacity, lb. per hr.	Dimensions, ft. in.			Model No.	Capacity, lb. per hr.	Dimensions, ft. in.		
		Length	Width	Height			Length	Width	Height			Length	Width	Height
1½-G	160	9—0	4—7	5—7	2-R	205	7—0	5—3	6—8	1¼-A	125	7—4	4—0	5—3
2 -G	215	10—9	4—7	5—7	3-R	288	8—0	5—3	7—6	2 -A	200	8—6	4—0	5—8
3 -G	340	12—9	6—0	6—7	4-R	400	11—0	5—6	7—6	3 -A	300	9—4	4—7	6—1
4 -G	430	14—0	6—0	6—7	5-R	480	12—3	6—0	8—0	4 -A	450	10—2	5—2	7—4
5 -G	520	15—6	6—0	7—0	6-R	630	13—0	6—6	8—0	6 -A	600	12—5	5—6	7—9
6½-G	660	17—0	6—0	7—3	7-R	700	14—0	6—6	8—0					
8 -G	815	18—0	6—6	7—7	8-R	800	14—0	7—0	8—0					

Note: Working space at least equal to width of destructor is necessary on one side and is desirable on one end.
For clearances, sizes of flues and breechings, permissible length of charging chutes, etc., send for detailed information on any particular project.

Representative Installations

Hospitals

Columbus, Great Falls, Mont.
St. Joseph's, Paterson, N. J.
St. Joseph's, Milwaukee, Wis.
Mercy, Pittsburgh, Pa.
Doctors', New York, N. Y.
St. Mary's, Knoxville, Tenn.
Olive View Sanitarium, Los Angeles, Cal.
Harper, Detroit, Mich.
Children's, Buffalo, N. Y.
Johns-Hopkins (3), Baltimore, Md.
Bellevue (3), New York, N. Y.
Columbia-Presbyterian, New York, N. Y.
St. Luke's, Cleveland, Ohio
Fifth Avenue, New York, N. Y.
Sacred Heart Sanitarium, Milwaukee, Wis.
Good Samaritan, Cincinnati, Ohio
Good Samaritan, Philadelphia, Pa.
Stark County Tuberculosis, Canton, Ohio
Sisters of Charity, Mt. St. Joseph's, Mo.
Syracuse City, Syracuse, N. Y.
Welland, Welland, Ont.

Medical and Other Schools

University of Pennsylvania (2), Philadelphia, Pa.
Rockefeller Medical Center, New York, N. Y.
Iowa State University, Ames, Iowa
University of Rochester, Rochester, N. Y.
Johns-Hopkins, Baltimore, Md.
Cornell Medical College, New York, N. Y.
Bellevue Medical College, New York, N. Y.
Jefferson Medical College, Philadelphia, Pa.
Meharry Medical College (2), Nashville, Tenn.
State Teachers College, Hattiesburg, Miss.

Clubs

American Women's Assn., New York, N. Y.
Brooklyn Elks, Brooklyn, N. Y.
Harvard, Boston, Mass.
Yale, New York, N. Y.
Suburban, Baltimore, Md.
Kirtland Country, Cleveland, Ohio
Chevy Chase Country, Washington, D. C.
New York Athletic, New York, N. Y.

Hotels and Apartments

John Marshall, Richmond, Va.
New Yorker, New York, N. Y.
Governor Clinton, New York, N. Y.
Lord Baltimore, Baltimore, Md.
St. George, Brooklyn, N. Y.
Alcazar, Cleveland, Ohio
Stevens, Chicago, Ill.
Palmer House (2), Chicago, Ill.
Schroeder, Milwaukee, Wis.
Bismarck, Chicago, Ill.
Taft, New Haven, Conn.
William Penn, Pittsburgh, Pa.
Copley-Plaza, Boston, Mass.
Plaza, New York, N. Y.
Savoy-Plaza, New York, N. Y.
Lee-Plaza, Detroit, Mich.
Biltmore, New York, N. Y.
Miami-Biltmore, Coral Gables, Fla.
DuPont-Biltmore, Wilmington, Del.
Belleview-Biltmore, Bellaire, Fla.
Astor (2), New York, N. Y.
Lincoln, New York, N. Y.
Pittsburgher, Pittsburgh, Pa.

Banks and Office Buildings

Chase National Bank, New York, N. Y.
Union Trust Co., Detroit, Mich.
City National Bank, Bridgeport, Conn.
Bank of N. Y. & Trust Co., New York, N. Y.
National City Bank, Haiti
Fidelity-Philadelphia Trust Co., Philadelphia, Pa.
Chrysler Bldg., New York, N. Y.
Union Gas & Electric Bldg., Cincinnati, Ohio
Consolidated Gas Co., New York, N. Y.
Penn Power & Light Bldg., Allentown, Pa.
Guaranty Trust Co., New York, N. Y.

Miscellaneous

Detroit Union Produce Terminal, Detroit
Chicago Union Station, Chicago, Ill.
Washington Terminal, Washington, D. C.
Pennsylvania Station, New York, N. Y.
Pennsylvania R.R. Warehouse, Philadelphia, Pa.
Pennsylvania R.R. Yard, Chicago, Ill.
N. Y. C. R. R., 31st St. Yard, New York, N. Y.
Boston & Maine R.R., East Cambridge, Mass.
Boston & Maine R.R., Charlestown, Mass.
Goodyear Tire & Rubber Co. (2), Akron, Ohio
R. H. Macy & Co. (4), New York, N. Y.
L. Bamberger & Co., Newark, N. J.
Hecht Bros., Dept. Store, Baltimore, Md.
Sears, Roebuck & Co., Atlanta, Ga. and Los Angeles, Cal.
Great Atlantic & Pacific Tea Co. (13)
Dugan Bros., Newark, N. J., Brooklyn, N. Y., and Queens Village, L. I., N. Y.
Breyer Ice Cream Co., Philadelphia, Pa., Newark, N. J., and Long Island City, N. Y.

NATIONAL INCINERATOR COMPANY

Manufacturers and Distributers of Incinerators for Institutions, Apartments and Residences

332 Grace Street (Station No. 11), PITTSBURGH, PA.

TYPES "A" AND "C" HEAVY DUTY INCINERATORS

Type "A" Garbage and Rubbish Incinerator

Designed for use in small communities, hospitals, hotels, schools, etc. Consult table for various sizes and capacities.

Description—Type "A" consists of a combustion chamber for reception of waste matter. A fuel chamber



is provided for coal or wood as fuel which insures complete disposal of a soggy mass. These chambers are separated by a firebrick wall. An arch above grate level of the two compartments permits the flame to travel over entire combustion area. The arch is protected from clogging by an angle grate. A firebrick channel is provided above the angle grate for free passage of smoke from fuel chamber. The indirect draft system located in rear of incinerator is separated from combustion chamber by a firebrick baffle wall to check flame and sparks, and which retains the heat, cutting operating expense to a minimum. Flue is carried up as part of incinerator, connecting to indirect draft chamber at base of same, or connected to old stack by breeching or corbeling.

Type "A" Garbage and Rubbish Incinerator

Type No.	Grate area, sq. ft.	Capacity, lbs. per hr.	Wall thickness, in.	Feed door opening, in.	Width, ft. in.	Length, ft. in.	Height, ft. in.	Flue size, in.
A-1	4	120	9	18x18	5 3	5 1	6 9	12x12
A-2	9	270	13	18x18	7 3	7 3	7 3	16x16
A-3	16	480	18	27x27	9 7	9 3	7 9	18x18
A-4	24	600	18	27x27	9 7	11 7	7 9	24x24
A-5	48	1200	18	27x27	11 7	13 7	8 9	36x36
A-6	64	1600	22	27x27	14 9	14 9	8 9	36x36

Type "C" Garbage Incineration Plant

Designed for use in institutions, hotels, restaurants, and produce markets.

Description—Fuel and combustion chambers are constructed similar to Type "A." This type having a direct draft from fuel chamber generates an intense heat for the rapid drying and disposal of the wet soggy mass.

Construction of Types "A" and "C"

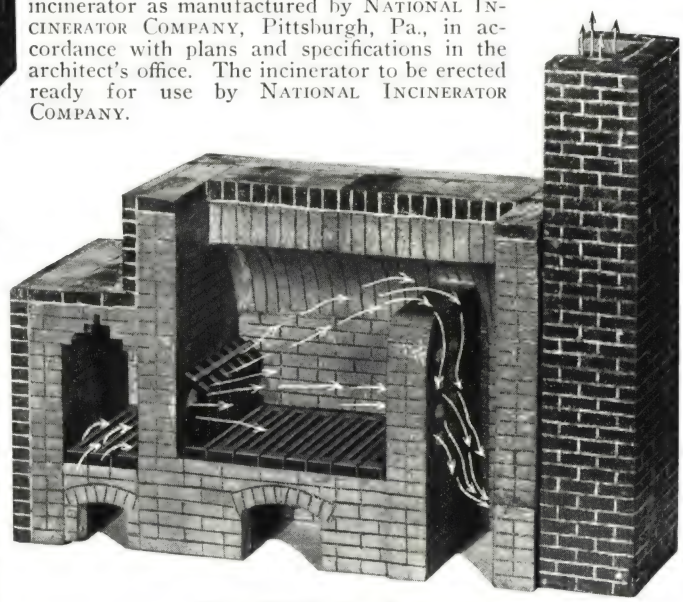
Types "A" and "C" are of heavy brick construction, firebrick-lined of a sufficient thickness to withstand heat. The dome is of 9-in. firebrick key-arched over combustion and draft chamber. The entire dome of incinerator is free of any iron support.

Steel—All corners are supported by wide steel angles, held into position over entire outer surface by horizontal steel plates securely bolted to same. Vertical channels held into position by steel rods are provided for the sides to eliminate any possible strain.

Castings—Heavy gray iron castings of best quality and guaranteed. Door frames are heavy, arched, deep set and securely bolted into wall. Heavy double doors are supported by heavy hinges. Grates are extra heavy double bar type and guaranteed.

Suggested Architect's Specifications for Types "A" and "C"

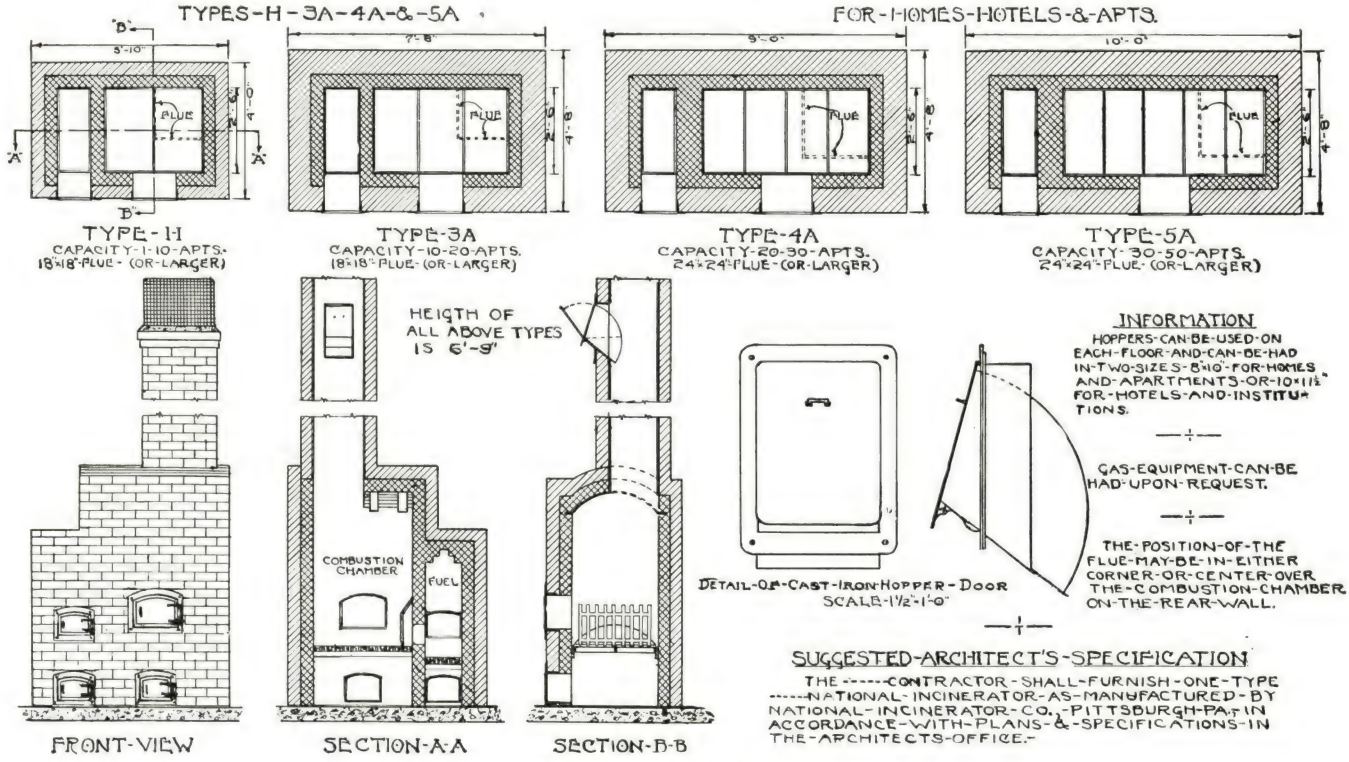
The .... contractor shall furnish one type ["A"] ["C"] incinerator as manufactured by NATIONAL INCINERATOR COMPANY, Pittsburgh, Pa., in accordance with plans and specifications in the architect's office. The incinerator to be erected ready for use by NATIONAL INCINERATOR COMPANY.



Type "C" Garbage Incinerators

Type No.	Grate area, sq. ft.	Capacity, lbs. per hr.	Wall thickness, in.	Feed door opening, in.	Width, ft. in.	Length, ft. in.	Height, ft. in.	Flue size, in.
C-1	4	150	9	12x18	8 9	3 6	5 11	12x16
C-2	12	450	13	20x24	11 9	5 3	6 5	16x16
C-3	16	600	13	27x27	13 8	6 4	6 11	18x18
C-4	24	900	18	27x27	16 2	7 0	6 11	24x24

Connecting of either of these types, "A" or "C" to larger flues than shown on scale will not interfere with their operation.



Built-in Flue-fed Incinerators

Built-in, Flue-fed Incinerator Types

The layout plan illustrates various sizes and capacities of the built-in, flue-fed types. These types are designed for the rapid and complete disposal of garbage and rubbish in residences, apartment buildings, hotels and office buildings.

Construction—Consists of two firebrick-lined chambers; faced with common brick, refered to as combustion and fuel chambers. The combustion chamber is located at the base of the flue for the reception of all rubbish, garbage and other combustible wastes, deposited through hopper charging doors, conveniently located on the various floors. The fuel chamber can be located on either side of the combusion chamber to suit basement conditions.

Fuel and combustion chambers are separated by a firebrick wall having an arched port slightly above combustion grates directing flame into center of the mass. An angle grate is provided on combustion side of arched port to aid flame in striking a larger surface and to prevent clogging of port.

Heavy grates are provided and we recommend coal or wood as fuel.

Types "R" and "G" Incinerators

Type "R" Rubbish Incinerator—A compact incinerator for use in stores and commercial buildings where an accumulation of rubbish presents a fire hazard.

Type "G" Garbage Incinerator — For small markets and restaurants where conservation of space is required.

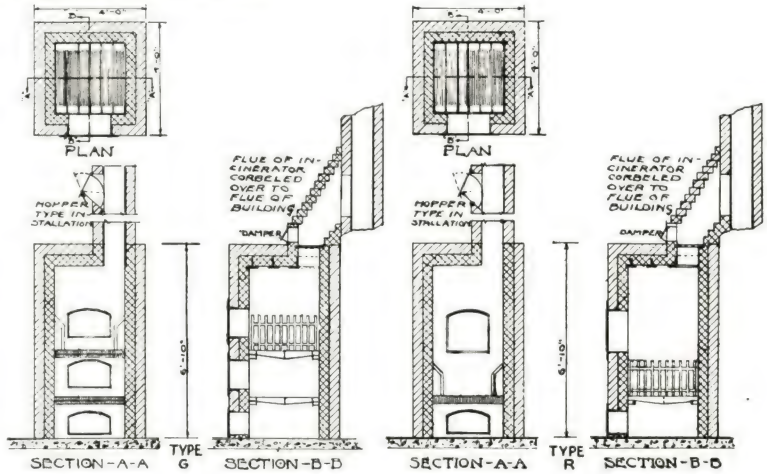
Hopper-feed Doors — Can be used on Types "R" and "G" installations where flue opening of incinerator is directly beneath flue of building as illustrated in section A-A. A spark-arrester is furnished for top of flue for this installation.

Installations in Old Buildings—Installations can be made in old buildings by building incinerator next to flue and corbeling incinerator flue to same, eliminating a metal flue connection as shown in section B-B. A spark arrester is built in flue of incinerator.

Blue Prints and Special Types

A complete set of blue prints and specifications of our various types will be forwarded to registered architects and engineers upon request.

Information concerning special types may be had upon request.



Types G and R Incinerators

PITTSBURGH INCINERATOR COMPANY

PITTSBURGH, PA.

BRANCH AGENCIES

AKRON, OHIO
BUFFALO, N. Y.
BETHLEHEM, PA.
CHARLESTON, W. VA.
CHICAGO, ILL.
CINCINNATI, OHIO
COLUMBUS, OHIO
CLEVELAND, OHIO
CHAMPAIGN, ILL.
DALLAS, TEX.
DAYTON, OHIO
DETROIT, MICH.
DENVER, COLO.
GARY, IND.
HAMMOND, IND.
KNOXVILLE, TENN.
KANSAS CITY, MO.
LOS ANGELES, CAL.
LOUISVILLE, KY.
MIAMI, FLA.
NEW YORK, N. Y.
NORFOLK, VA.
PHILADELPHIA, PA.
PITTSBURGH, PA.
ROCHESTER, N. Y.
ST. LOUIS, MO.
SHREVEPORT, LA.
TORONTO, ONT.

PITTSURGH BUILT-IN-THE-CHIMNEY FLUE FED INCINERATORS (PATENTED)

(12 Models and Types, Standard Sizes)

Construction—The Pittsburgh Incinerator consists of a chamber built of red brick with fire brick lining at the base of a straight chimney or flue. Vertical by-passes or channels are provided around the back and sides of the combustion chamber, assuring free air and draft circulation as well as immediate ignition of gases and complete odorless combustion of all waste materials.



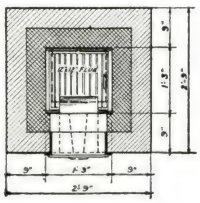
Grates—Heavy dump and side wing grates of various sizes and dimensions placed in by-pass formation with a free air circulation which assists in the drying out of the garbage. Grates are supported by heavy cast iron arches or grate bearers, and can be removed and replaced through the fire door in the basement.

Parts—Heavy cast iron arches support the roof of the combustion chamber. Fire and ash doors furnished according to size of incinerator with shaker tubes, extension bars, shaker handle, in addition to other parts for complete construction.

Flue—The incinerator can be located to suit basement conditions. Flue lining encased in brick according to size of flue extends upwards from the combustion chamber to top of chimney with a straight flue to avoid obstructions.

Spark Screen—Galvanized wire spark arresters of special sizes and dimensions for top of chimney furnished according to plans and specifications.

Gas Burner—A special gas burner, protected by a specially formed brick, insures complete disposal of all wet soggy garbage. It is designed to co-operate with the flue draft thereby creating a natural air circulation throughout the contents of the chamber and causing immediate combustion. The gas is used only as a primer in case of emergency at such times as large quantities of melon rinds, grape fruit rinds, or other garbage containing moisture accumulates. Our apartment house types will successfully operate without gas.



New Pittsburgh Junior Set Up for Homes

Low cost, simplicity in construction

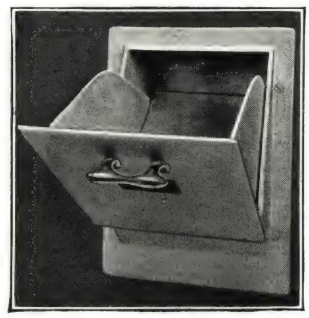
Incinerators for All Conditions

The Pittsburgh is recognized as one of the leading incinerator companies in the country, and it stands ready to furnish incinerators to meet all building conditions. Architects and builders will receive our full co-operation.

Hoppers

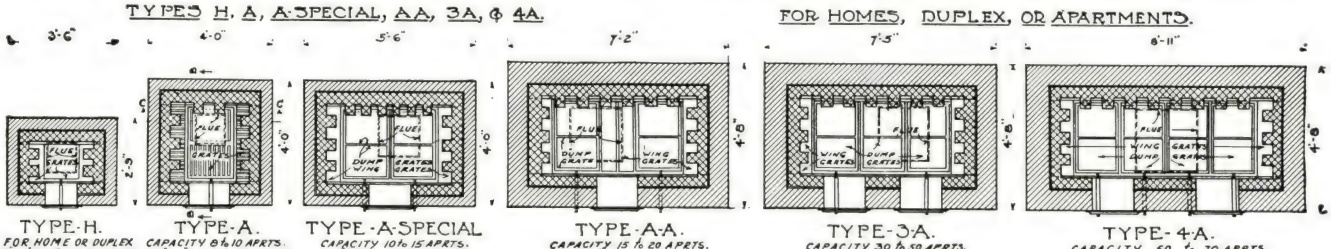
Automatic self-closing Pittsburgh aluminum receiving hoppers; opening to flue interior securely closed during the loading operation, preventing fire and smoke from issuing through the hopper door. Complies with underwriters requirements.

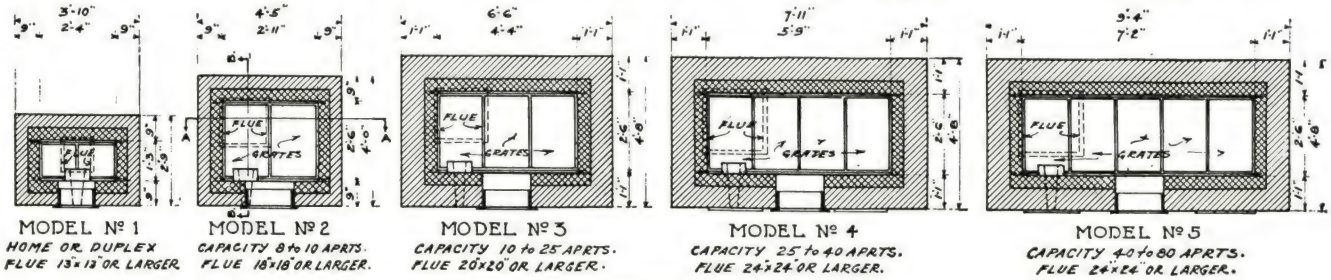
Hopper No.	Daylight opening, in.		Wall flange, in.		Wall opening, in.	
	High	Wide	High	Wide	High	Wide
1	8	8½	11	14	9	17
2	9	9½	12	16¼	9½	19
3	12	12	16	23	16	27
4	12	15	19	23	19	27



Hopper Opened

TYPES H, A, A-SPECIAL, AA, 3A, & 4A. FOR HOMES, DUPLEX, OR APARTMENTS.

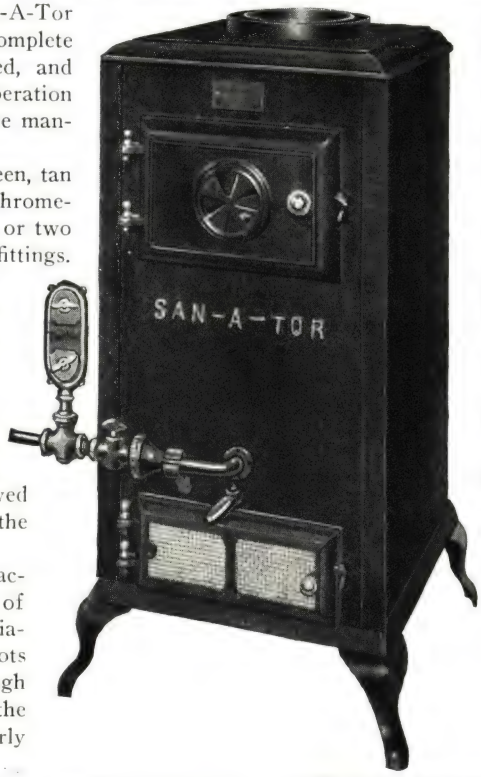




Sets-up of the 11 Standard Pittsburgh Incinerators

For special designs or requirements, address Superheater & Engineering Co., 39 Cortland Street, New York, N. Y.

PITTSBURGH SAN-A-TOR PORTABLE INCINERATORS
Natural and Manufactured Gas Fired



Types 11-12—The Pittsburgh San-A-Tor Portable is a self-contained and complete unit delivered and shipped assembled, and can easily be installed and put in operation after a few minutes work in the same manner as an ordinary stove.

Colors—Aluminum, black, gray, green, tan and white paint, with nickelplated or chromeplated fittings. Enamel all colors, one or two tones, with nickel or chrome plated fittings.

Construction—Scientifically odorless San-A-Tor lined with 2-in. fire brick encased in 18-gauge galvanized rustless steel, cast iron front, top and base. Side grates supporting the garbage charge and central cone operated by a handle in front, which assists in disturbing and dumping ashes. All parts can easily be removed by hand through the fire door of the incinerator.

Gas Burner—Loop type design according to the United States Bureau of Standards, and American Gas Association data on good burner design. Shoots every unit of concentrated heat through the garbage charge before reaching the flue. All ports in the burner properly protected from clogging.

Flue Connection—9-in. diameter flue outside regular connection, also 7-in. diameter flue inside connection. Basement installations use 9 to 7-in. reducer single pipe. Kitchen installations use double 7 and 9-in. pipe from incinerator to chimney.

Type No. 50—Provided with a bowl of 1-peck capacity for burning sputum cups in hospitals and sanitariums.

Type No. 15—Constructed with cast iron top, front, base and doors; sheet steel sides and back. Interior lined with 2-in. fire brick; channel spaced by-passes; grates of the best gray iron in basket formation; two side wing and bottom grates; gas conveying manifold equipped with one burner in rear of each side and one special central burner. All grates are removed and replaced through the door opening.

Type No. 61—A coal fired incinerator for use where gas is not available.

Types No. 71 and 72—Rubbish incinerators only, not brick lined, no gas burners.

Types No. 73 and 74—Rubbish incinerators only, brick lined, no gas burners.

CAPACITIES AND DIMENSIONS PORTABLE TYPE

No.	Capacity, bu.	Hght., in.	Floor space, in.	Fire door, in.	Flue cap., in.	Gas conn., in.	Shipping wt. lb.
11	1	37	21x21	7¼x11¼	9	¾	450
12	2	55	21x21	9¼x11¼	9	¾	700
50	Peck	37	21x21	7¼x11¼	9	¾	450
15	5	59	24x31	12 x16	9	¾	1800

Pittsburgh Coal Fired Incinerator

61	1	50	18x18	9x12	9	¾	600

Pittsburgh Rubbish Incinerators

No.	Capacity, bu.	Height, in.	Floor space, in.	Fire door, in.	Flue capacity, in.	Gas connection in.	Shipping wt., lb.
71	1	39	21x21	9x12	9	¾	150
72	2	52	21x21	9x12	9	¾	175
73	4	45½	24x31	12x16	9	¾	1200
74	6	59	24x31	12x16	9	¾	1600

PITTSBURGH SAN-A-TOR WALL TYPE INCINERATORS



Types 21-22-31-32-41-42 — Complete units delivered and shipped assembled, same as portables No. 11-12.

Colors—Same as portable types.

Construction—Same as the portable, except Types 21, 22, 31 and 32 have flat tops, and a 7-in. diameter hole with front flange for fitting into the wall; also Types 31 and 32 have an open base for ash drop to basement.

Types 41 and 42 have a 12x12-in. cutout top for connection with a 12x12-in. flue—can be installed in the kitchen wall and garbage fed into a hopper from the floor above, or installed in the basement and bricked up to the hopper in the kitchen.

Type No. 25 constructed the same as portable No. 15, except it has a 16x16-in. cutout top for connection with a 16x16-in. flue. Hoppers can be installed on floors above and garbage and refuse dropped into the incinerator. Open base for ash drop to basement if required.

The Time-O-Stat direct clock control, a device which automatically shuts off the gas, can be used on any of the above types.



San-A-Tor Types 11, 12, 21, 22, 31 and 32 Approved by A.G.A. Laboratory

CAPACITIES AND DIMENSIONS WALL TYPE

No.	Capacity, bu.	Height, in.	Floor space, in.	Fire door, in.	Flue capacity, in.	Gas connection, in.	Shipping weight, lb.
21	1	31½	18x18	7¼x11¼	9	¾	450
22	2	49½	18x18	9¼x11¼	9	¾	700
31	1	31½	18x18	7¼x11¼	9	¾	450
32	2	49½	18x18	9¼x11¼	9	¾	700
41	1	31½	18x18	7¼x11¼	12x12	¾	450
42	2	49½	18x18	9¼x11¼	12x12	¾	700
25	5	59½	24x31	12 x16	16x16	¾	1800

WASHBURN & GRANGER, INC.

Manufacturers of Dean Incinerators and Armored Flooring

50 Church Street, NEW YORK, N. Y.

For our pages on Ash Can Hoists, see Manufacturers' Index

Complete Specifications for Dean Type A Incinerator

Where space appears in these specifications, supply data and dimensions from table below

General—Furnish all material and labor necessary to complete one Dean Type A .... (refer to table for size) Incinerator, as manufactured by WASHBURN & GRANGER, INC., 50 Church Street, New York, N. Y.

Foundation—Do all excavation, removing surplus earth from the premises. Install concrete slab of not less than 12 in. in depth and to extend 4 in. beyond exterior walls. These foundations are to be made of one, three and five parts of best portland cement, clean sharp sand and hard durable clean broken stone, screened through 1-in. mesh. All to be mixed and poured in an acceptable manner, and finished level with the floor.

Dimensions and Capacity—The incinerator is to measure .... ft. .... in. long x .... ft. .... in. wide x .... ft. .... in. high. The capacity is to be .... pounds of mixed refuse per hour.

Steelwork—The incinerator setting is to be reinforced by a structural steel frame, consisting of four vertical corner angles 5x3x$\frac{5}{16}$ in. and four horizontal angles 2½x2½x¼ in. in all four walls of the setting. The entire steel frame is to be bolted together and all door frame castings are to be bolted in position before the brickwork is started. Charging chute shall be No. 12 gauge black steel (refer to "H" in table) outside diameter and of sufficient length to connect the top arch of the incinerator with the floor above. The buckstays shall be four in number each consisting of two 4-in. x 6¼-lb. channels placed back to back and held in position with 1-in. diameter tie rods top and bottom. Furnish two 5x3x$\frac{5}{16}$-in. angles for supporting the charging chute.

Castings—Furnish charging ring with opening (refer to "G" in table) diameter complete with cast iron swing cover fitted with ⅛-in. steel plate cover to protect lining. Provide a heavy firing frame with opening (refer to "J" in table) complete with doors and perforated cast iron liners. Provide a heavy ash pit frame with opening (refer to "K" in table) complete with door. Provide a side stoking frame having an opening (refer to "I" in table) complete with guillotine door lined with C-3 cement, steel lever arm, quadrant, bracket, counterweight, and handle. Provide two baffle cleanout frames with doors and cast iron liners and one combustion chamber cleanout door and frame with liner. Furnish inclined skeleton dead plate 17½ in. wide, length to suit door opening and with 5-in. pitch. Curved arch plate shall be 17½ in. wide, 1 in. thick and length to suit door opening. Also furnish for the stoking door opening a flat skeleton dead plate 18 in. wide x 24 in. long and one curved arch plate 18 in. wide, 1 in. thick, 36 in. long. Furnish herringbone stationary grates .... in. wide x .... in. deep, with .... air space for .... coal, complete with bearing bars and wall plates. Furnish cast iron base plate for supporting steel charging chute and necessary cast iron tie plates for the buckstays.

Brickwork—On types A1 to A7 inclusive, the front and rear walls shall be 17½ in. thick consisting of 9 in. No. 1 fire brick and 8 in. of hard red brick. The side walls shall be 18 in. thick consisting of 9 in. of No. 1 fire brick, 1 in. air space, and 8 in. of hard red brick. On types A8, 9 and 10, all four walls shall be 22 in. thick consisting of 9 in. of No. 1 fire brick, 1 in. air space and 12 in. of hard red brick. In all four walls every sixth course of fire brick shall be a stretcher course with a fire brick header tieing the fire brick to the red brick. On the red brick every fourth course shall be a header course. The drying hearth shall consist of fire brick 9 in. thick and shall have an incline of approximately 15° toward the coal grate. Furnish and set in the baffle chamber opposite the baffle door openings two baffles made of special heat resisting material. Charging chute shall be lined with 4½ in. of fire brick, charging ring cover shall be lined with 3 in. of C-3 cement and the skeleton dead plates shall be lined with standard fire brick. Top arch shall be semi-circular and consist of 9-in. standard wedge fire brick, 1-in. air space, 4-in. red brick arch, cinder fill and 1-in. cement finish. All fire brick shall be laid up in high temperature cement.

Damper—Furnish counterbalanced cast iron damper filled with 3 in. of C-3 cement and hung in a 4-in. steel channel guide and provided with steel lever arm, quadrant, bracket, counterweight and handle.

Draining Pan—Furnish a steel draining pan (refer to "P" in table) wide x (refer to "O" in table) long x 4 in. deep at the low point, made of $\frac{3}{16}$-in. plate with welded seams. Pan to have sloping bottom reinforced with steel angles, and to be fitted with drain casting tapped for 3-in. steel pipe. Furnish 2 ¾-in. globe valve; 1 ¾-in. faucet with hose thread; 12 ft. ¾-in. steam hose; 1 ¾-in. brass hose nozzle. The ¾-in. piping for steam and water valves and the 3-in. drain pipe connection to be installed by other contractors.

Can Washer—Furnish and install one can washer to measure 2 ft. 8¼ in. wide x 3 ft. 0 in. deep x 4 ft. 0 in. high, base to be of cast iron in one piece with legs to raise it 10 in. above floor line, sides of No. 11 sheet steel reinforced with angles. Door to be hinged type with rubber gasket and locking handles. Furnish brass spray nozzles for upper and lower connections, also special 8x6-in. strainer in base casting. The ½-in. cold water, ½-in. steam, ¾-in. hot water, and 4-in. drain connections are to be installed by other contractors.

Stoking Tools—Furnish a set of 3 stoking tools consisting of the following: 1 shovel, 1 hoe, 1 slice bar. Furnish rack for the above tools and install same in a convenient location.

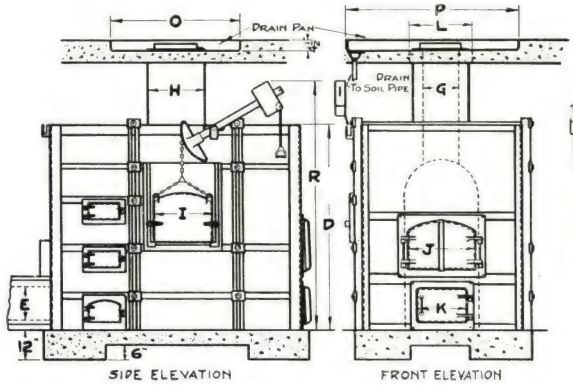
Steel Flue—Approximate length .... ft. .... in. Flue shall be rectangular and consist of No. 10 gauge steel sheets reinforced at the bottom corners with 3x3x¼-in. angles and at the top corners with 1½x1½x$\frac{5}{16}$-in. angles. The flue shall be lined with 3-in. fire brick blocks having shiplap joints. Asbestos board ¼ in. thick shall be placed between the shell and the fire brick lining. Furnish cleanout doors and frames at convenient points for cleaning. Inside dimensions of flue (refer to "E" in table) in. high by (refer to "F" in table) in. wide.

Brick Flue—Approximate length .... ft. .... in. Flue shall have 4½-in. fire brick lining backed up with 8 in. of red brick in side walls, 4 in. of red brick over arch and 2 in. of red brick under floor of flue. Flue shall be reinforced with 4-in. x 6¼-lb. channel buckstays spaced on 36-in. centers and tied together with ¾-in. diameter rods top and bottom. Furnish cleanout doors and frames for access to flue for cleaning. Inside dimensions of flue (refer to "E" in table) in. high by (refer to "F" in table) in. wide.

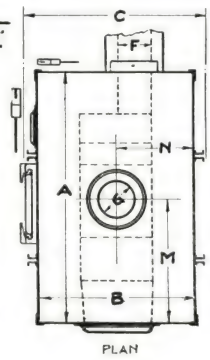
Painting—All structural steel shapes and finished castings shall have one coat of shop paint prior to shipment and a second coat of black asphaltum paint on exposed surfaces after completion of the brickwork.



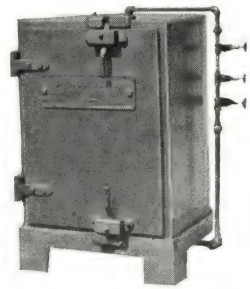
Dean Type A Incinerator



SIDE ELEVATION FRONT ELEVATION



PLAN



Dean Can Washer

CAPACITIES AND DIMENSIONS OF DEAN TYPE A INCINERATORS

Type and size	Capacity, lb. per hour	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	R
A-½	100	8′ 0½″	4′ 2″	5′ 4″	7′ 1½″	13½″	13″	12″	21¼″	20″x24″	17″x24″	12″x15″	24″	3′ 10″	25″	6′ 0″	4′ 0″	9′ 0″
A-1	150	8′ 8½″	5′ 6″	6′ 8″	7′ 1½″	16″	13″	15″	24¼″	20″x24″	19″x28″	13″x20″	27″	4′ 2½″	33″	7′ 0″	5′ 0″	9′ 0″
A-2	225	10′ 1½″	6′ 0″	7′ 2″	7′ 1½″	18½″	18″	15″	24¼″	20″x24″	19″x28″	13″x20″	27″	5′ 0″	36″	8′ 0″	6′ 0″	9′ 0″
A-3	375	13′ 8½″	6′ 6″	7′ 8″	8′ 5½″	24″	18″	18″	27¼″	20″x24″	19″x28″	15″x20″	30″	6′ 6″	39″	9′ 0″	6′ 0″	10′ 4″
A-4	525	15′ 5½″	7′ 0″	8′ 2″	8′ 5½″	25″	23″	18″	27¼″	24″x36″	19″x28″	15″x20″	30″	7′ 6″	42″	10′ 0″	6′ 0″	10′ 4″
A-5	675	17′ 0½″	7′ 6″	8′ 8″	8′ 5½″	32″	23″	18″	27¼″	24″x36″	24″x30″	15″x20″	30″	8′ 6″	45″	11′ 0″	6′ 0″	10′ 4″
A-6	825	21′ 0″	8′ 0″	9′ 2″	9′ 0″	37″	27″	18″	27¼″	(2) 12″x20″	24″x30″	14″x28″	30″	9′ 0″	48″	12′ 0″	6′ 0″	11′ 0″
A-7	1000	22′ 0″	8′ 6″	9′ 8″	9′ 4″	37″	31½″	24″	33¼″	(2) 17″x21″	28″x46″	(2) 17″x21″	36″	10′ 0″	51″	12′ 0″	7′ 0″	11′ 6″
A-8	1250	26′ 3″	9′ 8″	11′ 0″	10′ 0″	45″	31½″	24″	33¼″	(2) 17″x24″	(2) 17″x24″	(2) 17″x24″	36″	13′ 4″	58″	12′ 0″	8′ 0″	12′ 0″
A-9	1625	27′ 3″	10′ 8″	12′ 0″	10′ 6″	56″	31½″	30″	39½″	(2) 18″x30″	(2) 24″x30″	(2) 19″x28″	42″	14′ 0″	64″	12′ 0″	9′ 0″	12′ 6″
A-10	2000	27′ 3″	11′ 8″	13′ 0″	11′ 0″	64″	31½″	30″	39½″	(2) 18″x30″	(2) 24″x30″	(2) 19″x28″	42″	14′ 0″	70″	12′ 0″	10′ 0″	13′ 0″

Data and specifications will be furnished for requirements which cannot be covered by the above standard sizes. Send for No. 17 Catalog.

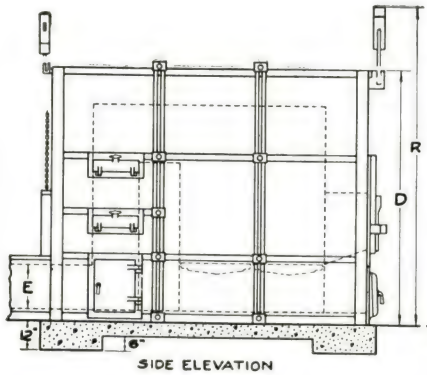
Dean Type B Incinerator for Dry Combustible Refuse

Capacities from 90 to 378 cu. ft. per hour of Dry Combustible Refuse

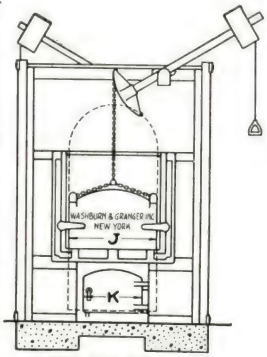
Designed to incinerate dry combustible refuse collected in industrial plants, factories, loft buildings, railroad yards, etc.



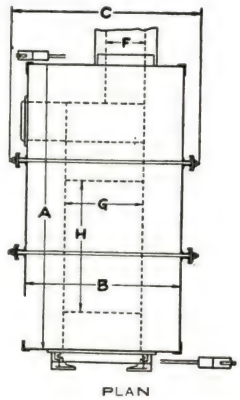
Dean Type B Incinerator



SIDE ELEVATION



FRONT ELEVATION



PLAN

CAPACITIES AND DIMENSIONS OF DEAN TYPE B INCINERATORS

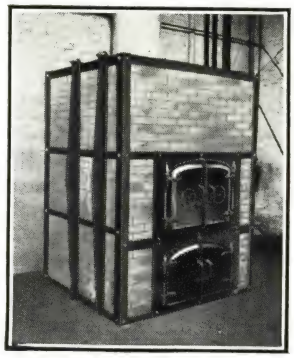
Type and size	Capacity, in cu. ft. per hour	A	B	C	D	E	F	G	H	J	K	R
B-1	90	10'10½"	6'0"	7'2"	8'8½"	18½"	18"	3'0"	5'0"	24"x36"	17"x24"	11'3"
B-2	114	11'4½"	6'6"	7'8"	8'8½"	23"	18"	3'6"	5'6"	24"x36"	17"x24"	11'3"
B-3	144	12'4"	7'0"	8'2"	8'8½"	23"	23"	4'0"	6'0"	24"x36"	18"x36"	11'3"
B-4	168	13'8½"	7'0"	8'2"	8'8½"	25½"	23"	4'0"	7'0"	24"x36"	18"x36"	11'3"
B-5	210	18'9"	8'0"	9'2"	10'3"	31½"	23"	5'0"	7'0"	24"x36"	18"x36"	12'9"
B-6	288	20'8"	9'8"	10'10"	11'0"	33"	30"	6'0"	8'0"	36"x42"	18"x40"	14'3"
B-7	378	23'2"	10'8"	11'10"	12'2"	36"	36"	7'0"	9'0"	36"x42"	18"x40"	15'2"

Complete specifications in Catalog No. 17.

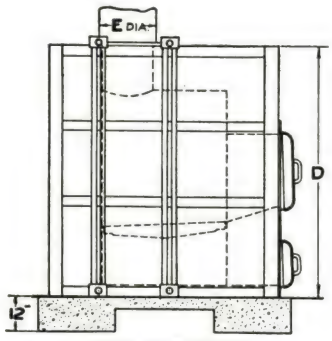
Dean Type C Incinerator for Rubbish and Other Light Material

Capacities from 66 to 108 cu. ft. per hour of dry refuse

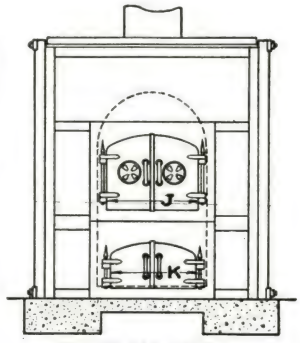
This type incinerator is designed to burn papers, sweepings, boxes and other light materials collected in public schools, public and commercial buildings, museums, etc.



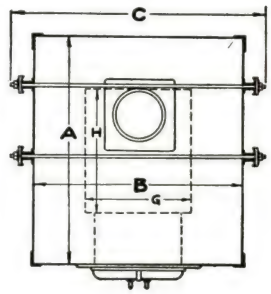
Dean Type C Incinerator



SIDE ELEVATION



FRONT ELEVATION



CAPACITIES AND DIMENSIONS OF DEAN TYPE C INCINERATORS

Type and size	Capacity, cu. ft. per hour	A	B	C	D	E Diam.	E High	F Wide	G	H	J	K
17½-in. Walls—9-in. Fire Brick, 8½-in. Red Brick												
C-18	66	6'5"	5'11"	7'0"	7'0"	17½"	18"	14"	3'0"	3'6"	24"x30"	14"x28"
C-28	84	6'11"	6'5"	7'6"	7'0"	20½"	16"	18"	3'6"	4'0"	24"x30"	14"x28"
C-38	105	7'11"	6'5"	7'6"	7'0"	23½"	21½"	18"	3'6"	5'0"	24"x30"	14"x28"
C-48	108	8'11"	5'11"	7'0"	7'0"	23½"	21½"	18"	3'0"	6'0"	24"x30"	14"x28"
13-in. Walls—4½-in. Fire Brick, 8½-in. Red Brick												
C-13	66	5'8"	5'2"	6'4"	7'0"	17½"	18"	14"	3'0"	3'6"	24"x30"	14"x28"
C-23	84	6'2"	5'8"	6'10"	7'0"	20½"	16"	18"	3'6"	4'0"	24"x30"	14"x28"
C-33	105	7'2"	5'8"	6'10"	7'0"	23½"	21½"	18"	3'6"	5'0"	24"x30"	14"x28"
C-43	108	8'2"	5'2"	6'4"	7'0"	23½"	21½"	18"	3'0"	6'0"	24"x30"	14"x28"

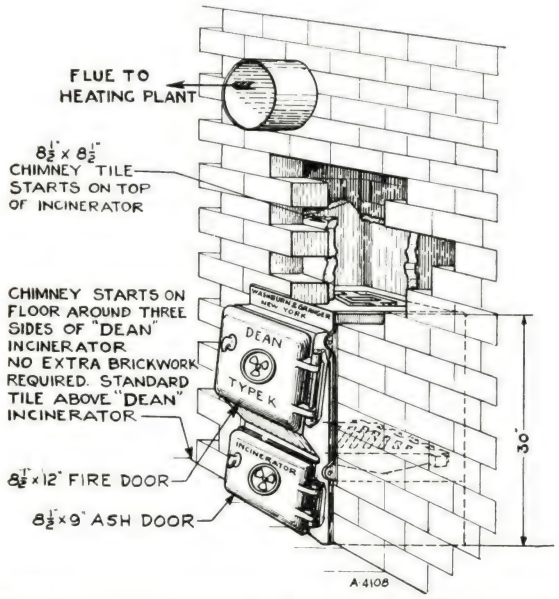
Complete specifications in Catalog No. 17.

Dean Type K Incinerator

Shipped Assembled—Easily Installed at No Additional Expense—The Dean Type K Incinerator is a heavy cast iron rectangular furnace, correctly designed so that it can be set in the base of the same chimney used for the heating plant. It is shipped assembled and is simply bricked-in by the mason at the time he lays up the chimney—no extra brickwork is required. The same standard sizes of chimney flue tile are used as for the heating plant—the flue tile starts on top of the incinerator and is carried on up the chimney in the usual way. Therefore the actual initial cost of the incinerator is the only cost to be figured.

Specifications—Furnish and install in base of (chimney or chimneys), where indicated on the plans, a Type K Rubbish Incinerator as manufactured by Washburn & Granger, Inc., 50 Church Street, New York, N. Y.

Incinerator shall be a complete assembled unit, built of cast iron throughout, with top arranged to take standard (8½x8½ in. or 8½x13 in.) outside dimensions, flue tile, and shall be installed as shown on the detail drawings. Chimney brickwork shall be built around three sides of the incinerator according to specifications given under "chimney."



Type K Incinerator Installed in Base of Heating Plant Chimney

Dean Type D Domestic Incinerator

This type of incinerator is designed to incinerate garbage and other waste material which accumulates in private homes of from six to ten rooms. The general design of this incinerator is the same as Type E shown below.

Dimensions and Capacity—This incinerator is to measure approximately 24 in. in diameter by 5 ft. 3 in. high. Capacity 25 lb. of garbage per hour.

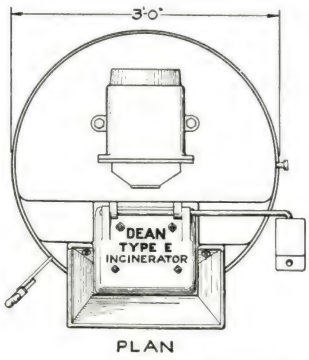
Shipping Data—For domestic shipment the weight is approximately 1,300 lb. For export shipment the gross weight is approximately 1,700 lb. or 772 kilos. Dimensions of case are 30x30 in. x 6 ft., 37.5 cu. ft.

Dean Type E Semi-portable Incinerator

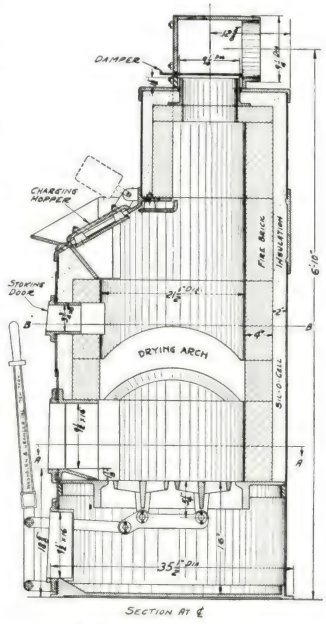
This type incinerator is designed to incinerate garbage from cafeterias and small restaurants and refuse material from hospital wards, sanitariums, asylums, conventS, homes for aged, colleges, summer camps, large estates, etc.

Dimensions and Capacity—This incinerator is to measure approximately 36 in. in diameter by 7 ft. 2½ in. high. Capacity 50 lb. of garbage per hour.

Shipping Data—For domestic shipment, mounted on skids, the weight is 3,000 lb. For export shipment the gross weight is 3,900 lb. or 1,770 kilos. Dimensions of case, 8x4 ft. x 4 ft. 6 in., 144 cu. ft.



PLAN



Dean Type E Semi-portable Incinerator

Complete Specifications in Catalog No. 17

Dean Cast Iron Grids for Flooring

General Uses—Used extensively in milk plants, loading platforms, boiler rooms, printing plants, warehouses, driveways, receiving and heavy storage areas; traffic aisles, garage and other ramps, and wherever the need for a floor which will withstand for years continuous heavy shocks without breaking up or needing costly repairs.

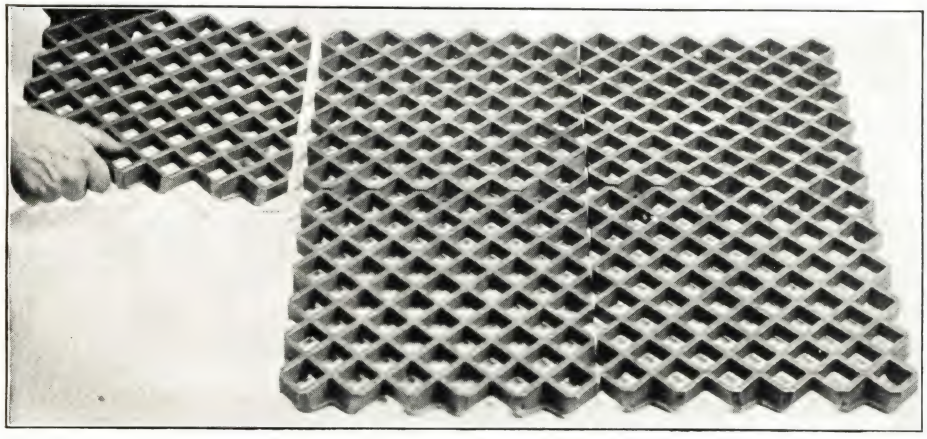
Made of a Special Mixture to Resist Wear—Cast iron has shown a greater resistance to corrosion than either steel or wrought iron. This fact, together with its exceptional wearing qualities, make Washburn & Granger cast iron grids most valuable where a permanent installation is desired.

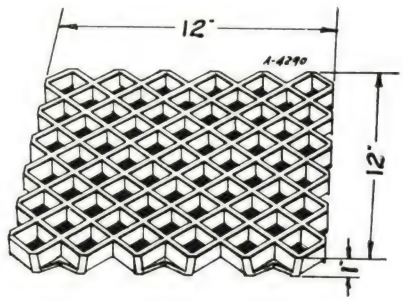
Made in One-foot Square Sections—Each section occupies 1 sq. ft. of floor space. This size is conveniently handled and quickly laid; gives the finished installation the best possible anchorage, and maximum flexibility in expansion and contraction.

How to Specify

Furnish and set Dean Armored Flooring as made by Washburn & Granger, Inc., 50 Church Street, New York, N. Y., to cover area as per specifications and drawings. Each section to occupy 1 sq. ft. and to be approximately 1 in. thick.

On the rough concrete floor lay a thin bed of 1-to-3 cement and sand mortar. Set each section in this bed so that each piece is level with all others on all sides. After this mortar has set, pour the finish mortar, including cement hardener, over the sections and level off so that cement is flush with top of grids.





ATHEY CLOTH LINED WEATHERSTRIP CO.

Cloth Lined Metal Weatherstrip—Sealtite Caulking Compound

6035-6045 West 65th Street, CHICAGO, ILL.

PRINCIPAL BRANCHES AND AGENCIES

AKRON, OHIO, Simm-Sett Sales, 640 No. Main Street
ATLANTA, GA., Floyd Bros. Co., 535 Flat Shoals Avenue
BUFFALO, N. Y., H. T. Cary, 293 Voorhees Avenue
CHICAGO, ILL., W. L. Van Dame Co., 820 Tower Court
CLEVELAND, OHIO, Consolidated Screen Co., Rockefeller Building
DALLAS, TEX., C. M. Donovan, Burt Building
DAYTON, OHIO, Glawe Manufacturing Co., 515 E. Herman Street
DECATUR, ILL., Gandy & Earp, 440 So. Franklin Street
DETROIT, MICH., W. O. LeSage & Co., 1720 12th Street
EL PASO, TEX., El Paso Mantel & Tile Co., 417 Texas Street
HARTFORD, CONN., Hartford Wire Works, 90 Allyn Street
HARRISBURG, PA., Clyde M. Furr, 1952 Manada Street
KNOXVILLE, TENN., Chas. M. Allen Co., 712 So. Gay Street
LOUISVILLE, KY., H. A. Bohn, 814 Baxter Avenue
MEMPHIS, TENN., Chears Floor & Screen Co., 884 Adams Street
MILWAUKEE, WIS., Willer Screen & Weather Strip Co., 1459 No. 40th Street
OMAHA, NEB., Lew Wentworth, 415 Karbeck Block
PHILADELPHIA, PA., Wolfe & Adams, 1600 Arch Street
PORTLAND, ORE., A. D. Cowan, 724 E. 62nd Street
ROANOKE, VA., J. C. Clemmer, 1114 Stewart Avenue
SPRINGFIELD, ILL., A. H. Krebs, 1032 Fayette Avenue
SPRINGFIELD, MASS., L. M. Meyer Co., 100 Alderman Street
ST. LOUIS, MO., John C. Wasson Co., 1020 Ambassador Building
ST. PAUL, MINN., Metal Weather Strip Co., 910 Builders Exchange
TOLEDO, OHIO, Hart Weather Strip & Screen Co., 1220 Madison Avenue
TORONTO, CANADA, Cresswell Pomeroy Co., 2 Grosvenor Street
TULSA, OKLA., Merry Screen Co., 219 So. Madison Street
WILKES-BARRE, PA., C. E. Cunningham Miners Bank Building
YOUNGSTOWN, OHIO, Youngstown Hardwood Floor Co., 100 W. Rayon Street

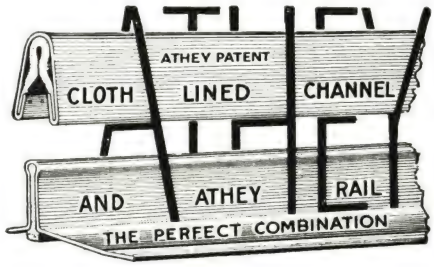
CANADIAN OFFICE AND FACTORY: Cresswell-Pomeroy Co., 3989 So. Ambroise Street, MONTREAL, QUE.

For our page on Window and Skylight Shades, see Manufacturers' Index

ATHEY CLOTH LINED METAL WEATHERSTRIP

Athey Cloth Lined Metal Weatherstrip, the only weatherstrip using the cloth to metal feature, has been on the market for over twenty-five years. It has been installed on many of the best buildings in the United States and Canada for owners and architects who desire the best, even though the initial cost is higher than for ordinary weatherstrip. Of our early installations we can point to the St. Joseph's Hospital of St. Louis and the Blackstone Hotel of Chicago, who are still obtaining the maximum in efficiency after twenty years of service, making the yearly cost lower in comparison with cheap, inferior weatherstrip.

Unlike the ordinary channel used in many two-piece strip installations, the Athey channel is double the usual width and lined with a cloth made especially for this purpose, which not only prevents air leakage but is a dust preventive and soundproofing as well. Rail members are also backed with felt which prevents leakage at the jamb, a common weakness in weatherstrip installation due to infrequent nailing of the rail member. All cloth and felt used is chemically treated, guarding against rot or deterioration, so this part of the weatherstrip as well as the metal is guaranteed for the life of the building. All Athey Weatherstrip is made of sheet zinc cut across the grain, the most expensive but assurance against cracking.



In using Athey strip a continuous contact is afforded all around the window, the strip being mitred at all corners, a result not obtained by many metal to metal contact strips where it is necessary to revert to a rib strip at the head and sill.

Athey Weather Strip is sold and installed by one hundred and twenty representatives, those in the larger cities listed above. Write to us for our latest catalogue, showing details of installation for every type of window or door, whether wood or metal. Samples of strip will be furnished when requested.



Department of Public Welfare
CITY OF ST. LOUIS
OFFICE OF
DIRECTOR OF PUBLIC WELFARE
329 MUNICIPAL COURTS BLDG.

February 16, 1929.

The Athey Company,
Gentlemen:--

You will perhaps be glad to know that through the weather-stripping job handled by your people at the City Sanitarium recently, we were able to discontinue the use of one 350 horse-power boiler, a saving to the City of about $1500.00 a month in coal. We were also able to cancel an order for about $2000.00 worth of blankets, which had been requisitioned for use during the present winter.

Feeling that this information would be of interest to you, we gladly submit it.

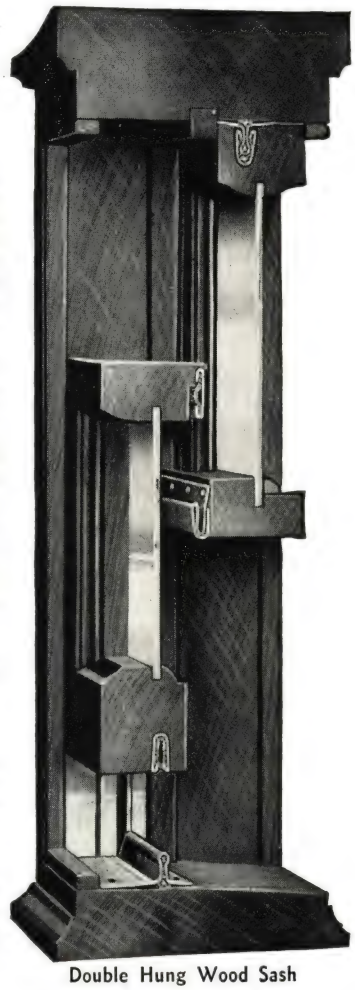
Yours very truly,

H. L. Dalsheimer
Director of Public Welfare

This Illustration at the Left

Shows the largest sanitarium in the United States which has been operated—the main building for sixty years, the wings for twenty years—with this enormous waste of fuel.

The entire cost of the weatherstripping was absorbed by the savings in fuel, blankets and janitor service in the first winter. A $30,000 boiler was eliminated—the cloth to metal contact accomplished it.



Double Hung Wood Sash

ACCURATE METAL WEATHER STRIP CO.

MAIN OFFICE AND FACTORY
216 East 26th Street
NEW YORK, N. Y.

REPRESENTED IN ALL THE PRINCIPAL CITIES OF THE UNITED STATES, CANADA AND EUROPEAN COUNTRIES

Products

ACCURATE METAL WEATHER STRIPS are adapted to all types of wood, metal or metal covered windows and doors—manufactured of zinc, copper, bronze or brass, cut and formed across the grain.

ACCO-LASTIC CAULKING COMPOUND applied to window and door openings between framework and masonry—making a weathertight joint when setting brass thresholds and special brass saddles.

ACCO-AUTOMATIC DOOR BOTTOMS for interior doors—sealing the opening between doors and saddles.

BRASS SADDLES—Special types which are weatherproof; also plain or fluted tops, various widths.

For Casements and French Doors, Special Brass Saddles (all widths) and Brass Channel Water-Bar applied at the sills and are *guaranteed* watertight.

TRADE MARK
ACCURATE
REG. U.S. PAT. OFF

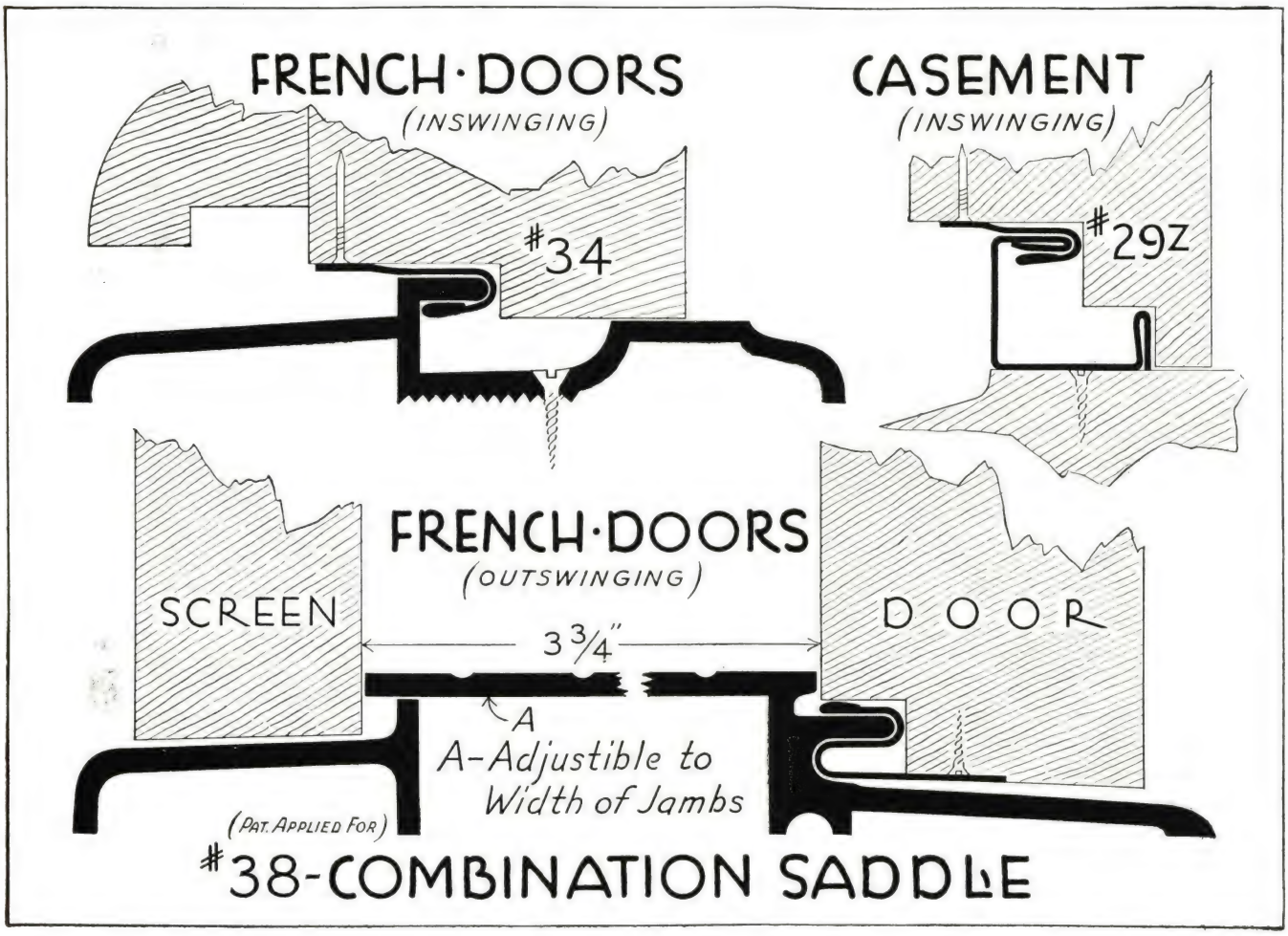
Service

We own and operate our plant at 216 East 26th Street and have been manufacturing metal weather strips since 1900. We maintain factory branch representatives in principal cities and carry a full line of equipment to execute prompt and efficient service.

Architectural Department

Architects are invited to make use of our Engineering Department. Inquiries in regard to special conditions cheerfully considered and practical suggestions and recommendations made.

Inquiries should be sufficiently complete to enable us to fully understand conditions and result desired.

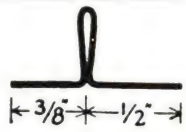
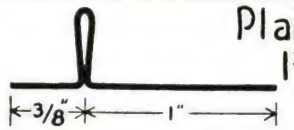
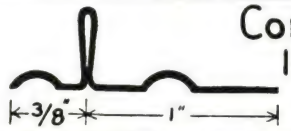
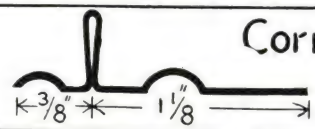
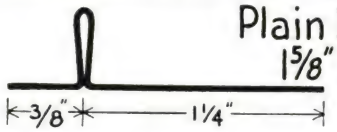
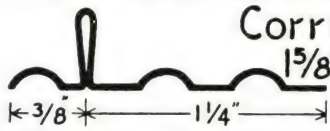
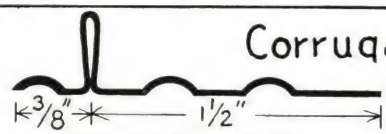
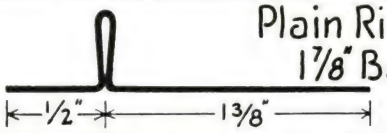
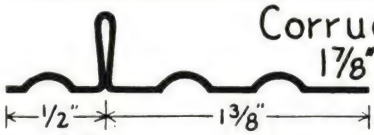
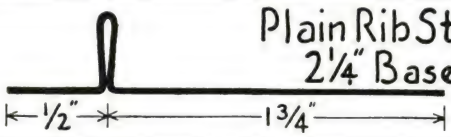
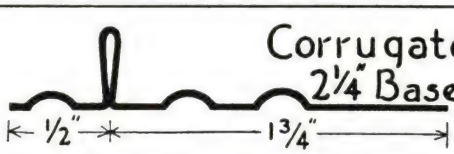
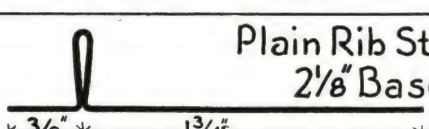
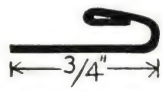
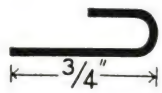
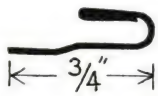
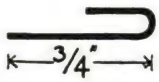
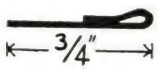
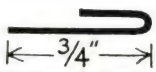
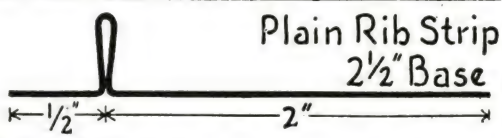
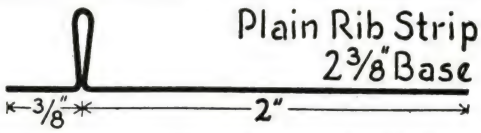
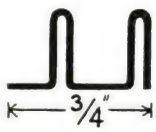


ACCURATE

DOUBLE HUNG EQUIPMENT

All Rib Strip is made of No. 9 Gauge Sheet Zinc, cut across the Grain—No. 12 Gauge Zinc Stock to Order

ACCURATE

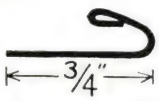
1		Plain Rib Strip 7/8" Base	
2		Plain Rib Strip 1 3/8" Base	
2C		Corrugated 1 3/8" Base	
2CX		Corrugated 1 1/2" Base	
3		Plain Rib Strip 1 5/8" Base	
3C		Corrugated 1 5/8" Base	
3CX		Corrugated 1 7/8" Base	
4		Plain Rib Strip 1 7/8" Base	
4C		Corrugated 1 7/8" Base	
5		Plain Rib Strip 2 1/4" Base	
5C		Corrugated 2 1/4" Base	
6		Plain Rib Strip 2 1/8" Base	
7		Meeting Rail Hook	
7A		Meeting Rail Hook	
7C		Meeting Rail Hook	
8		Meeting Rail Flat Strip	
8A		Meeting Rail Flat Strip	
8B		Meeting Rail Flat Strip	
8C		Meeting Rail Flat Strip	
9		Plain Rib Strip 2 1/2" Base	
10		Plain Rib Strip 2 3/8" Base	
11		Simplex Type	
11A		Channel #16 Gauge Zinc Liner #9 Gauge Zinc	
12		#16 Gauge Sill Drilled and Countersunk	

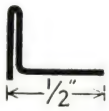
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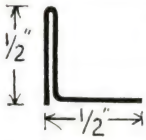
ACCURATE

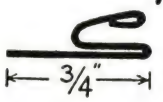
CASEMENT AND DOOR EQUIPMENT

ACCURATE

16 Threshold Hook Zinc or Bronze


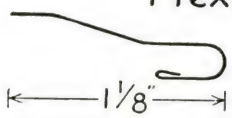
17 Single Base


17A Single Base


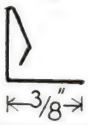
18 Kalamein Equipment #11 Gauge Zinc


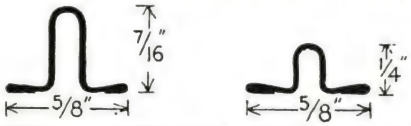
19 Zinc Liner #11 Gauge Zinc Also #9 Gauge Zinc


20 Zinc Liner #9 Gauge Zinc


21 Flexible Bronze Hook


22 Lock Strips


22A Lock Strips


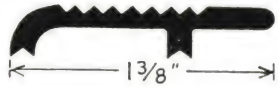
Zinc Screen Guides


23

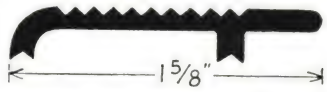

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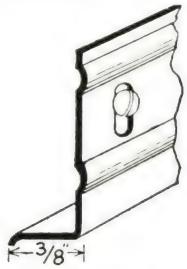

FULL SIZE DETAIL

25

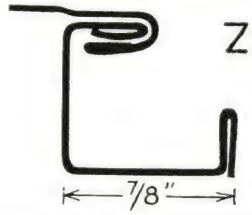

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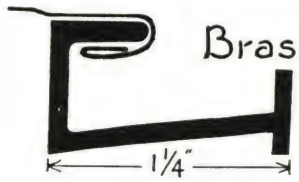
26A

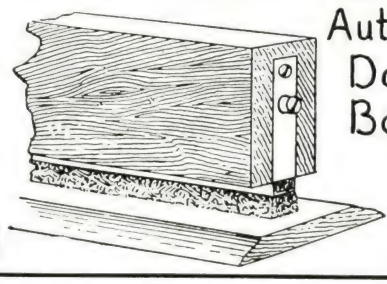

27


Brass Ell


29 Brass Channel Water Bar


29Z Zinc Channel Water Bar


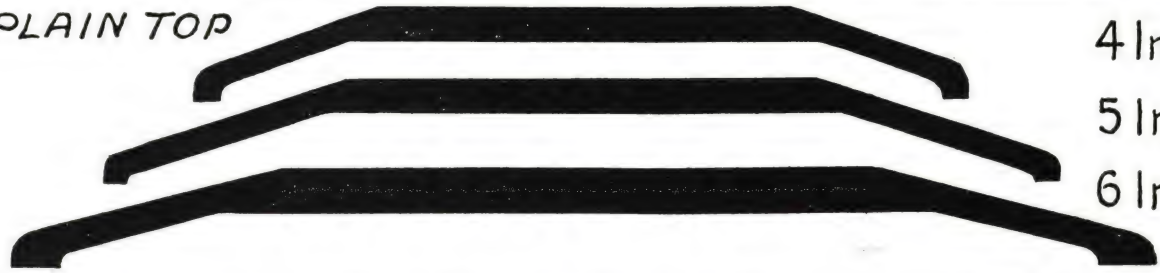
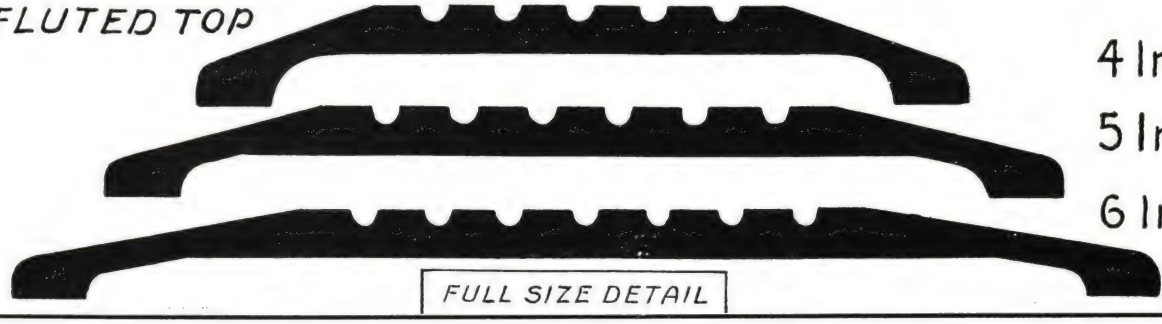
29A Brass Channel Water Bar


Automatic Door Bottom


ACCURATE

BRASS SADDLES

ACCURATE

28		4¼ In.
28A		4¼ In.
30		3½ In.
32		5 In.
33		6 In.
34		4¼ In.
	PLAIN TOP 	4 In. 5 In. 6 In.
	FLUTED TOP 	4 In. 5 In. 6 In.

FULL SIZE DETAIL

THE E. T. BURROWES CO. INC.

Manufacturers of Burrowes Metal Weatherstrip and Burrowes Rustless Screens

70 Free Street, PORTLAND, MAINE

BRANCH OFFICES

ATLANTA, GA. · BALTIMORE, MD. · BIRMINGHAM, ALA. · BOSTON, MASS. · CHARLESTON, S. C. · CINCINNATI, OHIO · CLEVELAND, OHIO · COLORADO SPRINGS, COLO. · DETROIT, MICH. · MEMPHIS, TENN. · MONTREAL, CAN. · NEW YORK, N. Y. · PHILADELPHIA, PA. · PITTSBURGH, PA. · 50 OTHER PRINCIPAL CITIES · PROVIDENCE, R. I. · ROANOKE, VA. · ROCHESTER, N. Y. · SAVANNAH, GA. · SPRINGFIELD, MASS. · SYRACUSE, N. Y. · TORONTO, CAN. · WASHINGTON, D. C.

Telephone Nearest Branch Office or Write to Home Office

Products and Service

METAL WEATHERSTRIP for Double Hung Windows, Casements, Doors and unusual types of openings—whether of wood, metal or metal covered frames; BURROWES CAULKING COMPOUND.

All installations by expert mechanics and supervised by factory trained representatives. Caulking service for pointing and permanent closing of leaks around window and door frames.

Also Adjustable Door Bottoms (Automatic); Adjustable Felt Meeting Stile Strip for Pair of Swinging Doors.

For Burrowes Rustless Screens, see our pages in Manufacturers' Index.

Burrowes Metal Weatherstrip

Burrowes Metal Weatherstrip, of brass, copper and zinc, is excellent in quality, very smooth of surface and uniformly drawn or shaped for satisfactory weatherstripping of all types of wood or metal sash. Burrowes weatherstrip stock for double hung windows is heavy throughout, the *looped* strip attached to meeting rail of upper sash being of heavier gauge stock than is ordinarily supplied.

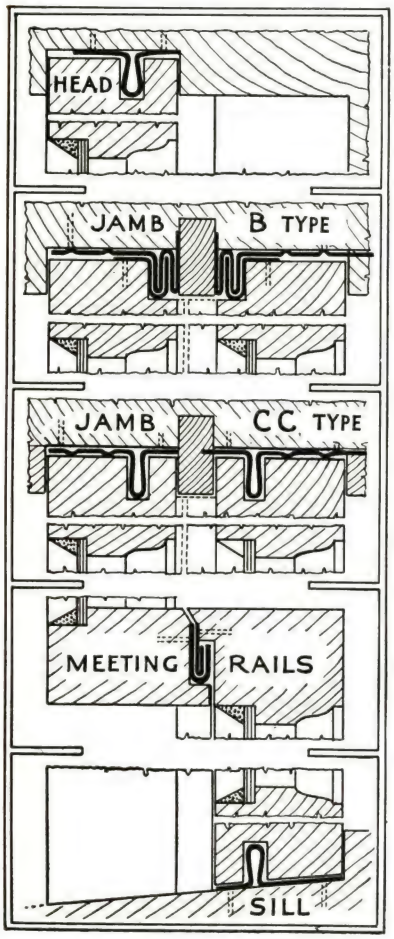
Special Features of Burrowes Interlocking Strip for Double Hung Windows—(See cross section view of jamb—B-type.) This type of double interlocking strip is an exclusive Burrowes method. Note the elimination of channels for leakage of air, water or dust. The strips attached to sash runs are corrugated as shown for utmost smoothness in operation. Windows equipped with this B type of strip will operate smoothly and positively, unaffected by weather, shrinkage or swelling.

Plain Equipment for Double Hung Sash—(See cross section view of jamb—CC type.) Jamb CC type of weatherstrip provides good service, equal to any similar stripping in construction and of superior quality. Installation service the best. This type of stripping is relatively low in cost. Jamb C is plain, without corrugation.

Weatherstripping for Doors—Either "Interlocking" or "Contact." "Interlocking" is recommended for permanency and service.

Weatherstripping for Casements—Designed to withstand the severest weather. Interlocking type with sill trough is recommended.

Special Types—Consult our representatives or write for special detail sheets.



Burrowes Caulking Compound

Burrowes Caulking Compound is tried and time tested and will not dry out, crack, run or harden. Forms a perfect seal with any surface. Made in color, or will take paint.

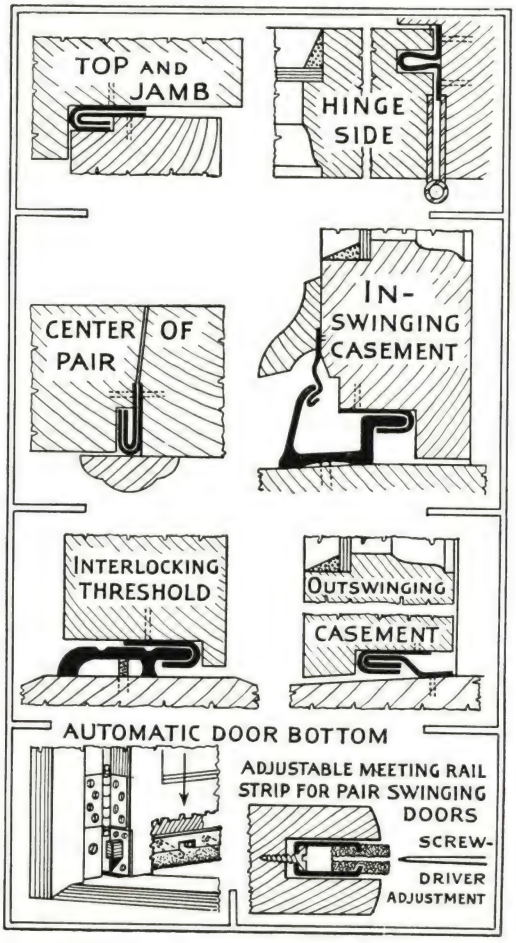
Easily applied with pressure gun.



Above:
Applying Burrowes Caulking Compound

At Left:
Weatherstripping for Double Hung Sash
Jamb B Type is a Burrowes Special and is recommended.
Jamb CC Type is the ordinary method of stripping

At Right:
Weatherstripping for Casements and Doors



CECO WEATHERSTRIP & SCREEN PRODUCTS

DIVISION OF THE CONCRETE ENGINEERING CO., INC.

Manufacturers of Metal Weatherstrips

1926 South 52nd Avenue
CHICAGO, ILL.

Consult Telephone Directory for Local Address in Any City

Product

CECO METAL WEATHERSTRIPS.

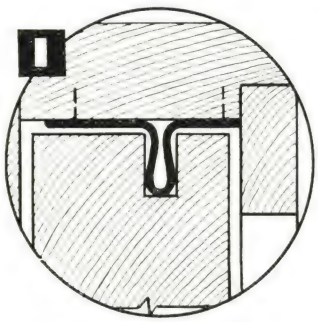
For other Ceco products, see pages in this edition on Metal Framed Screens, Steel Windows and Steel Doors, Meyer Steelforms, Ceco Reinforcing Bars and Fireproofing Materials, as listed in Products Index.

Ceco
TRADE-MARK

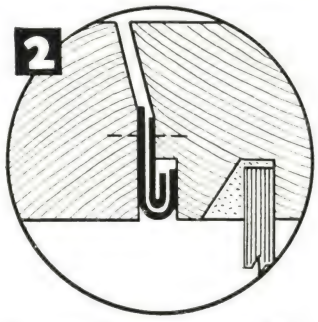
Ceco "Slide Lock" Weatherstrip

A proven product, offering many important new advantages in design and operation. When installed, Ceco "Slide Lock" is fully concealed. Metal to metal contact—metal sliding on metal—insures easy operation of windows at all times. Good, weathertight installations assured, regardless of warpage, because of maximum flexibility. Highest efficiency assured—refer to test chart below. Ceco weatherstrips are installed by authorized Ceco dealers or direct factory branches.

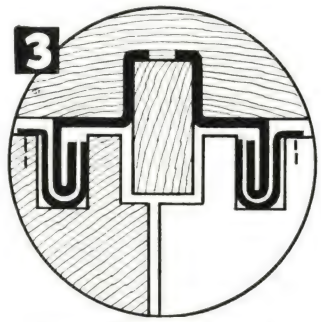
Complete information may also be obtained from Concrete Engineering Company offices in principal cities.



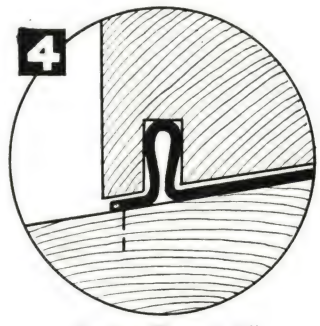
Section Through Head



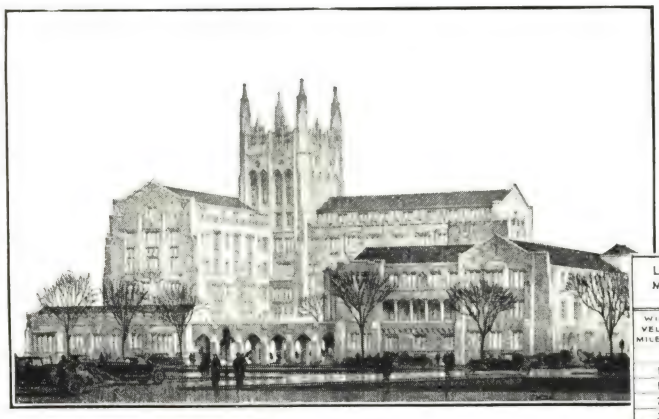
Section Through Meeting Rail



Section Through Jambs



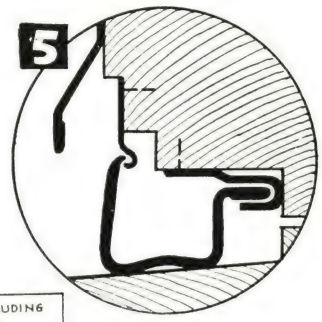
Section Through Sill



Lying-In Hospital in Chicago
H. B. BARNARD, Contractors
SCHMIDT, GARDEN & ERIKSON, Architects
This is one of the outstanding hospitals in the country. It is Ceco weatherstripped and Ceco calked throughout

Ceco Door Equipment

There are 15 styles of Ceco extruded brass thresholds and door bottoms available to meet every requirement.



LEAKAGE PER FOOT OF CRACK AROUND THE SASH, INCLUDING MEETING RAIL FOR CRACK OF 1/16" AND 3/16" CLEARANCE
WINDOW UNLOCKED

WIND VELOCITY MILES PER HOUR	PLAIN NON-STRIPPED WOOD WINDOW LEAKAGE CU. FT. PER HOUR	AVERAGE WEATHERSTRIPPED WOOD WINDOW LEAKAGE CU. FT. PER HOUR
7.5	78.0	8.52
10.0	106.0	14.70
15.0	155.0	28.60
20.0	201.0	43.60
30.0	291.0	70.50

TABLE "C"
1930 EDITION-AMERICAN SOCIETY OF HEATING & VENTILATING ENGR'S GUIDE

WIND VELOCITY MILES PER HOUR	CECO SLIDE LOCK LEAKAGE CU FT PER HOUR	CECO RIB STRIP LEAKAGE CU FT PER HOUR	CECO RIB STRIP & LINER LEAKAGE CU FT PER HOUR
7.5	7.8	8.5	7.30
10.5	10.0	14.5	10.72
15.0	18.0	23.0	18.00
20.0	27.8	33.0	26.00
30.0	46.6	55.0	48.00

TABLE "D"
RESULTS OF TESTS MADE AT UNI OF WISCONSIN OCT. 1930

SLIDE LOCK WINDOW REDUCTION IN INFILTRATION	90%
CECO RIB STRIP	89%
CECO RIB STRIP AND LINER	90%

Tabulation of the Results of Tests Made at University of Wisconsin

Ceco Calking Cement

A scientifically prepared plastic calking compound which never dries, runs, cracks, hardens or pulls away. It forms a perfect bond with any surface—wood, metal, cement, stone or composition. It is made in a variety of 10 standard colors to harmonize with any exterior.

For Inswinging Casements

See detail. New improved rolled brass channel trough for bottom with two interlocking strips make a double barrier to water and wind. Interlocking strips are of finest spring bronze. Top and sides equipped with standard spring bronze strips. Trough also furnished in rolled zinc or solid extruded brass.

CHAMBERLIN METAL WEATHER STRIP COMPANY, INC.

DETROIT, MICH.

FACTORIES: DETROIT, MICH. and PERU, ILL.

DISTRICT FACTORY BRANCHES

AKRON, OHIO
ATLANTA, GA.
BALTIMORE, MD.
BOSTON, MASS.
BUFFALO, N. Y.
CHAMPAIGN, ILL.
CHARLESTON, W. VA.
CHARLOTTE, N. C.
CHICAGO, ILL.
CINCINNATI, OHIO
CLEVELAND, OHIO
COLUMBUS, OHIO
DALLAS, TEX.
DAVENPORT, IOWA
DAYTON, OHIO
DENVER, COLO.
DES MOINES, IOWA
DETROIT, MICH.
FARGO, N. D.
FLINT, MICH.
HARRISBURG, PA.
INDIANAPOLIS, IND.
JACKSONVILLE, FLA.
KANSAS CITY, MO.
LOS ANGELES, CALIF.
LOUISVILLE, KY.
MEMPHIS, TENN.
MILWAUKEE, WIS.
MINNEAPOLIS, MINN.
NASHVILLE, TENN.
NEWARK, N. J.
NEW HAVEN, CONN.
NEW YORK, N. Y.
OMAHA, NEB.
PHILADELPHIA, PA.
PITTSBURGH, PA.
PORTLAND, ORE.
PROVIDENCE, R. I.
RICHMOND, VA.
ST. LOUIS, MO.
SAN FRANCISCO, CALIF.
SCHENECTADY, N. Y.
SOUTH BEND, IND.
TERRE HAUTE, IND.
TOLEDO, OHIO
WASHINGTON, D. C.
WILKES-BARRE, PA.

SALES OFFICES IN 60 OTHER CITIES OF THE UNITED STATES

Products and Services

CHAMBERLIN METAL WEATHER STRIPS (of cold-rolled bronze, spring bronze, brass or zinc) including their installation by Chamberlin factory branch mechanics, for every type of wood, metal or metal covered window or door. Prompt delivery of any specially designed equipment in any standard or special gauge.

CHAMBERLIN PLASTI-CALK, including its application by Chamberlin factory branch mechanics, around window and door frames and also for pointing up masonry joints.

BRASS PULLEY HOLE COVERS for the lower sash pulley holes to reduce pulley hole leakage.

CHAMBERLIN IN-DOR-SEALS, or Automatic Door Bottoms, for sealing the bottom cracks of interior doors, including bedroom, closet, kitchen, basement, bathroom and attic doors.

CHAMBERLIN SILL-DOR-SEALS, or POLISHED EXTRUDED BRASS THRESHOLDS, to weather-seal the bottoms of every type of exterior door; POLISHED BRASS KICK PLATES and PUSH PLATES for doors.

For the standard Chamberlin Bronze and Aluminum Rolling Screen, the Fenestra-Chamberlin Rolling Screen, and for Robbins Wood and Hollow Metal Screens installed by Chamberlin branches, see Manufacturers' Index.



Chamberlin Equipment for All Types of Openings

Space does not permit showing details of a complete line of Chamberlin Weather Strips.

Chamberlin facilities enable the handling of any special requirement. Among the more general types of openings not shown here Chamberlin can equip the following:

Double hung steel windows; pivot windows; hollow metal windows; transoms; steel casements; projected and pivoted steel windows, etc.

For Double Hung Windows

Equipment 100 is a development of 37 years of weather stripping representing time-tried designs. The tongue allows for expansion and contraction without losing a sealing contact. Corrugations of side strips insure easy operation and perfect installation.

Meeting rail strips are strong, while meeting rail blocks give added efficiency. All metal is ample in width so as to be kerfed wherever possible.

For In-opening Casements—Chamberlin Interlocking

Equipment 300 is a most efficient weather strip for this type of window. At the hinge and latch sides the interlocking weather strip seal is placed to check wind-driven rain as far to the outside as possible. This outside interlocking equipment meets the unusual demand for protection against heavy water leakage. It is efficient against air and dust leakage as well.

Rain drips and astragals are a part of the installation of all Chamberlin casement equipments.

For Out-opening Casements—Chamberlin Interlocking and Spring Bronze

Equipment 500, for out-opening casements, forms a strong interlocking seal against rain and air leakage. Should be used particularly when windows are set flush with outside walls.

For Outside Doors—Interlocking

Equipment 800 with interlocking weather strips is unquestionably a superior equipment for doors. Zinc can be used but for sake of appearance cold-rolled bronze is preferable. Equipment 800 is recommended in cold-rolled bronze. All door installations include a Sill-Dor-Seal, an interlocking brass threshold for sill. For rear and side entrance doors Nos. 869 or 869-A is recommended; for front entrance doors wider sills are used.

Sill-Dor-Seals—Interlocking Brass Thresholds

Can be securely fastened or anchored to either wood, stone or metal sills so as to interlock with a hook when doors are closed. Whether interlocking or spring bronze is used at head and sides a hook and a Sill-Dor-Seal is used at the sill.

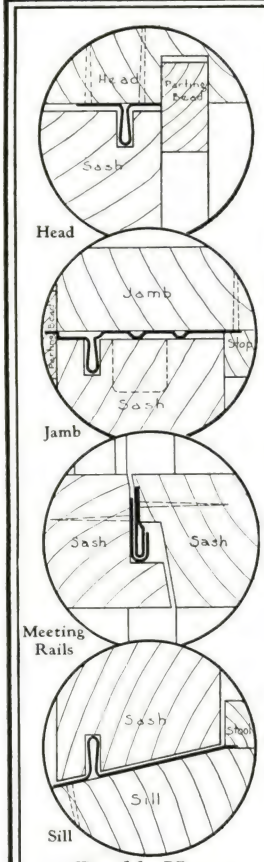


Automatic Door Bottoms—In-Dor-Seals

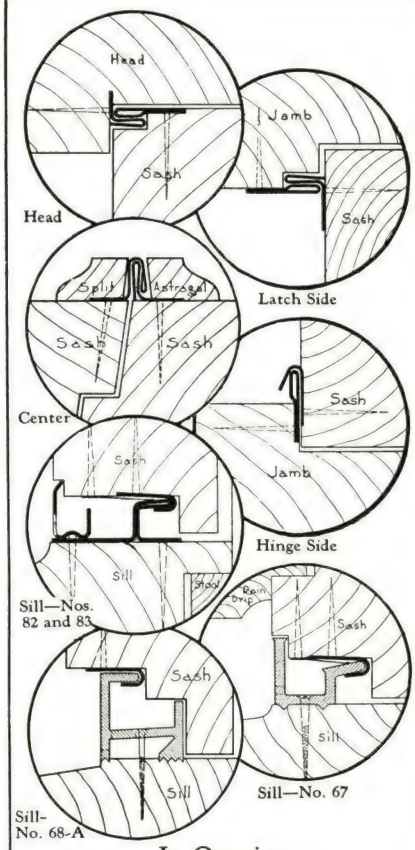
Silent acting, automatic, ingeniously hidden in the bottoms of doors, they do not interfere with rugs, mats, runners or carpets. A thick but soft piece of felt is lowered an instant before the door is entirely closed and is raised an instant after the door opens. They are mechanically correct. Needed on bedroom, bathroom, kitchen, basement, closet and attic doors. Also in schools, dormitories, hospitals, hotels and private offices.

Catalogues and Specifications

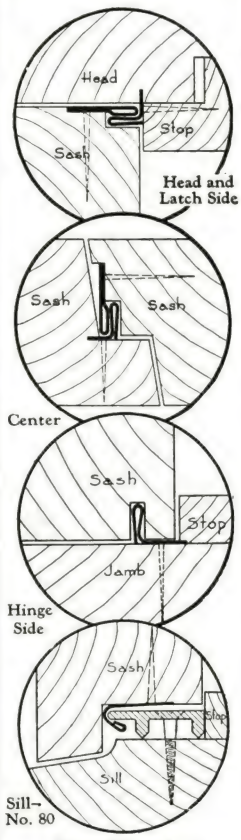
Weather Strips, 35p6 (old number 19e14). Plastic-Calk, 19e16. Rolling Screens, 35p1 (old number 19e15). Catalogues are standard in size according to the filing system requirements of the American Institute of Architects. Chamberlin catalogue material is of practical aid to the architect and builder and will be mailed upon request, either from the general offices in Detroit, Michigan, or from any Chamberlin factory branch.



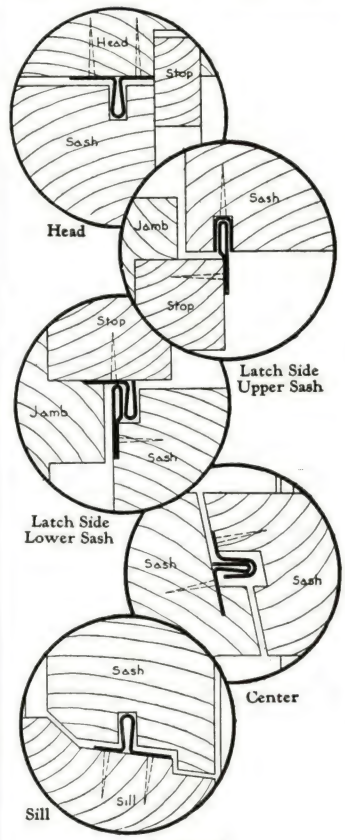
Double-Hung Windows
Equipment No. 100



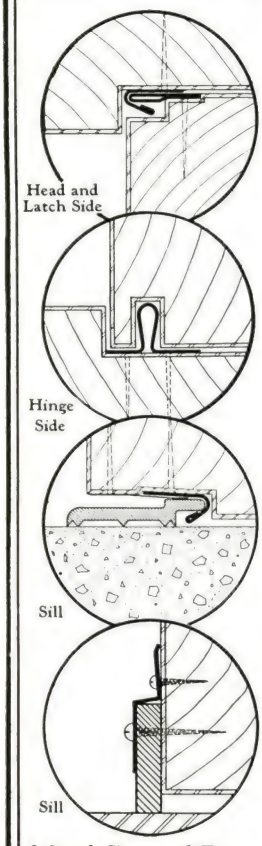
In-Opening Casement Windows
Equipment No. 300



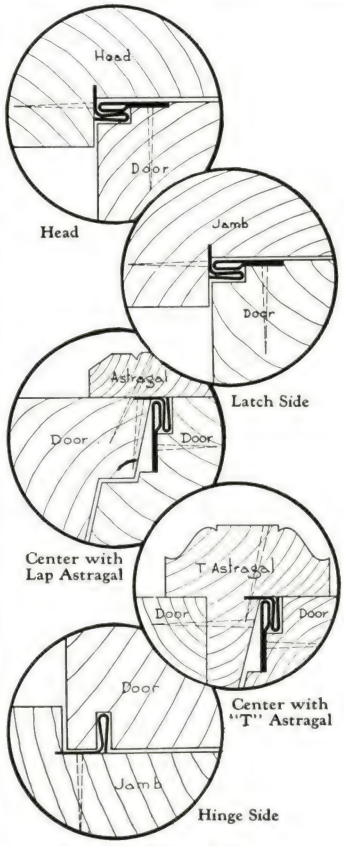
Out-Opening Casement Windows
Equipment No. 500



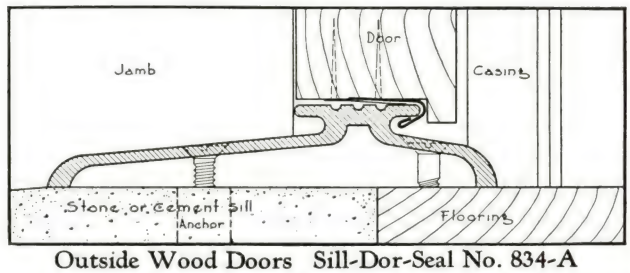
Austral Windows
Equipment No. 600



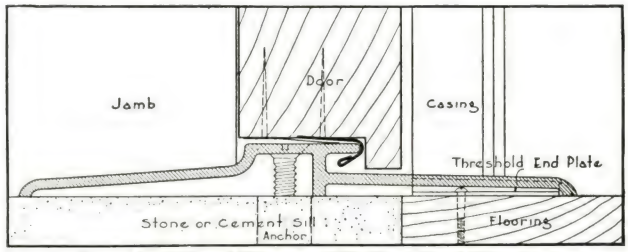
Metal Covered Doors
Equipment No. 800-BS



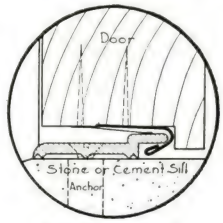
Outside Wood Doors
Equipment No. 800



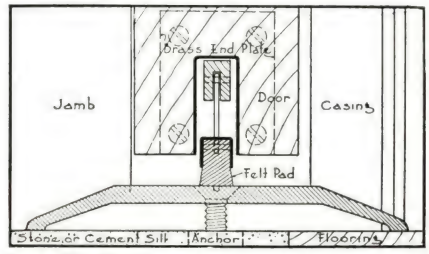
Outside Wood Doors Sill-Dor-Seal No. 834-A



Outside Wood Doors Sill-Dor-Seal No. 836



Sill-Dor-Seal
No. 869-A



Outside Doors Sill-Dor-Seal No. 813-A
with Automatic No-Dust Bottom
Automatic In-Dor-Seals furnished for Inside Doors

HALF SIZE DETAILS OF CHAMBERLIN METAL WEATHER STRIPS FOR WINDOWS AND DOORS

THE DIAMOND METAL WEATHER STRIP CO.

COLUMBUS, OHIO

COLUMBUS, OHIO

FACTORY BRANCHES
CINCINNATI, OHIO

OMAHA, NEB.

Diamond Dealers Are Located in Principal Cities of the United States

GUARANTEED PROTECTION WITH DIAMOND METAL WEATHER STRIPS

A Weather Strip for Every Requirement

We manufacture over 100 different metal weather strips of zinc, copper, spring bronze, brass and aluminum. We do not believe that one type of weather strip can meet all requirements, and therefore add new strips as they are developed for specific needs.

PRACTICAL METAL THE DIAMOND WAY WEATHER STRIPPING

TRADE-MARK
(Reg. U. S. Pat. Off.)

Flexibility and Removability—Diamond Metal Weather Strips are so made as to prevent sticking and binding, caused by the warping, swelling and shrinking of sash, and by the swelling of parting stops.

They also are made so that, if necessary, double hung windows may be removed easily.

Diamond Calking Compound

Window and door frames seldom fit snugly against brick, stone or frame walls, and consequently soot and water filter in, soiling drapes and wall paper. Diamond Calk forced in the crevices leaves an elastic watertight seal.

Advantages of Weather Strips

Diamond Metal Weather Strips cut fuel bills 20% to 40%; reduce cleaning bills; protect health by permitting proper ventilation without dangerous drafts; eliminate window rattle; deaden the noise of outside traffic; allow windows always to open and close freely.

Service

Guaranteed installations are available all over the United States by our 500 licensed dealers. All material is applied by skilled mechanics under the personal supervision of these dealers who will gladly furnish estimates on any work you may have.

Write to the home office for the address of the man near you. If no dealer is in your vicinity, we can supply material for your jobs with installation instructions. Shipments are made immediately on receipt of orders.

A practical Engineering Department is maintained for solving difficult problems in weatherstripping. Blue print details and descriptive circulars are furnished to architects and builders on request.

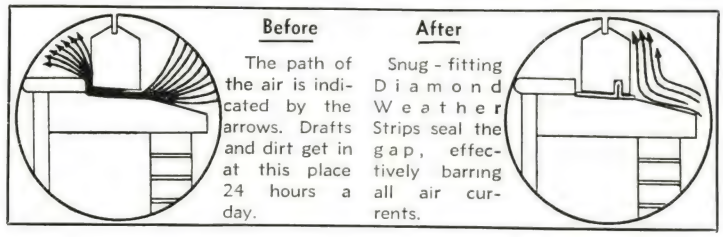
Manufacturing Facilities

This company has been manufacturing and installing weather strips for nearly 25 years. The plant is equipped with special machinery to produce accurately a finished product in large volume. A high standard of efficiency is maintained both in the manufacture and installation.

Guarantee

All Diamond Metal Weather Strips are unconditionally guaranteed against defects in workmanship and materials for the life of the building in which they are installed.

Thousands of buildings in the United States and Canada have been equipped with our products. A list of installations is yours for the asking.

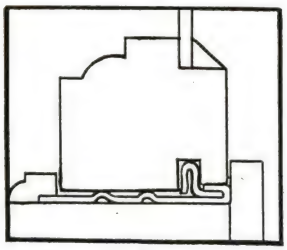


Before

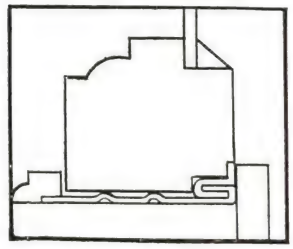
The path of the air is indicated by the arrows. Drafts and dirt get in at this place 24 hours a day.

After

Snug-fitting Diamond Weather Strips seal the gap, effectively barring all air currents.



Rib Type

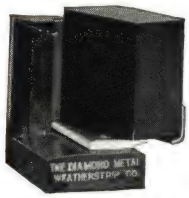


Interlocking Type

Diamond Corrugated Flexible Strip

The New Diamond Corrugated Flexible Strip for double hung windows, illustrated below, combines the outstanding advantages of the popular Diamond Equipment, namely flexibility and removability, with the well-known advantages of the corrugated strip, namely ease of sliding and triple contact. This strip is usually installed as a rib strip, but can be installed as an interlock giving metal to metal contact if required. The strip itself is the same in either case, the installation alone is different.

Insure your client permanent satisfaction by specifying this new Diamond Weather Strip.



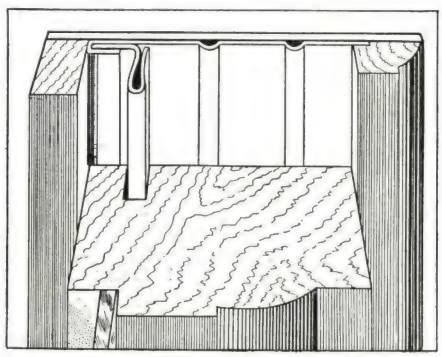
Brass Sill Plate for Doors

Specifications for Diamond Weather Strips

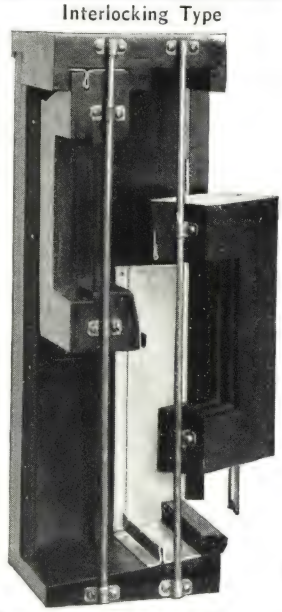
All exterior wood windows and doors shall be equipped with weather strips as manufactured and installed by THE DIAMOND METAL WEATHER STRIP COMPANY or its authorized dealer.



Waterproof Channel Casements



New Diamond Corrugated Flexible Strip



Removable Feature of Diamond Flexible

THE HIGGIN MANUFACTURING CO.

All-metal Weatherstrips

NEWPORT, KY.

SALES AGENCIES IN FIFTY OF THE LARGER CITIES THROUGHOUT THE COUNTRY

Look up our Local Office in Telephone Directory, or write to Newport, Ky., for information

LOCAL REPRESENTATIVE

Product

ALL-METAL WEATHERSTRIPS, made to order.

For Higgin Window and Door Screens and Access Panels, see Manufacturers' Index.

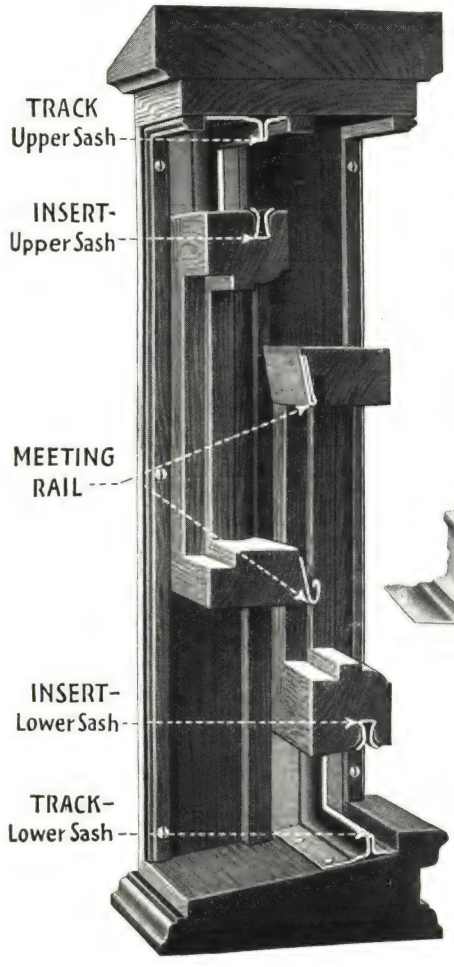
HIGGIN ALL METAL WEATHERSTRIPS

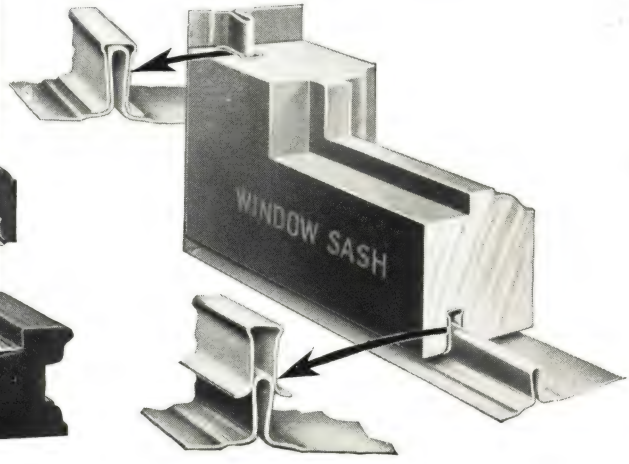
Higgin All-metal Weatherstrips

Complete Equipment—The complete equipment for sliding windows (see illustration) consists of two strips, one of which is attached to the window frame and is made with a ⅜-in. tongue or raised portion that forms a track on which the sash slides. This track is usually made of zinc, but bronze may also be used.

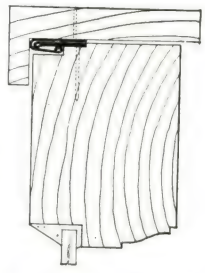
The other strip, called the insert, is made of very light spring bronze, and is inserted in a groove made in the sash and slides on the track strip. The spring flanges of the insert lightly contact with the tongue of the track and effectually seal the aperture. As the insert is higher than the tongue of the track there is no chance for it to cut the insert.

At the meeting rail a zinc hook is attached to the lower rail of the upper sash and a zinc flat strip to the upper rail of the lower sash in such manner that as the sashes are closed the strips interlock, sealing up the opening completely.





Plain Equipment—The plain equipment, consisting of the track strip only can be furnished at less cost, if desired, but it is not so effective as when the insert strip also is used.



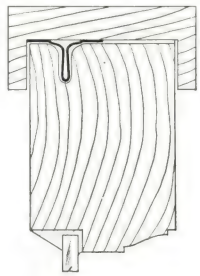
Section showing hook and flat strips used at top, bottom and meeting stiles on out opening casements and at top and meeting stiles on in opening casements.

Other Types of Equipment

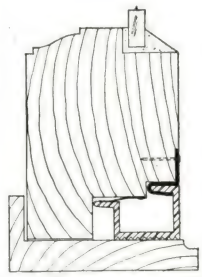
In addition to weatherstripping for double hung windows, a complete line of other strips is manufactured. There are a number of installations which may be had for casement windows opening in and out, details of which can be provided. Higgin inswinging casement trough and other strips make possible the use of this type window which once was so popular but difficult to make weathertight.

There is also an equipment for every type of door, exterior or interior.

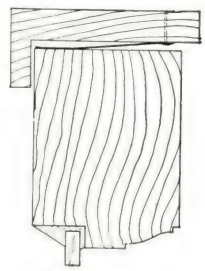
Complete details, estimates or other information will be cheerfully furnished.



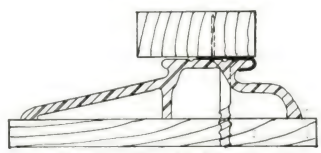
Rib track as shown above is used at hinge side for in and out opening casements.



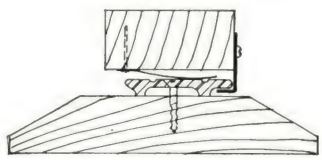
The trough strip above for in opening casements is but one of a complete line for this purpose.



Spring bronze is generally used at sides and tops of doors.



⅞ x 4¼-in. threshold for main entrance doors



There are a number of smaller thresholds similar to that illustrated above which can be used for secondary door openings.

FOUNDED 1911

ORIGINAL CONTROL AND MANAGEMENT

INVINCIBLE WEATHER GUARD CO., INC.

Bedford and Snyder Avenues
BROOKLYN, N. Y.

Product

METAL WEATHER STRIP (zinc) to meet any condition or style of window or door.

Foreword

This brief outline and these drawings are here chiefly for the information of architects. It is our hope that this presentation will induce confidence in our product. It is our intention that, as in the past twenty years, such trust is proven justified.

Guarantee—No Time Limit

Invincible Weather Guard has since its introduction become a nationally recognized product, and amply justifies the title, "All Ways the Best."

Types

There is a type of Invincible Weather Guard to suit every requirement. Some of the more usual of these are detailed on the following page.

Features

Simplicity—Strong and simple in design, avoiding all complicated or spring mechanisms.

Ease of Operation—All parts firmly anchored to frame or sash, and operating with usual action of window or door.

Permanence—Unaffected by weather, using non-ferrous metals.

Reliability—We are completely responsible because our entire line is produced in our factory under the original control and management.

Importance of Proper Installation in Weather Strip

The success of probably no other branch of building construction depends more upon careful and expert installation than the weatherstripping of windows and doors.

Experience has shown that often too much importance is placed in this or that particular design, and not enough in its proper application.

The protective qualities sought in weather strip can be obtained only by proper design and materials, properly fitted and set. *There can be no substitute for careful work.*

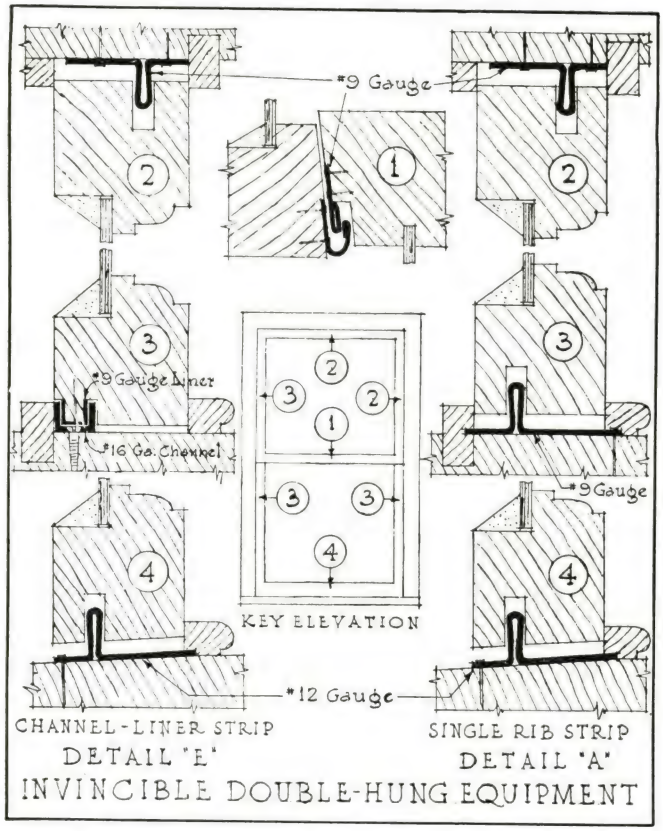
Invincible Weather Guard is the result of years of experience in the design, manufacture, and *installation* of weather strip. When properly installed on windows and doors, it provides a simple, permanent and effective protection against drafts, dust and rain.

Specification

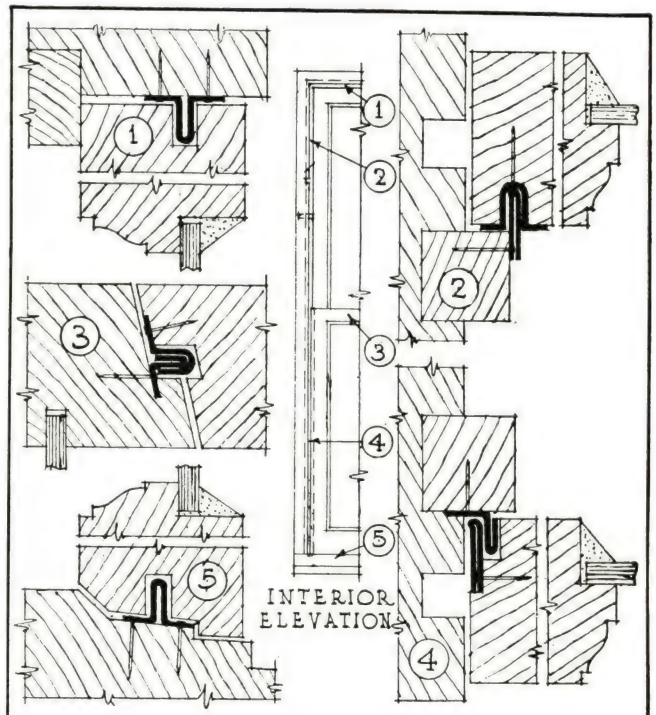
All exterior wood windows and doors shall be equipped with metal weather strip as manufactured and installed by the INVINCIBLE WEATHER GUARD CO., INC., and as indicated in SWEET'S ARCHITECTURAL CATALOGUES, Twenty-sixth Edition.

Prominent Installations

BUILDING	ARCHITECT	BUILDER
Barclay Hotel, Philadelphia, Pa.	J. E. R. Carpenter, New York, N. Y.	Day & Zimmerman Eng. Co., New York, N. Y.
Geo. Innes, Jr. High School, Montclair, N. J.	Starrett & Van Vleck, New York, N. Y.	Carlson Co., Montclair, N. J.
Wilmington Hospital, Wilmington, Del.	York & Sawyer, New York, N. Y.	Wm. M. Francis Co., Wilmington, Del.
New Breakers Hotel, Palm Beach, Fla.	Schultze & Weaver, New York, N. Y.	Turner Construction Co., New York, N. Y.
First Presbyterian Church, Pottsville, Pa.	Cram & Ferguson, Boston, Mass.	F. W. Van Loon, Philadelphia, Pa.
Vincent Astor Residence, New York, N. Y.	Mott B. Schmidt, New York, N. Y.	Saxton-Gerard Co., New York, N. Y.
Fordham University, New York, N. Y.	Robert J. Reilly, New York, N. Y.	P. J. Carlin Construction Co., New York, N. Y.
McKinley Technical High School, Washington, D. C.	A. L. Harris, Washington, D. C.	Geo. Hyman Construction Co., Washington, D. C.
Residence of Mayor Walker, New York, N. Y.	Le Roy P. Ward, New York, N. Y.	Columbus Contracting Co., New York, N. Y.
Philadelphia Art Club, Philadelphia, Pa.	Day & Klauder, Philadelphia, Pa.	F. L. Hoover & Sons Co., Inc., Philadelphia, Pa.
Roosevelt Hotel, Pittsburgh, Pa.	Webber & Wurster, Philadelphia, Pa.	Landau Bros. Construction Co., Inc., Pittsburgh, Pa.
Brook Club, New York, N. Y.	Delano & Aldrich, New York, N. Y.	Saxton-Gerard Co., New York, N. Y.
Vanderbilt Country Club, Deepdale, L. I., N. Y.	Warren & Wetmore, New York, N. Y.	Wharton Green Co., New York, N. Y.
Montauk Yacht Club, Montauk, L. I., N. Y.	Walker & Gillette, New York, N. Y.	Cornell Bros., Woodmere, L. I., N. Y.
Hotchkiss School, Lakeville, Conn.	Cass Gilbert, New York, N. Y.	Jas. Stewart & Co., Inc.
Valeria Home, Cortlandt, N. Y.	Delano & Aldrich and Chas. H. Higgins, New York, N. Y.	Chas. H. Higgins, New York, N. Y.
Grasslands Hospitals, Mt. Pleasant, N. Y.	Walker & Gillette, New York, N. Y.	Butler-Reisdorff Co., New York, N. Y.
U. S. Post Office, Utica, N. Y.	Jas. A. Wetmore Washington, D. C.	A. C. Samford, Montgomery, Ala.
Lakeville Country Club, Great Neck, L. I., N. Y.	A. F. Gilbert, New York, N. Y.	H. A. Harris Co., New York, N. Y.
Winfield Scott Hotel, Elizabeth, N. J.	W. L. Stoddart, New York, N. Y.	Deakman & Wells Co., Jersey City, N. J.
National Bank Building, Philadelphia, Pa.	W. H. Lee, Philadelphia, Pa.	Wark Co., Philadelphia, Pa.
DeWitt Clinton Hotel, Albany, N. Y.	C. Howard Crane, New York, N. Y.	Albany-Metropolitan Corp., New York, N. Y.
High School of Commerce, New York, N. Y.	Board of Education, New York, N. Y.	Stevenson & Cameron, New York, N. Y.
James Madison High School, Brooklyn, N. Y.		Turner Construction Co., New York, N. Y.

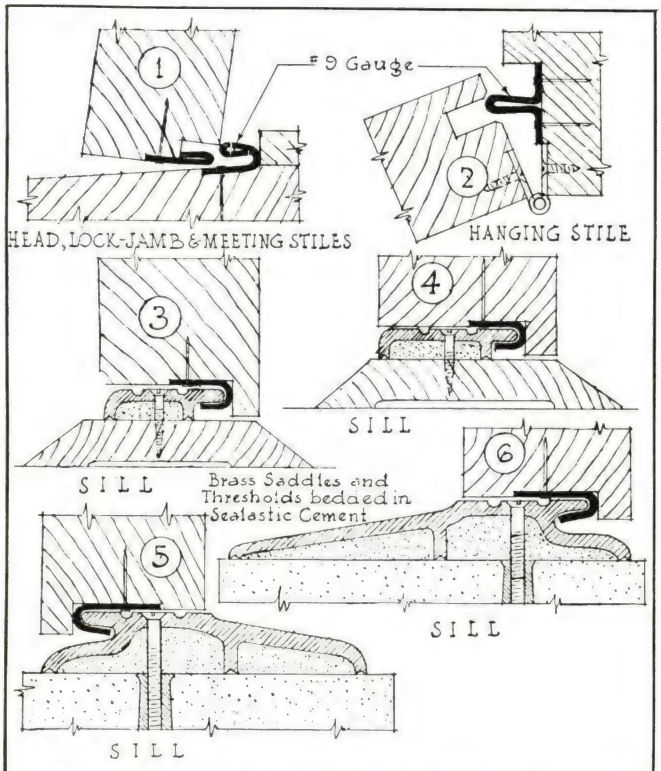


INVINCIBLE DOUBLE-HUNG EQUIPMENT

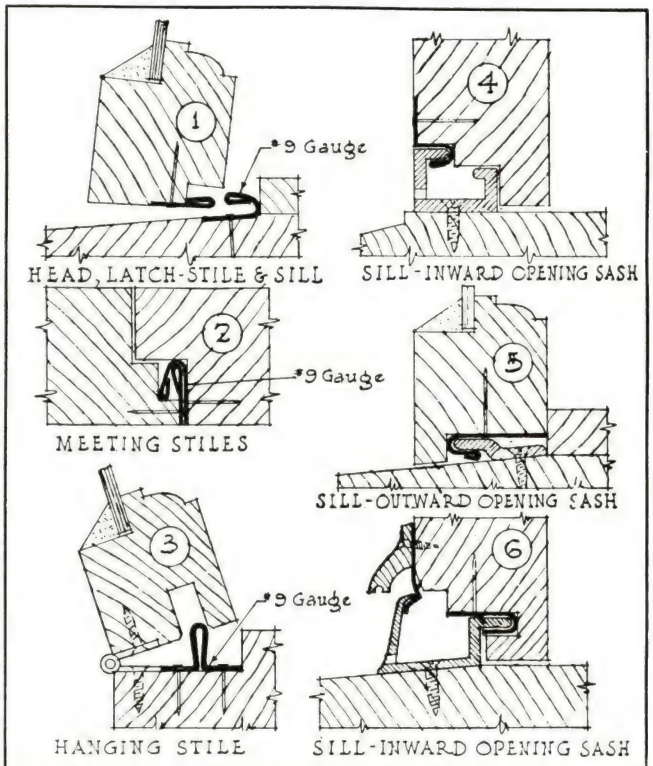


ONLY METHOD APPROVED BY AUSTRAL WINDOW CO.

INVINCIBLE AUSTRAL EQUIPMENT-DETAIL "K"



INVINCIBLE DOOR EQUIPMENT-DETAIL "D"



INVINCIBLE CASEMENT EQUIPMENT-DETAIL "C"

HALF FULL SIZE DETAILS SHOWING APPLICATION OF INVINCIBLE WEATHER GUARDS

THRESHOLDS, CHANNELS AND SADDLES ARE BRONZE OR BRASS. WEATHERSTRIPS ARE OF ZINC

KUHLMANN METAL WEATHER STRIP CO.

3801 Forest Park Boulevard,
ST. LOUIS, MO.

Products

KUHLMANN SELF-ADJUSTING METAL WEATHER STRIPS.

Also Plain and Corrugated Rib Strip Extruded Brass Thresholds; Water and Air Tight Casement Bottoms; Caulking of Window and Door Frames.

Kuhlmann Weather Strip Provides Permanent Seal of Protection, Against Cold, Dust and Rain

Kuhlmann Self-adjusting Metal Weather Strips provide uniform *and continuous* contact from the sill to the head of the frame under all variable climatic conditions.

Naturally, such contact assures complete protection *at all times*—regardless of the position of the sash.

A study of the illustration at the right—keeping in mind the seven outstanding features which are given below—will readily reveal how these self-adjusting strips provide a permanent seal of protection against cold, dust and rain. Because of the self-adjusting feature which permanently establishes a constant and uniform seal, regardless of a shrinking or swelling of the wood, tight and hard-to-operate windows are virtually an impossibility.

The Seven Outstanding Features

(1) *Weathertight joints.*

(2) *Permanent metal parting beads.*

(3) *Continuous contact from sill to head of frame.*

(4) *Remarkable ease of operating sash.*

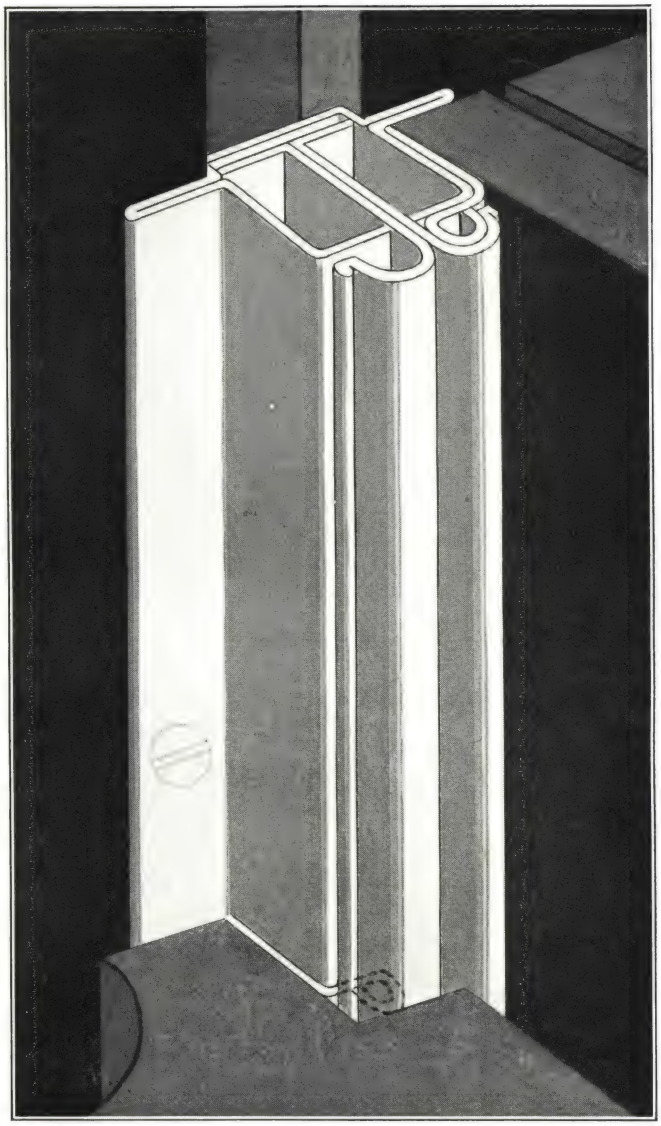
(5) *Positively self-adjusting—regardless of degree of swelling or shrinkage of wood.*

(6) *Easy removal of sash and access to cords, weights, etc.*

(7) *Each member nailed to each sash, giving added strength to sash.*

Weathertight Joints—Not Dependent Upon Skill of Installer

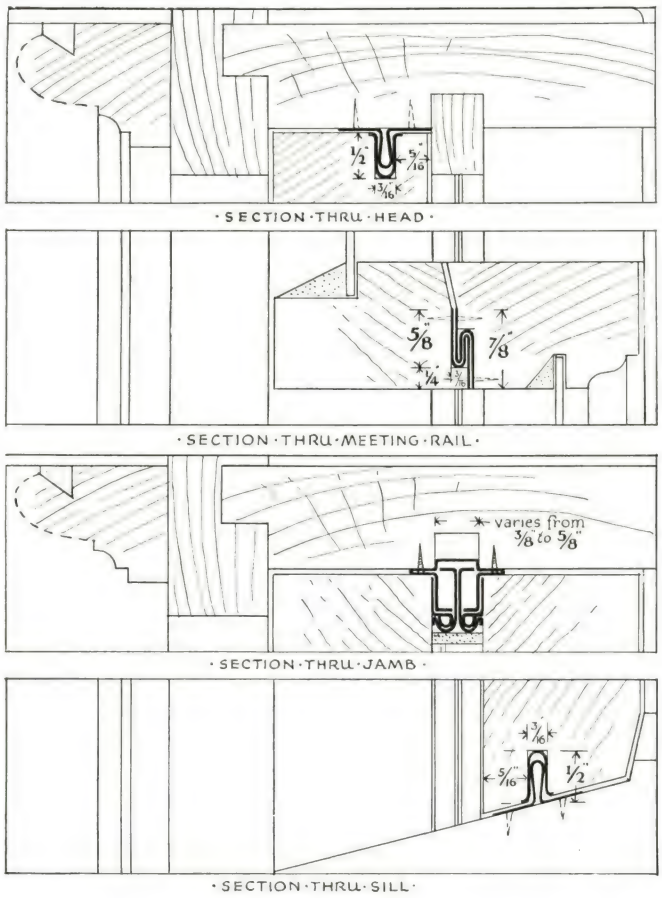
With Kuhlmann Self-adjusting Metal Weather Strips, weathertight joints are not dependent upon the skill of the installer. They are pre-determined by precision manufacture.



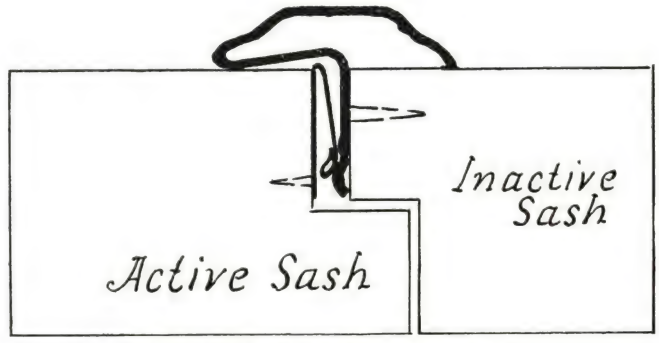
Maintains Uniform Contact
Under All Variable Climatic Conditions

Exclusive Features Make Kuhlmann One of the Finest Weather Strips Ever Offered

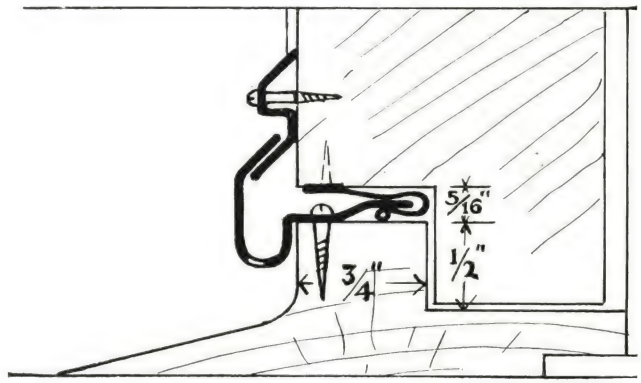
When installing weather strips you want the best—the utmost in protection. The positive self-adjusting feature, the full length machine-made, metal to metal contact which eliminates binding of damp wood surfaces, and other exclusive features, make Kuhlmann Self-adjusting Metal Weather Strips one of the most efficient weather strips on the market today.



Kuhlmann Equipment No. 200
Double-Hung Window—Showing Application of
Kuhlmann Self-adjusting Weather Strip



SECTION THRU MEETING RAIL



SECTION THRU SILL

Kuhlmann Equipment No. 300
In-opening Casement Windows—Showing Application
of Kuhlmann Self-adjusting Weather Strip

Specifications for Double Hung Windows

All double hung wood windows shall be equipped with Kuhlmann Self-adjusting Weather Strip Equipment No. 200 installed by mechanics experienced in this class of work and under the supervision of the KUHLMANN METAL WEATHER STRIP CO. or their authorized representative.

Sash and frame shall be equipped at the sides as follows: Frame member to consist of a metal parting strip to fit into rabbet and replace ordinary wood parting bead. This strip to consist of a housing made of No. 11 (.024) zinc having two reciprocating members of No. 9 (.018) zinc actuated by phosphor bronze equalizers, and designed to interlock with tubular sash members attached to sides of upper and lower sash with 5/8-in. No. 17 barbed metallic tinned nails. Metal parting bead shall be attached to frame with No. 5½-in. flat head screws countersunk in screw flanges projecting on each side of parting bead slot.

The metal parting bead and reciprocating members shall extend full height from head to sill and shall be delivered to the job as a complete unit assembled and inspected in the factory of the KUHLMANN METAL WEATHER STRIP CO., and guaranteed for a precision machine-made joint.

Head and sill shall be equipped with a two-member interlocking zinc equipment consisting of frame member No. 20 of No. 9 (.018) zinc, having two nailing flanges and attached with 5/8-in. No. 17 barbed metallic tinned nails. Top rail of upper sash and bottom rail of lower sash to be grooved to receive zinc member No. 29 of No. 9 (.018) zinc.

Meeting rails shall be equipped with a two-member interlocking equipment consisting of identical zinc members No. 25 of No. 9 (.018) zinc, each having double nailing flanges and a non-collapsible projecting flange designed to interlock when windows are closed. Each strip to be rabbeted into meeting rails of sash and nailed through both flanges with 5/8-in. No. 17 barbed metallic tinned nails.

Specifications for In-Opening Casement Windows

All single and double casement windows shall be equipped with Kuhlmann Metal Weather Strip Equipment No. 300 installed by mechanics experienced in this class of work and under the supervision of the KUHLMANN METAL WEATHER STRIP CO. or their authorized representatives.

Head and sides of frame to be equipped with spring bronze No. 61 to No. 65 of No. 31 B.&S. gauge .009 in. in thickness attached to frame with 3/4-in. No. 17 barbed brass nails.

Centers of double casements having wood T-astragal to be equipped with spring bronze strips Nos. 63, 64 or 65 according to thickness of sash. Rabbeted centers to be equipped with two-member equipment consisting of spring bronze strip No. 60 attached to rabbet of active sash and designed to provide a cushion contact with metal astragal No. 28Z or 28B attached to inactive sash.

Bottom of casements to be equipped with Kuhlmann's three-member interlocking equipment consisting of weeping trough member No. 26 attached to sill with 7/8-in. No. 6 brass screws and designed to interlock with resilient bronze strip No. 67 attached to bottom sash and engaging with deflector strip No. 27 attached to outside of bottom rail of sash with 7/8-in. No. 6 brass screws. Strips No. 26-No. 27 to extend full width of frame and to be housed in at each side to prevent corner leakage. When bronze casement bottom is required specify equipment No. 26B and 27B.

KANE MANUFACTURING COMPANY

Manufacturers of "Kane Quality" All-metal Weatherstrips—Zinc, Brass, Bronze, Copper and Aluminum for Windows and Doors

MAIN OFFICE AND FACTORY

KANE, PA.

SALES OFFICES AND DISTRIBUTERS IN ALL PRINCIPAL CITIES

For our pages on Wood and Metal Frame Insect Screens, and Venetian Blinds, see Manufacturers' Index

"KANE QUALITY" ALL-METAL WEATHERSTRIPS

Materials and Installation

"Kane Quality" Metal Weatherstrip consists of a heavy beaded zinc strip, securely inserted in the sash channel in such a manner as to permit the beaded portion of the strip to project into and engage with a narrow groove which is planed in the bottom and sides of the lower sash and the top and sides of the upper sash of double hung windows.

For the center, a special interlocking strip is provided, thus forming a bond that effectually keeps out air, dust and dirt.

The sill, head and meeting rail strips should be nailed very close, about 1½ in. on centers. The side strips need very few nails, only enough to keep them from riding up and down, as joint is made by kerfing the strips into the parting beads on both upper and lower sash.

Advantages

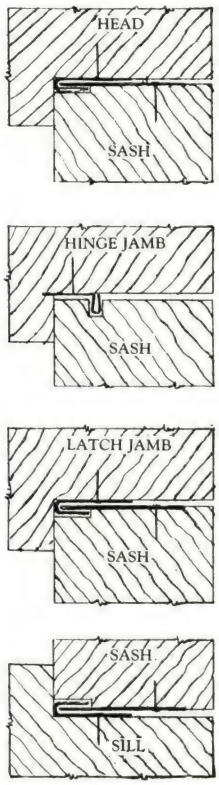
These weatherstrips effectively bar the wind and dust, conserve heat and promote comfort without detracting in the least from the beauty of the woodwork or the attractiveness of the door or window where they have been installed.

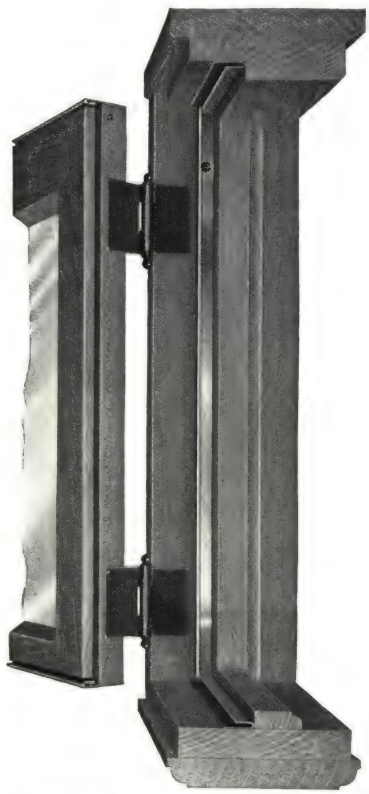
Their thickness, shape, method of application, the metal itself, and every detail connected with their manufacture and installation have been determined only after years of painstaking observation and experiment.

The simplicity, ruggedness and practicability of all Kane types of weatherstrip are apparent at a glance and offer advantages that pay for installation in a short time.

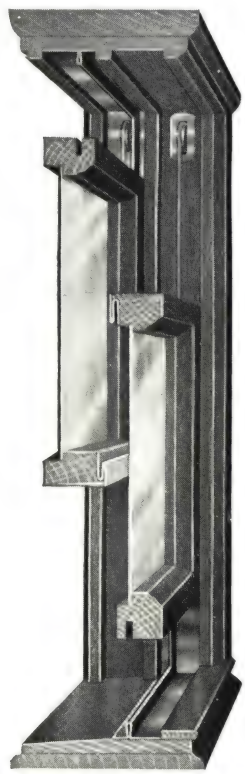


Door Weatherstripped with Spring Bronze; Threshold of Solid Brass





Casement Opening Out



Window Weatherstripped with Pure Zinc

MASTER METAL STRIP SERVICE, INC.

1720 North Kilbourn Avenue
CHICAGO, ILL.

Master Weatherstrip Contractors are located in Principal Cities of the United States

Products

WEATHERSTRIP EQUIPMENT for practically all types of wood or metal doors or windows, manufactured of the best obtainable metals (Zinc, Brass, Bronze, Copper and Aluminum) and the gauge is selected to insure maximum efficiency as well as permanence.

Calking Compounds, gun and knife grades. Alumo Weatherstrip Tools for efficient installation.

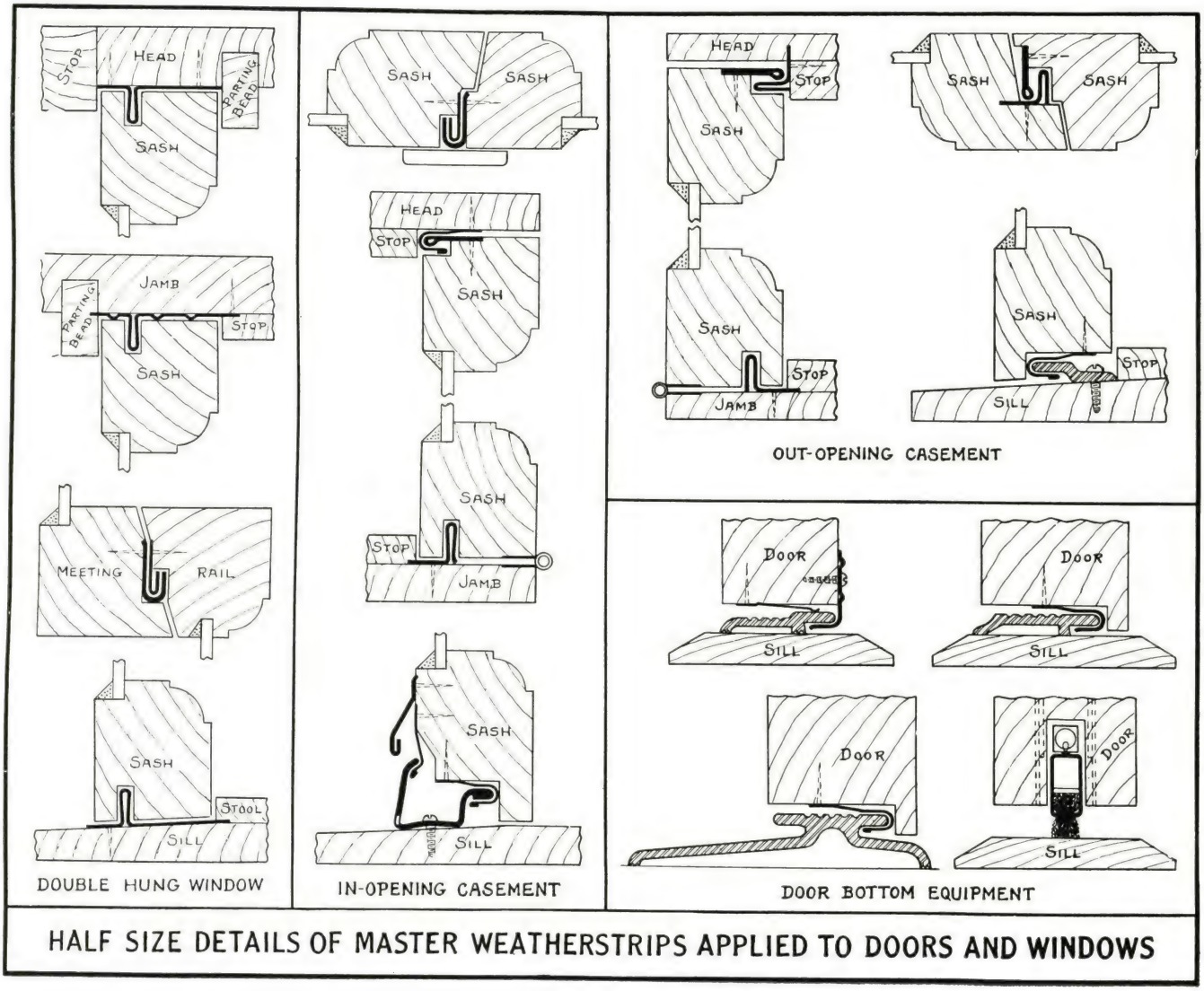
Special Weatherstrips made to order to meet unusual conditions.

Specification

Double Hung Windows—All exterior double hung windows to be equipped with Master Zinc [Cold Rolled Bronze] Weatherstrips, as manufactured by the MASTER METAL STRIP SERVICE, INC., and in accordance with details shown in SWEET'S ARCHITECTURAL CATALOGUES.

Casement Windows—All exterior in-opening casements to be equipped with zinc [brass] watertight bottoms, zinc interlocking [spring bronze] strips on top and sides, as manufactured by the MASTER METAL STRIP SERVICE, INC., and in accordance with details shown in SWEET'S ARCHITECTURAL CATALOGUES.

Doors—All exterior doors to be equipped with Master Brass Threshold, zinc interlocking [spring bronze] strips on top and sides, as manufactured by the MASTER METAL STRIP SERVICE, INC., and in accordance with details shown in SWEET'S ARCHITECTURAL CATALOGUES.



HALF SIZE DETAILS OF MASTER WEATHERSTRIPS APPLIED TO DOORS AND WINDOWS

MONARCH METAL WEATHERSTRIP CORPORATION

GENERAL OFFICE AND FACTORY
5020 Penrose Street, ST. LOUIS, MO.

EASTERN SALES SERVICE
MONARCH METAL WEATHERSTRIP CO. OF NEW YORK, 41 Murray Street, NEW YORK, N. Y.
150 CERTIFIED REPRESENTATIVES THROUGHOUT THE UNITED STATES

Monarch Metal Weatherstrip

A weatherstrip with guaranteed performance, manufactured for practically every type of wood or metal windows and doors. Made from the highest grades of materials obtainable, such as cross grained sheet zinc, rolled or extruded brass or bronze of our own factory tested specification. The precision machinery that is used in the manufacture of all Monarch Metal Weatherstrip has eliminated the possibility of having to depend alone upon the skill of the installation mechanic.

Patents—Monarch Weatherstrip equipments as shown and described herein are fully protected by United States patents.

MONARCH METAL WEATHERSTRIP *Controls the Air*

TRADE-MARK

Efficiency

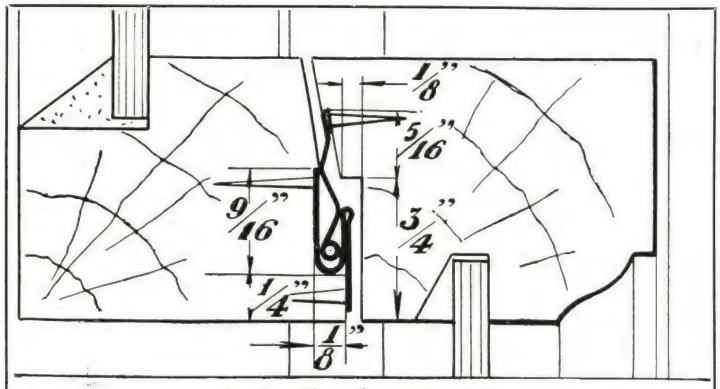
The efficiency of Monarch Metal Weatherstrip has been determined by various outside unbiased authorities. Air leakage tests have proven Monarch Metal Weatherstrip to be one of the most efficient air retardant attachments for windows and doors, and have also made it possible to furnish a definite guarantee on all weatherstrip equipments in terms of cubic feet of air per hour, per foot of crack, per mile of wind velocity.

Service to Architects and Engineers

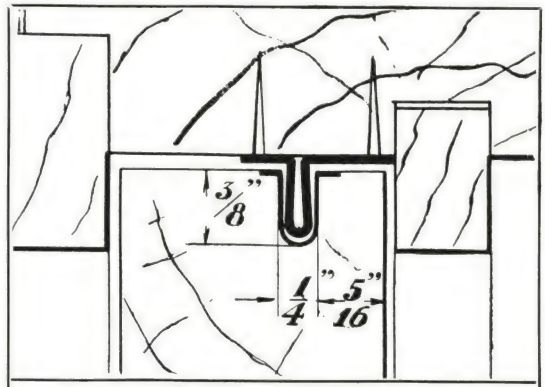
Monarch representatives are specially trained to prepare heat loss reports from plans as a guide to heating engineers, or to measure cracks and clearances in standing buildings and determine heat losses and the consequent fuel economies. This service to architects can be rendered at more than 150 points in the United States.

Guarantee

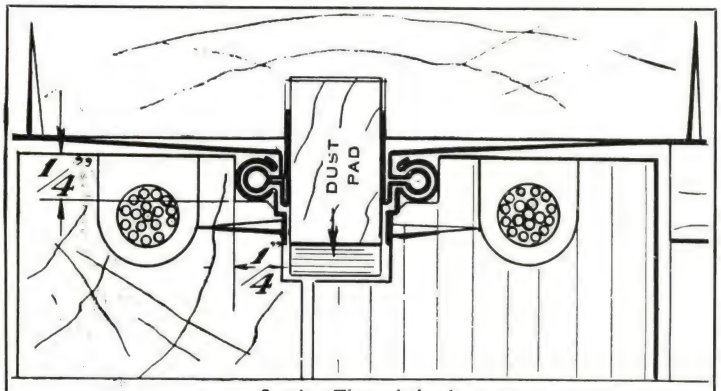
Infiltration as determined by laboratory tests, as well as workmanship and material, in all installations, are unconditionally guaranteed by the MONARCH METAL WEATHERSTRIP CORPORATION.



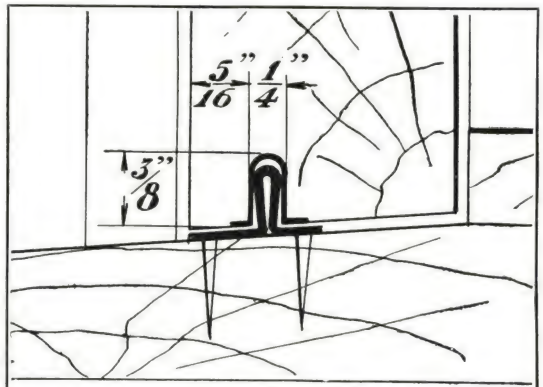
Section Through Meeting Rail
Two bronze interlocking members fabricated from the highest grade of material available



Section Through Head
Two zinc interlocking members cut cross grain to provide added strength and prevent splitting



Section Through Jamb
Two zinc interlocked members that are self-adjusting to shrinking



Section Through Sill
Two zinc interlocking members cut cross grain to provide added strength and prevent splitting

Maximum Certified Air Leakage—0.486 cu. ft. of air per hour, per foot of crack, per mile wind velocity

FULL SIZE DETAILS—DOUBLE HUNG WINDOW

Showing Application of Monarch Two-member Self-adjusting Weatherstrip Equipment No. 400

REPRESENTATIVE MONARCH METAL WEATHERSTRIP EQUIPMENTS

Over 125 different types to meet practically all conditions



No. 39 and 47—Interlocking Monarch bronze equipment for in-opening casements, lock side and head.



No. 147 and 149—Interlocking Monarch bronze equipment for in-opening casements, hinge side.



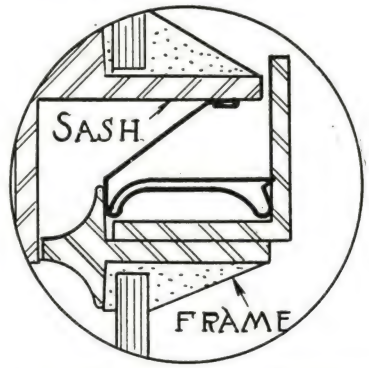
No. 155A—Three-point contact extruded brass sill for in-opening casements.



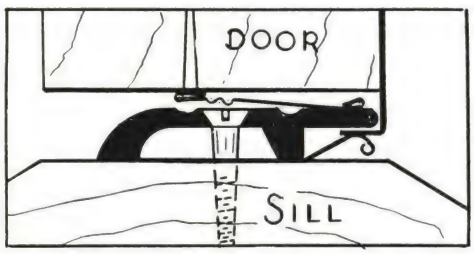
No. 115A—Three-point contact rolled brass sill for in-opening casements.



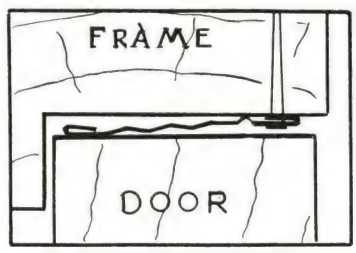
No. 133—Monarch cushion bronze equipment for rabbeted meeting stiles of doors and casements.



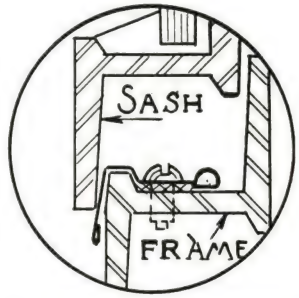
Monarch steel window equipment for center pivoted sash.



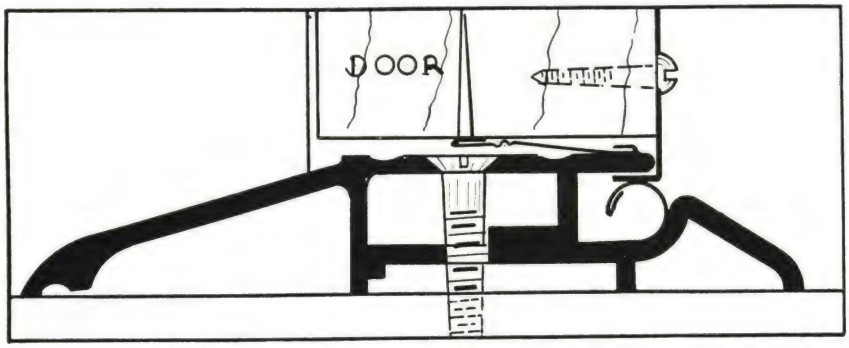
No. 175A—Three-point contact extruded brass sill for in-opening doors.



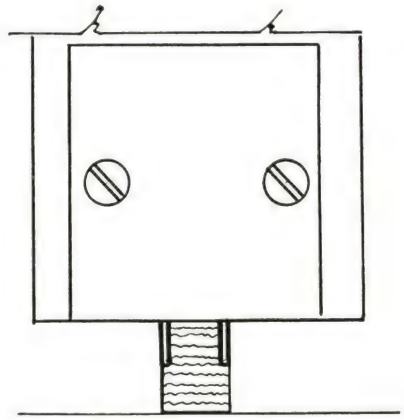
Monarch exclusive angular fluted bronze — to overcome vibration — for doors and casement windows.



Monarch outside contact equipment for steel casements.



No. 187A—Three-point contact extruded brass sill for in-opening doors



No. 293—Monarch automatic drop bottom

FULL SIZE DETAILS

THE MICHAELS ART BRONZE COMPANY

Orna-Metal Craftsmen Since 1870

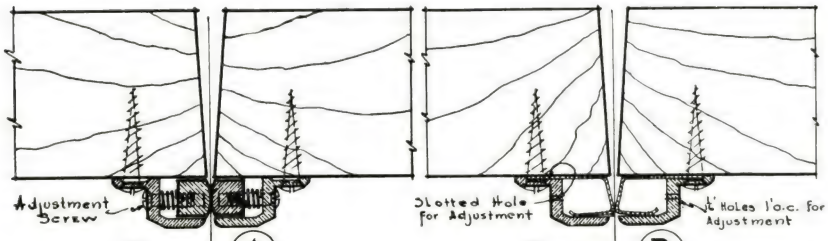
235-241 Court Avenue
COVINGTON, KY.

(Three minutes from the heart of Cincinnati, Ohio)

REPRESENTATIVES IN PRINCIPAL CITIES

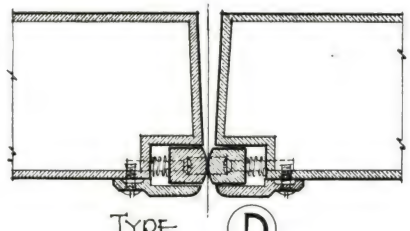
For our pages on Ornamental Bronze and Iron, Weatherstripping, and Store Front Construction, see Manufacturers' Index

DOOR TROUBLES ELIMINATED



TYPE (A) Applicable to Section 1-1

TYPE (B) Applicable to Section 1-1

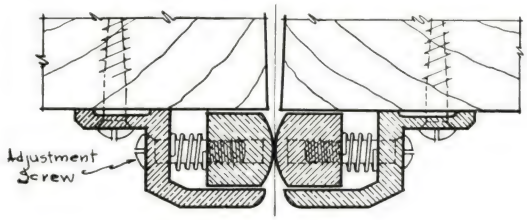


TYPE (D)

Counter sunk type for use on Extruded & Hollow Metal Doors
Applicable to Section 1-1

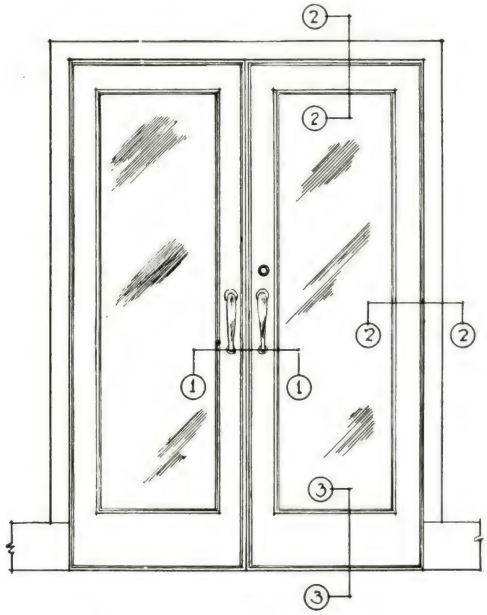
Michaels adjustable astragals, stop bead or drip member can be used on wood or metal doors. Can be applied to old doors that have sagged or shrunk out of proper alignment to take up any variation of space so as to create an equal "hairline" space the full height of door and allows expansion and contraction.

The spring tension on the adjustable member makes this an ideal weather seal thus saving considerable on radiation costs exclusive of fuel costs.

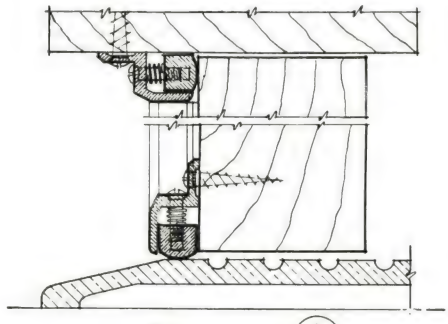


TYPE (A)

DETAIL FULL-SIZE



• ELEVATION - DOUBLE DOOR •



TYPE (A)

Used as sealing strip or drip on door bottom & top - Applicable to Sections 3-3 & 2-2

All astragals, stop beads, drip members are applicable for either out or in swinging doors

NATIONAL METAL PRODUCTS CO.

HOME OFFICE

PITTSBURGH, PA.

Products

National One-piece Brass Waterproof Thresholds and Sills.

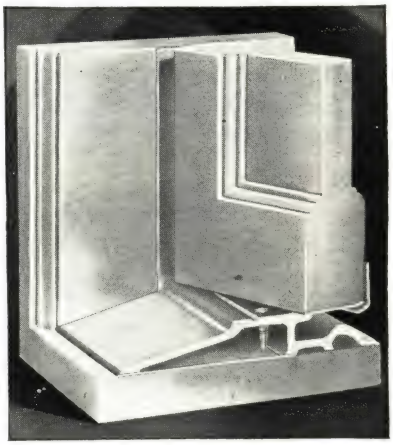
XXX Figure 135 Casement Equipment.

National No. 1 and 2 Double Rib Metal Weatherstrip.

Columbia No. 1 Single Rib Metal Weatherstrip.

Columbia No. 2 Single Rib Metal Weatherstrip including Sash Member.

Fig. 144 National Threshold Equipment for Doors



Furnished in 4 and 5-in. widths.

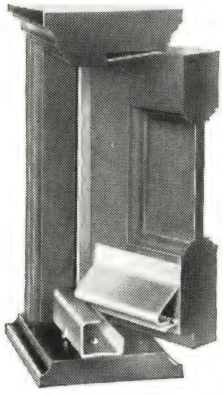
Does away with incoming drafts, storm water, etc.

Drainage is over a zinc liner, through weep holes at the base.

An L-member is faced on the inside with felt, making a close and watertight fit.

Tripping is prevented through the arch shaped design which guides the feet over the edge.

Dirt, etc., will not jamb the interlocking members due to easy cleaning.



Correct engineering design and features makes this National Threshold outstanding.

XXX Fig. 135 Casement Equipment

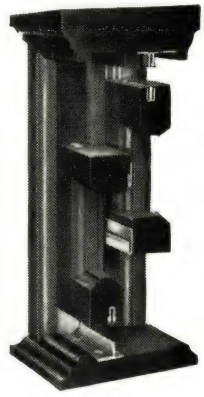
This channel member is exceedingly heavy and has weep holes with shutters thereon to permit of the water running out but not in.

Note the one-piece drop or water table with beveled edges which guides the lip of the channel into same.

Our National Fig. 131-132 Z and L equipment for sides and tops will absolutely stop rain inleakage at these points.

National No. 1 Double Rib Window Equipment

Double protection is derived by the interfitting double members on sides and head, which make it impossible for infilterage of cold, dirt, noise, etc.



Interlocking Y & J at the meeting rail gives positive protection here, while our B sill member, which is formed of extra heavy zinc, withstands rough usage. It is screwed on the frame and not nailed.

Columbia No. 1 and 2—Consists of a single rib and can be installed with or without liners in the sash.

National Brass Sill Equipment



Furnished in 1, 1½, 1⅞ and 4¼-in. sizes. This equipment is used where there is no water leakage and is very efficient, but does not have the many fine features of our Fig. 144 National Thresholds as shown.

The 1, 1½ and 1⅞-in. sizes are placed on the wood carpet strip while the 4¼-in. size replaces this complete wood strip.

Special Features of National Products

Keep out cold, rain, dust, sounds, etc.

May be installed in old as well as new buildings.

Eliminate rattling of sash and doors and enable same to open and close easily.

Do not disfigure the woodwork, but will give years of satisfactory service, and the first and only cost is moderate.

Years of direct application have proven National Products among the best.

NIAGARA METAL WEATHER STRIP CO.

GENERAL OFFICES AND FACTORY
37 West Tupper Street, BUFFALO, N. Y.
Dealers in Principal Cities of United States and Canada—See Classified Telephone Directories

Products

Manufacturers of NIAGARA METAL WEATHERSTRIP for windows and doors; CRAIG BRASS and ZINC CHANNEL BARS and NIAGARA EXTRUDED BRASS and ALUMINUM CHANNEL BARS for sills of inward opening casements; NIAGARA BRASS THRESHOLD PROTECTION STRIP and BRASS SADDLES for doors.

Niagara Metal Weatherstrip, the Only Reinforced Metal Weatherstrip Made for Double Hung Windows

Niagara metal weatherstrip, of which a full size section is shown below, is made of No. 26 U. S. standard gage, cross grain zinc, reinforced with hardwood. On account of this wood reinforcing it will bear the weight of a heavy man without buckling. This is especially desirable on the sills of windows, as it is on the window sill that most weatherstrips collapse. It is, however, also used on the heads and jambs of double hung windows.

Niagara Equipment for Weatherproofing Double Hung Windows

For the head, sill and length of each sash on each jamb, specify Niagara Reinforced Metal Weatherstrip.

For the meeting rails, specify Niagara Non-collapsible Meeting Rail Strip. Note the double thickness of zinc at the contact surface of the meeting rail strip.

Niagara Equipment for Weatherproofing Inward-opening Casements

For the head, lock side of jamb for single casements, and for meeting stiles of double casements, specify Niagara Interlocking Bronze Hook and Flat. A cheaper zinc hook is also made but the flexible bronze hook is recommended.

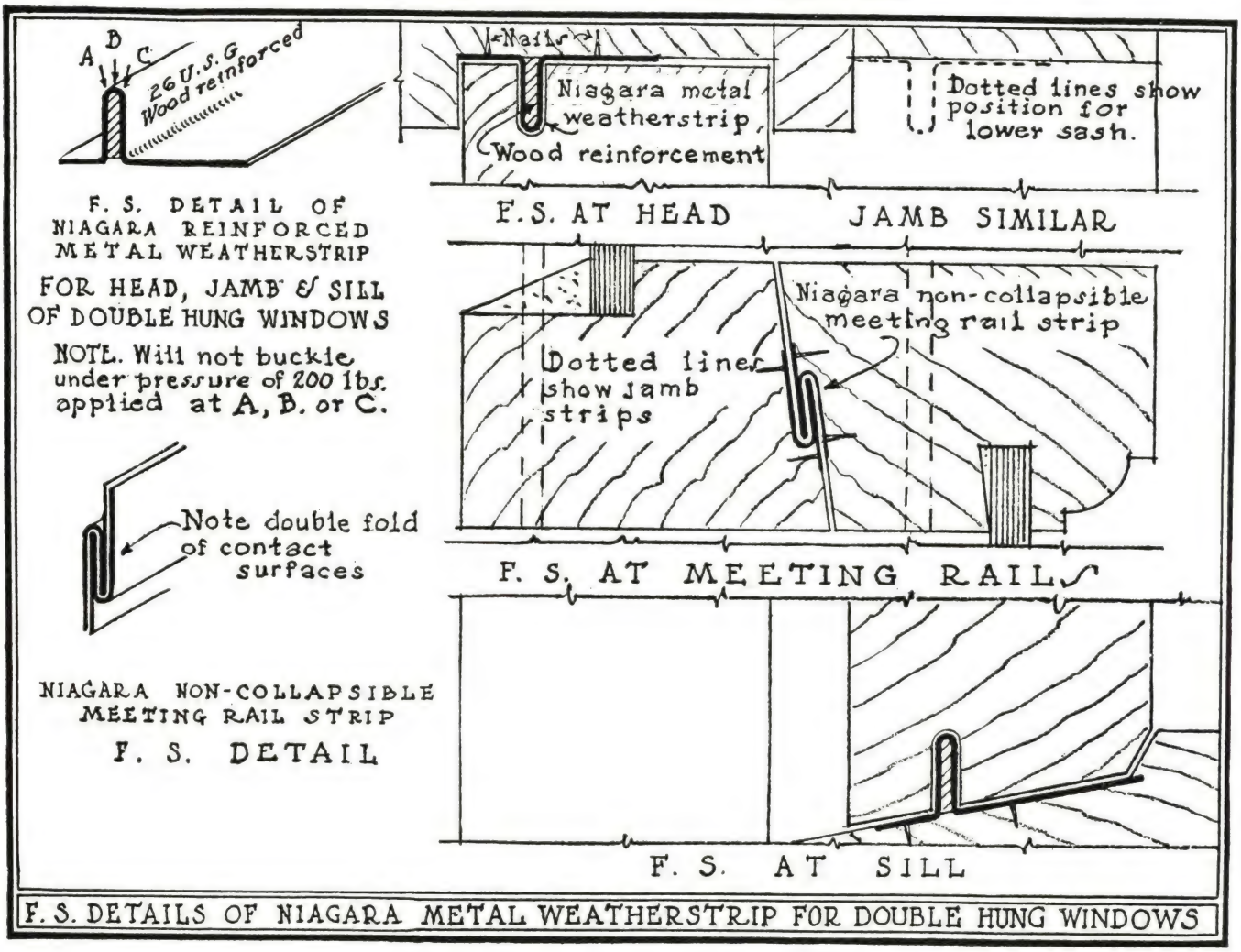
For the hinge side of jambs specify Niagara Metal Weatherstrip.

For the sill, specify the Craig Brass or Zinc Channel Bar and Drip, or the Niagara Extruded Brass or Aluminum Channel Bar and Bronze Hook.

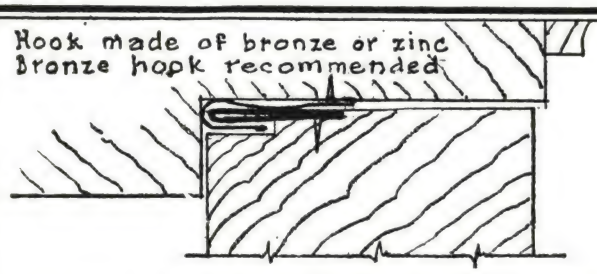
Niagara Equipment for Weatherproofing Doors

For the jambs and head specify Niagara Spring Bronze Weathering, or if an interlocking equipment is desired specify same as for inward opening casements.

For the sill specify either the Niagara Brass Threshold Strip or the Brass Saddle and the Brass Ell Weatherstrip, set according to details. The threshold strip is generally used on wood sills and the brass saddle on stone or concrete sills.

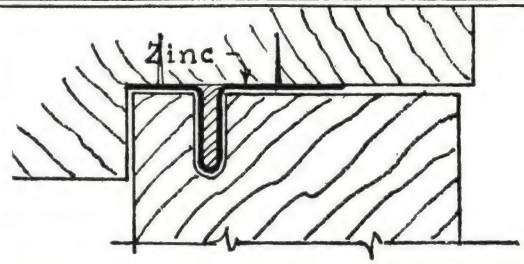


F. S. DETAILS OF NIAGARA METAL WEATHERSTRIP FOR DOUBLE HUNG WINDOWS



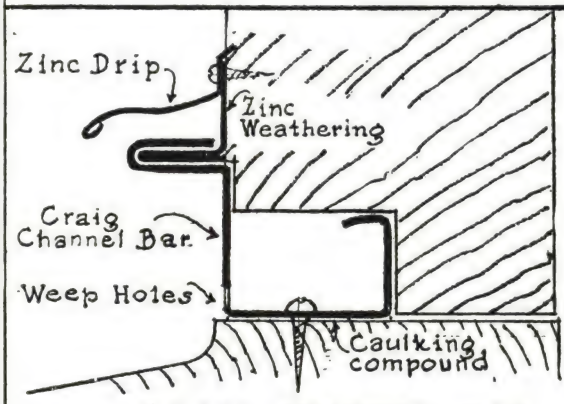
NIAGARA INTERLOCKING HOOK & FLAT

DETAIL FOR HEAD, LOCK SIDE OF JAMB & MEETING RAILS OF DOUBLE CASEMENT



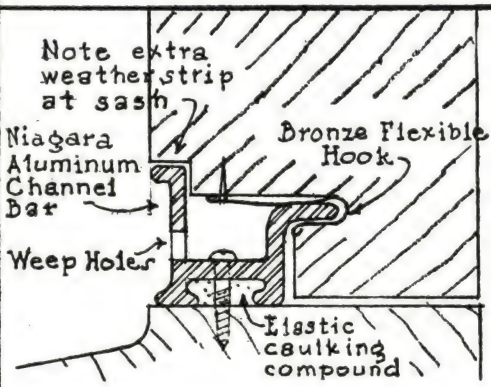
NIAGARA REINFORCED ZINC WEATHERSTRIP

DETAIL FOR HINGE SIDE OF JAMB



CRAIG CHANNEL BAR

SECTION THRU WOOD SILL

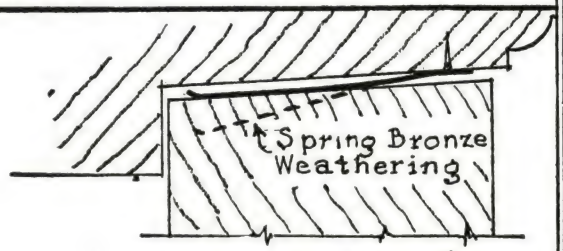


NIAGARA ALUMINUM CHANNEL BAR

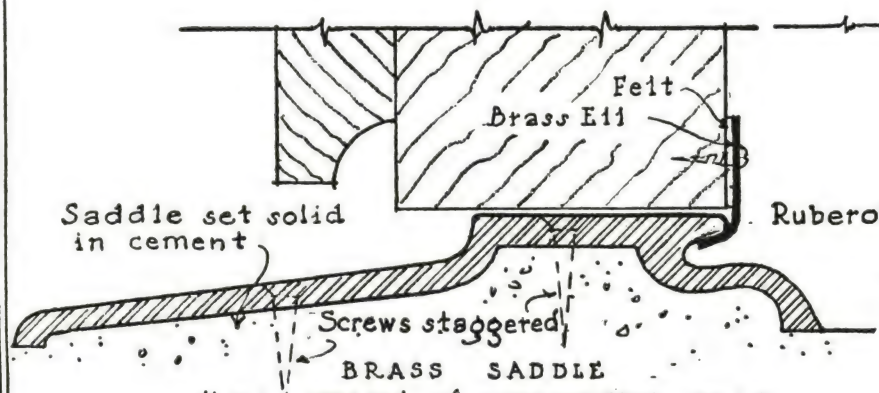
SECTION THRU WOOD SILL

F. S. DETAILS OF WEATHERPROOFING FOR WOOD CASEMENTS OPENING IN

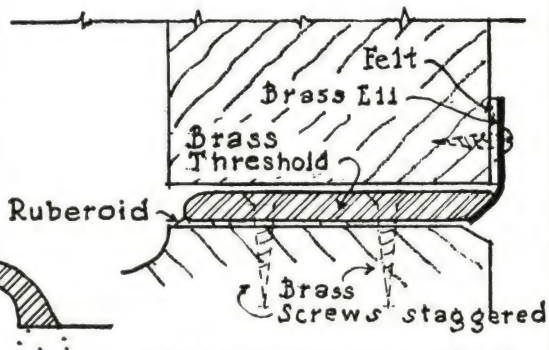
NOTE. Interlocking equipment for doors can also be supplied. Details similar to that used for casement above.



DETAIL FOR JAMB & HEAD



BRASS SADDLE FOR STONE & CONCRETE SILLS



BRASS THRESHOLD STRIP FOR WOOD SILLS

F. S. DETAILS OF BRASS SADDLES AND WEATHERPROOFING FOR DOORS

DRAWN BY SWEETS CATALOGUE SERVICE, INC.	NIAGARA METAL WEATHERPROOFING FOR DOORS & CASEMENT WINDOWS OPENING IN	SCALE FULL SIZE DATE- JUNE '27	DRWG 2

REESE METAL WEATHER STRIP CO.

116 South 10th Street
MINNEAPOLIS, MINN.

PRODUCTS

REESE FLEXO-SEAL EQUIPMENT for double hung windows (patented and patents pending).

REESE ADJUSTO-SEAL EQUIPMENT—self-adjusting interlocking equipment for casements and doors (patented).

500 SERIES FLEXO-SEAL EQUIPMENT for steel windows, hinged, projected, or pivoted (patent pending).

EXTRUDED BRASS THRESHOLDS—spring bronze, waterproof casement equipment.

REESE PLASTO-SEAL CAULKING COMPOUND.

FLEXO-SEAL EQUIPMENT

Features

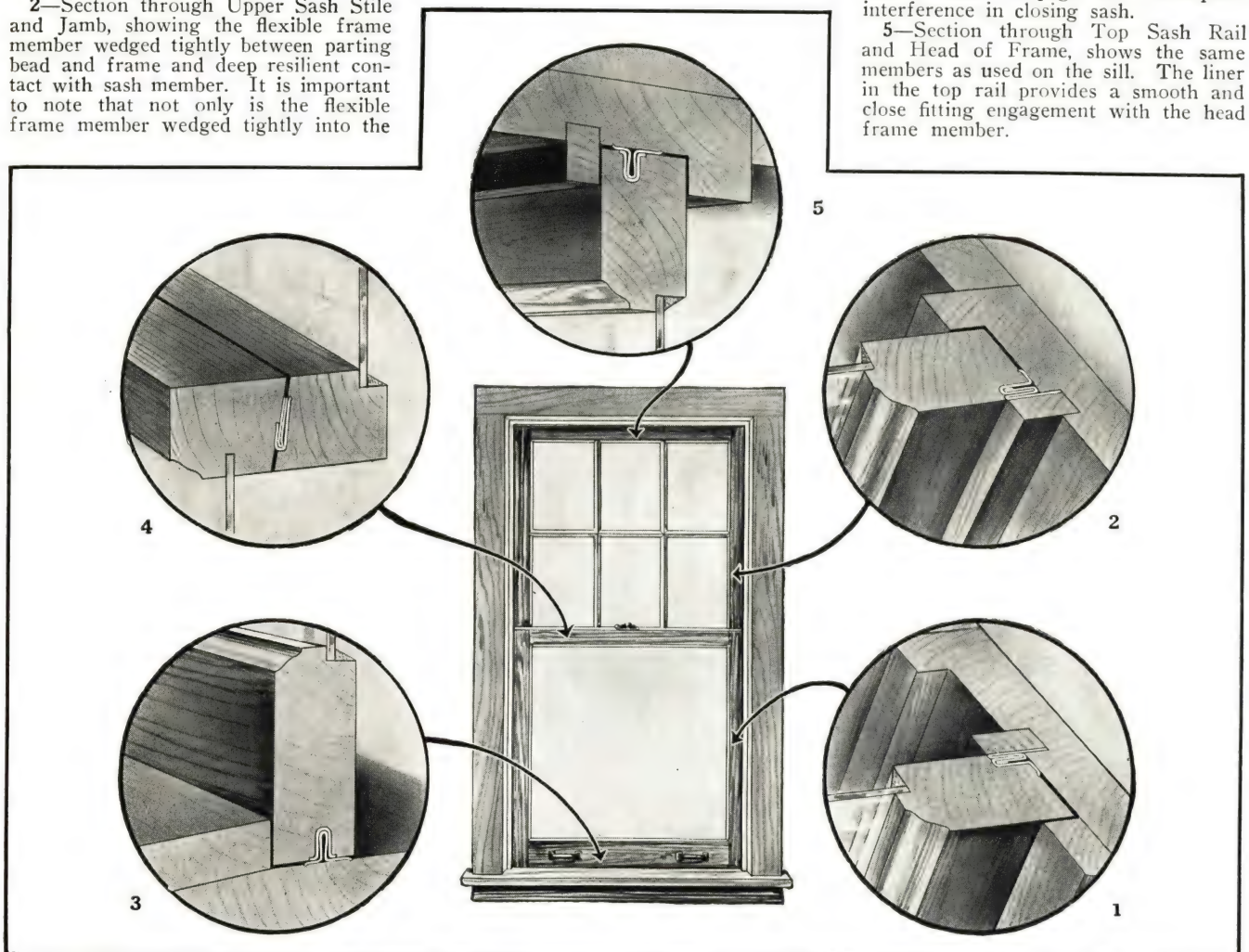
1—Section through Lower Sash Stile and Jamb, showing the flexible, accordion-like, Flexo-Seal frame member interlocked with sash member. A continuous seal past sash cord slots. Full ½-in. interlocking contact with sash against jamb—that is, nearly double the usual adjustment for sash shrinkage. The flexible accordion-like member readily *yields* to the pull of a warped sash, conforming to its bowed surface without damage to the weatherstrip and without loss of efficiency. Because of this exclusive feature these members are made to fit with machine precision, more closely than in any other weatherstrip installation. Observe the length of air travel necessary for cold air to get through this contact.

2—Section through Upper Sash Stile and Jamb, showing the flexible frame member wedged tightly between parting bead and frame and deep resilient contact with sash member. It is important to note that not only is the flexible frame member wedged tightly into the frame by the parting bead, but that the edge of the nailing flange on the sash member is turned in to hug the wood tightly between nailing. The nailing of this member is at right angles to the strain caused by warpage, so that warpage cannot pull either member out of proper position or loosen them up, thus permitting leakage behind the strips.

3—Section through Bottom Rail and Sill, showing turned flanges of sill strip, gripping the sill between nails, and interlocking with smooth fitting liner in sash rail.

4—Section through Meeting Rail, showing the trouble-free Flexo-Seal meeting rail equipment. Sturdy members, accurately made and properly fitted in sash, avoid buckling due to sash warpage and consequent interference in closing sash.

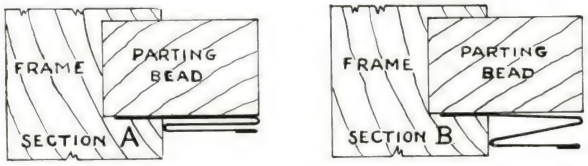
5—Section through Top Sash Rail and Head of Frame, shows the same members as used on the sill. The liner in the top rail provides a smooth and close fitting engagement with the head frame member.



FLEXO-SEAL EQUIPMENT FEATURES

Accordion Action

The most distinctive feature of Flexo-Seal Equipment, and that most responsible for the remarkable ease of sash operation, combined with maintenance of high efficiency in the years after installation, is the flexibility or accordion action of the frame member No. 156.



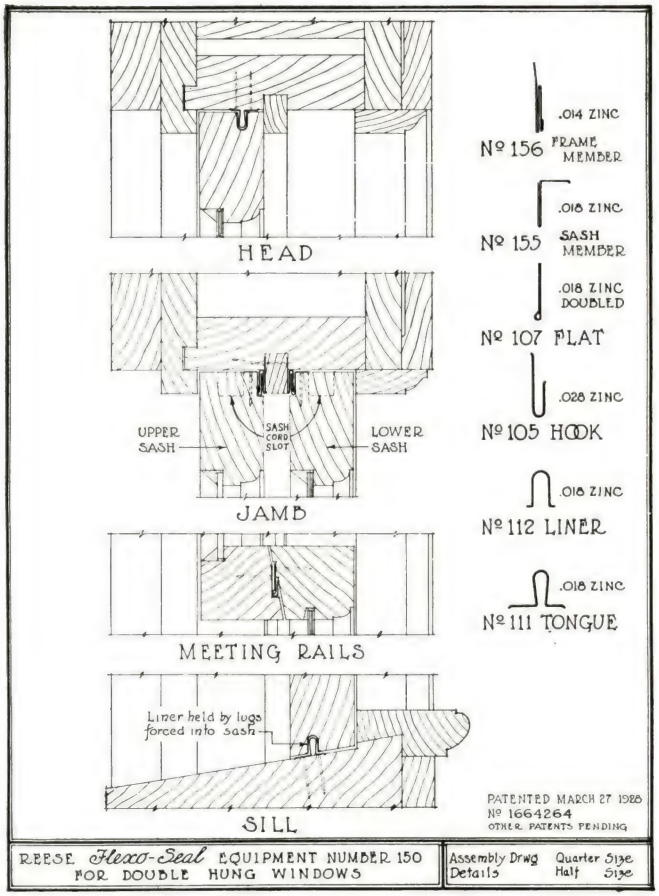
Section A shows the position of this member when the sash is straight. Section B shows how the frame member yields when the sash warps away from the parting bead. Because of this yielding action of a strip *designed to yield,* we produce the interfitting members with a closer fit one with the other and obtain ease of sash operation under conditions which in ordinary weather strips require either oversize grooves, opening up of one interlocking member, or else produce excessive friction and binding action in the weather strip. A weather strip may look like Flexo-Seal, but this desirable feature of accordion-like flexibility is found only in Flexo-Seal equipment.

Specification for Flexo-Seal

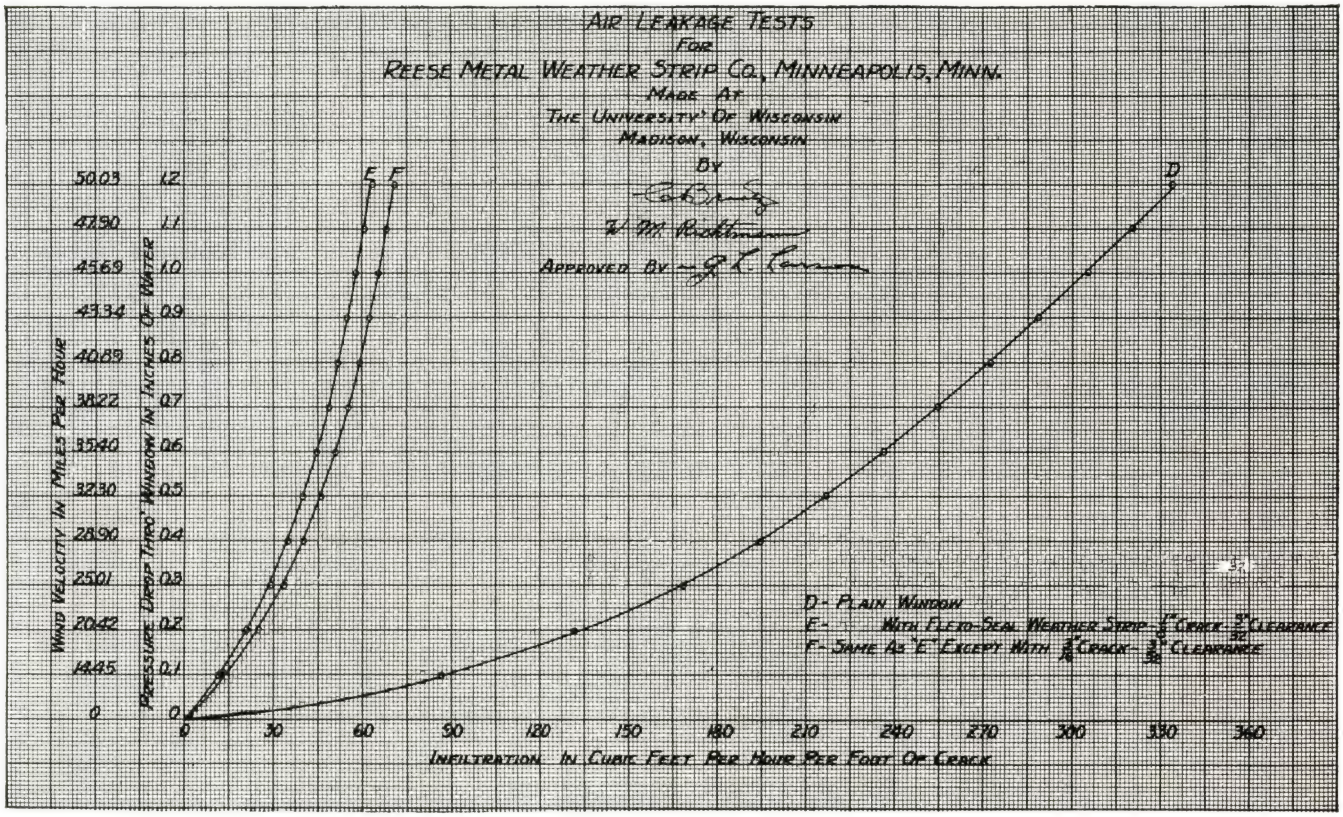
All double hung windows shall be equipped with Reese Flexo-Seal Equipment, as applied by the manufacturer or his authorized dealer. Jamb strips shall have ½-in. interlocking contact with sash against jamb to amply allow for sash shrinkage, and the design shall permit easy sash operation in case of warpage of sash ⅛ in. out of plane surface. Meeting rail, head, and sill shall have two-piece interlocking members.

Unless otherwise specified, all members shall be made of sheet zinc cut across grain, and of thickness specified in published details.

Alternate for Flexo-Seal in Bronze: All members shall be cold rolled from commercial bronze of thicknesses specified in published details.



Flexo-Seal Equipment Requires No Special Sash Detail

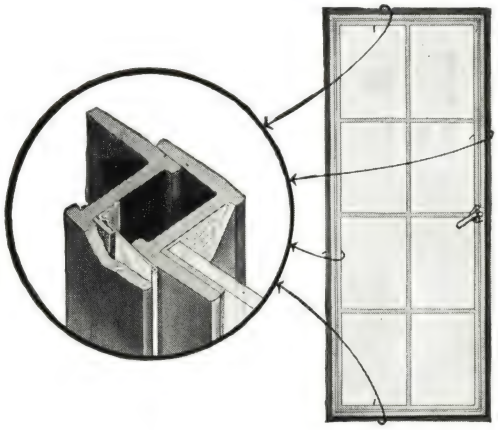


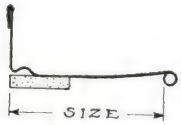
Note: How can you expect economical heating costs or proper control of ventilating systems without Flexo-Seal to assure you that the cracks, too, are closed when the windows are closed?

500 SERIES FLEXO-SEAL EQUIPMENT

(Patent Pending)

For Steel Windows—Hinged, Projected, or Pivoted





No. **511**—11/16″
No. **513**—13/16″

No. **515**—15/16″
No. **517**—17/16″

Flexo-Seal Metal Weather Strip provides a flexible and adjustable seal between the stationary frame and the movable sash in hinged, projected and pivoted steel windows. Attached permanently in the recess of one angle, away from sight and harm, Flexo-Seal provides a thin, softly yielding, impenetrable, and permanent cushion between the fixed and movable members. If the crack between these members is enough to accommodate two thicknesses of ordinary newspaper it is more than wide enough to permit installation of Flexo-Seal equipment without binding. If the cracks around your window are no greater than this, air leakage is negligible and you are not interested in weather strips.

In economy of heating costs, comfort of snug-fitting, draught-free windows, and reduction of the expensive nuisance of dust and soot, Flexo-Seal Equipment quickly returns its cost and pays constant dividends on the investment.

Flexo-Seal Equipment is shown attached to the fixed portion of a typical steel casement window. The closing sash causes the bronze weather strip to seat more firmly on the felt cushion at the base of the weather strip and in turn warps the free tongue of the weather strip into snug fitting engagement with the closing sash. The free edge of the weather strip may be adjusted to any desired degree of projection toward the sash, ranging from no projection at one point to any required amount at another point. A neat bronze bead, practically unseen, encircles the perimeter of the sash. The weather strip may be installed at either inner or outer contact points between sash and frame. It should not be confused with spring tension devices nor multiple folds of bronze and felt. The long leaf action of the free flange of the weather strip offers almost no resistance to closing of sash, and consequently the steel members of sash are not sprung out of shape. The sash is given cushion contact with the frame, simply and permanently.

ADJUSTO-SEAL EQUIPMENT

(Patented)

A True Self-adjusting, Interlocking Equipment for the Jamb and Heads of Casements and Doors



A Permanent Self-adjusting Seal

Adjusto-Seal Equipment is made only of rust-free materials of low (not spring) temper, either zinc or bronze. The design is such that the interlocking contact is preserved without change regardless of the shrinking or swelling of the sash.

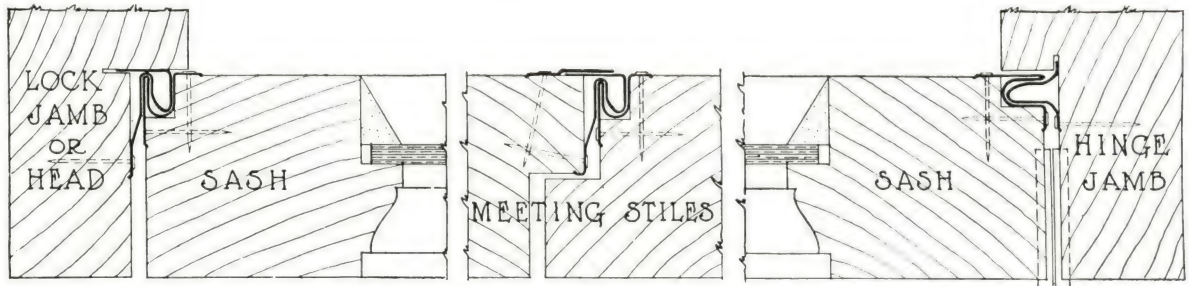
Observe the wide mouth of the frame member on the lock side, its cam surfaces shaped to pull the member automatically into proper alignment if its position should be moved through any cause while the sash is open.

Specification for Adjusto-Seal

Sides, tops, and meeting stiles of all casement windows (and doors) shall be equipped with Reese Adjusto-Seal Equipment. Frame member on hinge jamb shall be kerfed to form air and water seal continuous past butts, and shall be formed with outer radius to interlock with sash member. Frame member on lock jamb and head shall be self-adjusting to shrinkage of sash, kerfed into frame for air and water-seal. Sash members shall be double-nailed at right angles to prevent pulling loose on nails. Both frame and sash members shall be continuous past locks.

Note: Unless otherwise specified, Adjusto-Seal Equipment will be furnished in zinc. If desired of bronze, add to above specification: "All members shall be furnished of cold-rolled commercial bronze; Nos. 65 and 68, .018-in. thick; No. 66, .014-in.; No. 67, .028-in. thick."





No. 65—Sash Member
No. 66—Frame Member

No. 65, No. 66 and **No. 67**—Astragal Strip
Prefix above numbers BR for bronze strip

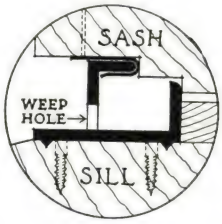
No. 65—Sash Member
No. 68—Frame Member

CASEMENT SILL EQUIPMENTS

Scale One-half Full Size

For 1⅜ or 1¾-in. Inswinging Sash

Patented



No. 201—Extruded Brass Sill Strip
No. 202—Brass Sash Hook

For Inswinging Sash 1¾ In. or More in Thickness

Patented



No. 205—Extruded Brass Sill Strip
No. 206—Bronze Sash Hook

For Inswinging Sash Any Thickness

Patent Pending

Either Zinc or Bronze



No. 241—Rolled Trough
No. 242—Sash Hook
No. 243—Base

For Outswinging Sash

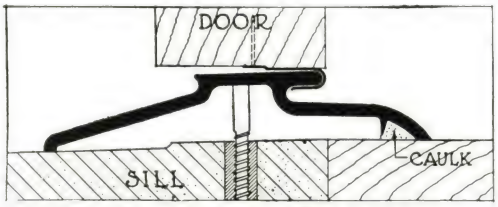
Either Zinc or Brass



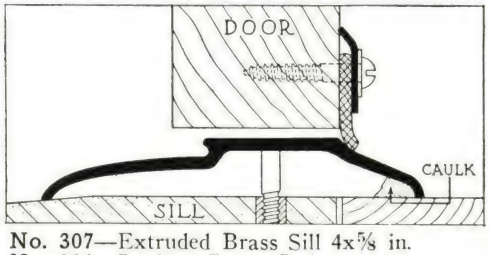
No. 221—Formed Sill Strip
No. 222—Sash Hook

DOOR SILL EQUIPMENTS

Scale One-half Full Size

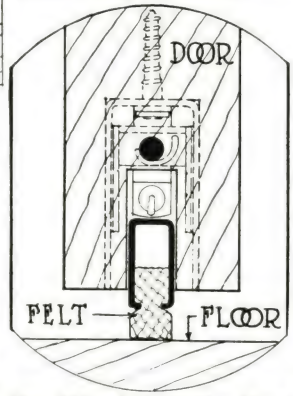


No. 301—Extruded Brass Sill 4x1 1/16 in.
No. 302—Brass Hook Strip

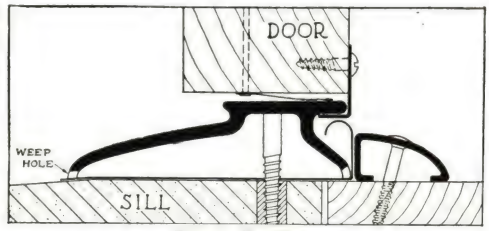


No. 307—Extruded Brass Sill 4x⅝ in.
No. 325—Surface Door Strip

Note: *Either concealed hooks or surface angles No. 313 may be specified. No. 302 Hook Strip fits all interlocking thresholds.*



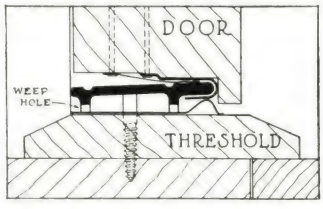
No. 318—Automatic Door Bottom



Patent Pending

No. 368—Extruded Brass Sill 3x1 3/16 in.
No. 370—Brass Drainage Strip
No. 371—Drawn Brass Moulding 1x½ in.
No. 313—Brass Surface Door Angle
No. 372—7/16x7/16 in. Brass Angle, used with carpets, instead of No. 371.

No. 378—Like 368, except 1 1/16 in. high
No. 380—Drainage Strip for No. 378
No. 381—Extruded Brass Moulding ⅞x¾ in.
No. 382—½x1 1/16 in. Brass Angle, used with thick lined carpets, instead of 381 Moulding

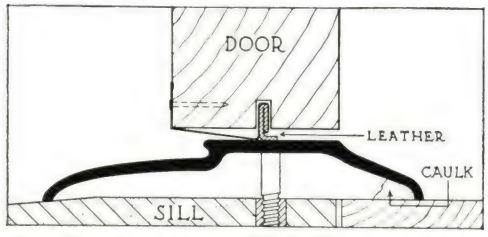


No. 310, No. 311, No. 312, No. 314—Brass Drainage Strip

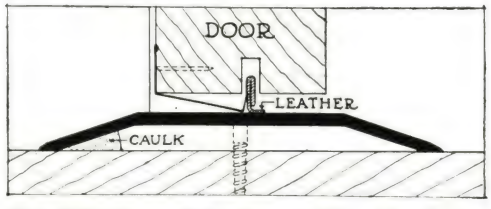
No. 308—Extruded Brass Sill Like No. 310 except 1⅛ in. wide



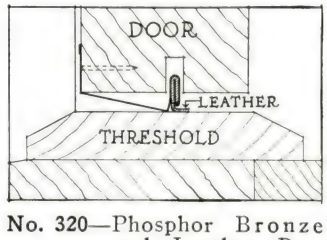
No. 327—Bronze and Felt Surface Strip
For Light Proofing and Sound Deadening either Wood or Metal Doors



No. 307—Ext. Brass Sill 4x⅝ in.
No. 320—Phos. Bronze and Leather Bottom

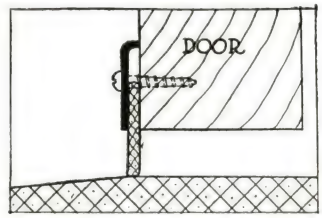


No. 305—Extruded Brass Sill 4 1/16x7/16 in. (May be used in combination with No. 320 as shown or No. 325.)



No. 320—Phosphor Bronze and Leather Bottom

For Garage Doors



No. 325—Brass and Rubber Belting Door Bottom

SPANJERS DOUBLE SEAL WEATHERSTRIPPING

A. J. SPANJERS CO.

1406-1408 Washington Avenue South, MINNEAPOLIS, MINN.

Double Seal Weatherstripping

Spanjers Double Seal Interlocking Weatherstripping is made of heavy, flexible cross-grain zinc in channel shape interlocking to form an airtight, dustproof *double seal.* It is designed to take up any shrinkage between frame and sash and maintains maximum efficiency in withstanding the elements.

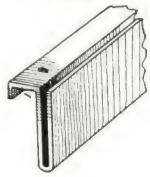
Adaptability

It is designed for use on double hung windows, casement windows and doors. Every movable joint is provided with windproof airtight connecting members.

Double Hung Windows—Are equipped with double member weatherstrips, flexible and seating perfectly as the joining members meet. Note in the drawing below that there are no deep grooves to weaken either the sash or frame.







In-swinging Wood Casements—Are equipped with zinc interlocking and No. 25 zinc channel bottom. Can also be furnished in brass and bronze.

Out-swinging Wood Casements—Are equipped with hemmed edge bronze and No. 20 zinc interlocking bottom as shown and also in concealed interlocking.

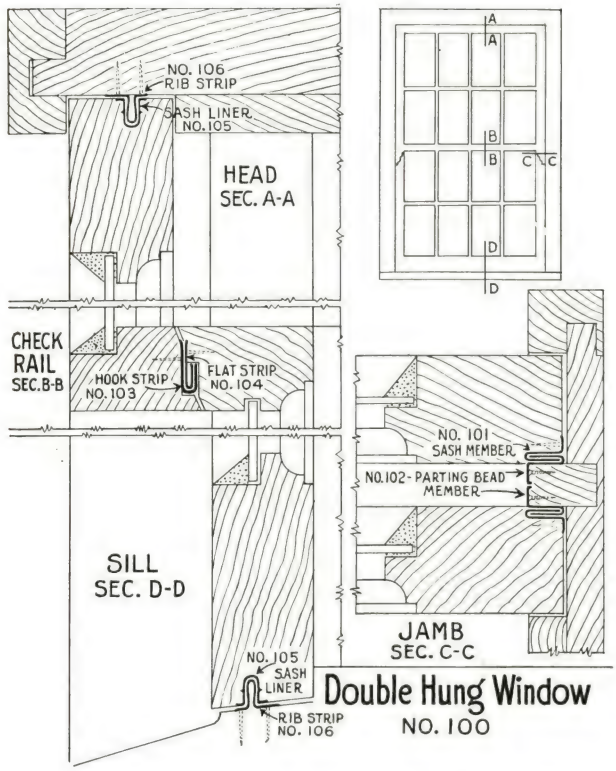
Doors—Exterior wood doors are equipped with hemmed edge bronze and various width of interlocking and plain thresholds.

Special Equipment

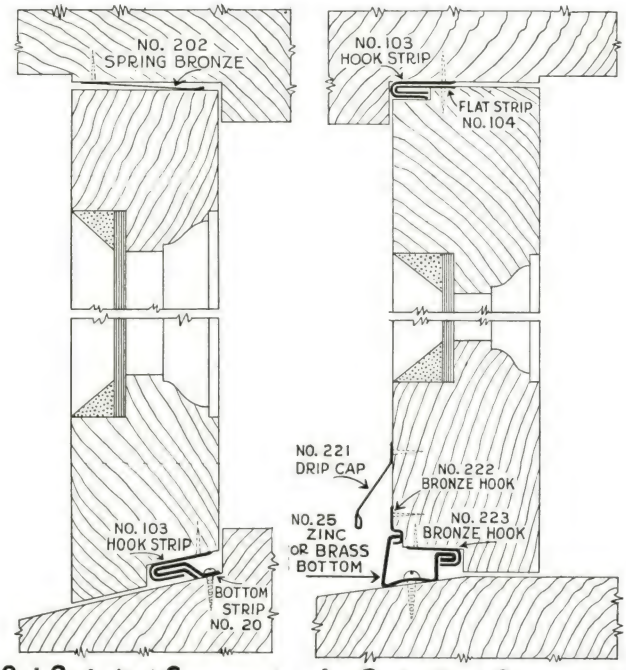
We specialize in furnishing special equipment to meet your requirements.

Installation

Realizing the necessity for correct weatherstripping installations, the Spanjers Co. undertakes to supervise the installation of its products and to guarantee the weatherstripping and calking of all frames.

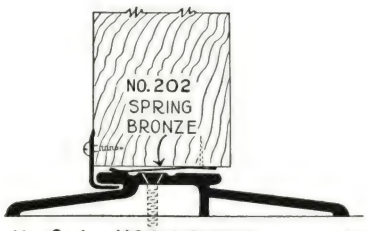


Double Hung Window
NO. 100



Out-Swinging Casement
NO. 300

In-Swinging Casement
NO. 200



No. 6 - L. HOOK STRIP
No. 5 - THRESHOLD



No. 8 - CONCEALED HOOK
No. 9 - THRESHOLD



Automatic Door Bottom

CECO WEATHERSTRIP & SCREEN PRODUCTS

DIVISION OF THE CONCRETE ENGINEERING CO., INC.

Manufacturers of Metal Frame Window Screens

1926 South 52nd Avenue, CHICAGO, ILL.

Consult Telephone Directory for Local Address in any City

Product

CECO METAL FRAME SCREENS.

For other Ceco products, see pages in this edition on Metal Weatherstrips, Steel Windows and Steel Doors, Meyer Steelforms, Ceco Reinforcing Bars and Fireproofing Materials, as listed in Products Index.

Ceco TRADE-MARK

Ceco Metal Window Screens

These are made for all types of windows, both steel and wood, and are individually fabricated to assure perfect installation. All frames are easily re-wired.

Materials Used—Ceco screens are made of heavy electro galvanized copper bearing steel finished in enamel, baked on. Also made in heavy rolled bronze. Bronze screen cloth, 16-mesh, is the standard for Ceco screens.

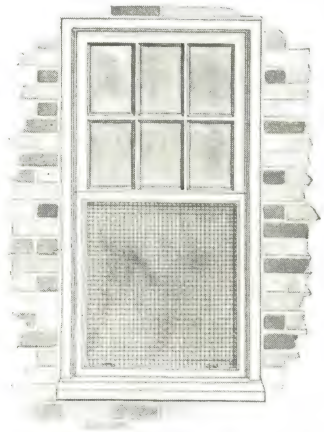
Other mesh furnished when required.

All corners are reinforced with a channel shaped angle to insure rigidity.

Ceco hardware is made of solid brass. Screen section is $\frac{7}{16}$ in. x $1\frac{1}{16}$ in.

Ceco Service

The central location and most modern manufacturing equipment of our Chicago Plant assure prompt delivery and accurate, careful workmanship. Ceco engineers are ready to give prompt, intelligent service on all matters pertaining to metal window screens and are anxious to render their service in assisting the architect with his special problems in the screen line.



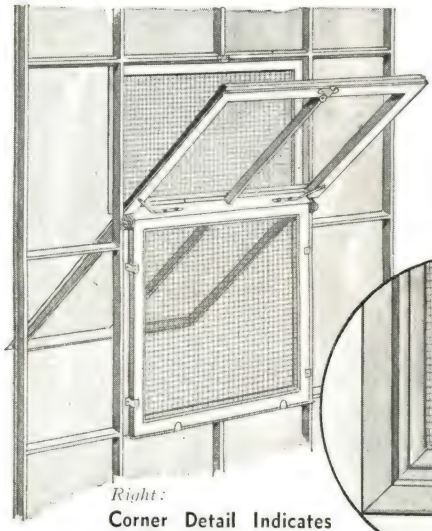
Half Sliding Screens for Double Hung Windows

Other types may be furnished

Right:

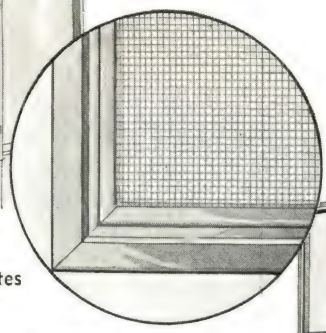
Steel Sash Screen

Ceco Screens are designed for all types of steel sash. Satisfactory and efficient results are obtained due to simplicity of all installations. Ceco equipment for horizontally pivoted sash is especially designed to produce maximum efficiency for a long period of time at minimum cost.



Right:

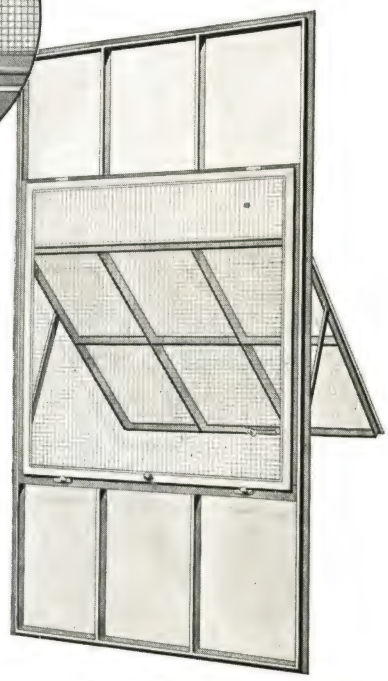
Corner Detail Indicates Attractive Appearance of Screen



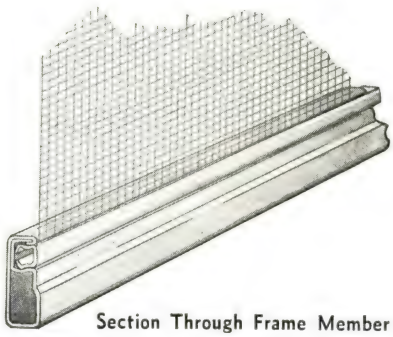


Right:

Ceco Screens Are Designed For "Thru-the-Screen" Hardware to Operate on Outswinging Casement Sash



Projected-out Sash Effectively Screened



Section Through Frame Member

THE E. T. BURROWES CO. INC.

Manufacturers of Burrowes Rustless Screens and Burrowes Metal Weatherstrip

GENERAL OFFICES AND FACTORIES
70 Free Street, PORTLAND, MAINE

For List of Branch Offices, see our page on Metal Weatherstrip and Caulking Service

Products

RUSTLESS "COPBRONZE" WIRE SCREENS, *made-to-measure only,* with WOOD or METAL REWIRABLE FRAMES, for Windows, Doors and Ventilators:

"New Century" Spring Sliding; Patent Spring Sliding; Drop Sliding; "Regis" Metal Screens; "Primus" Metal Screens; Twin Sliding Metal Screens; Horizontal Sliding Screens; Burrowes Screen Doors; Screens for Steel Sash Ventilators; Burrowes Rolling Screen.

Also Screens for Porches, Loggias and Outdoor Sleeping Rooms; Guards and Ornamental Grille Work.

For Metal Weatherstrip and Caulking Service, see our page in Manufacturers' Index.

Co-operative Service

Direct with architect. Telephone local representative or write to Portland, Maine. Factory trained organization, expert and reliable fitters. Complete structural details and samples of any contemplated work on request.

Burrowes Netting

Woven from "Copbronze" wire drawn to Burrowes formula—full gauge in accordance with standard specifications for non-ferrous screen cloth, as established by the A.S.T.M. and U. S. Navy specification. Unless otherwise specified, 16-mesh. Finer or coarser weaves if ordered.

Burrowes Hardware

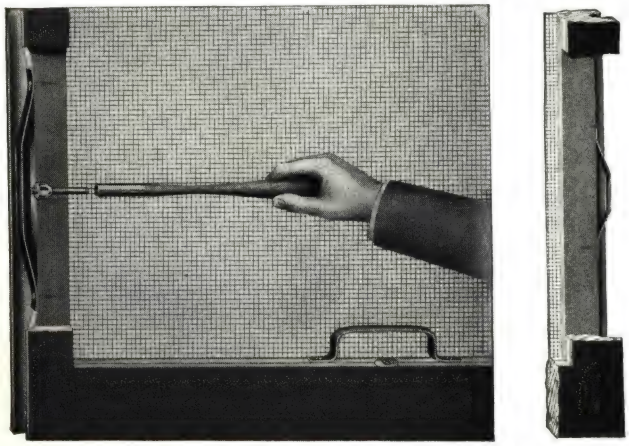
Excellent quality hardware and all necessary supplemental fixtures included with orders. Special hardware and finishes to specifications.

Burrowes Finish

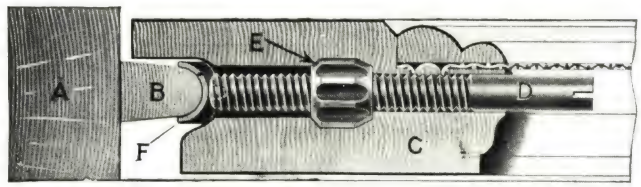
Screens durably finished to match sample or a selection from Burrowes color cards. Metal work handsomely toned in various standard finishes.

"New Century" Spring Sliding Screens, Wood Frames

Burrowes "New Century" half-length adjustable screen—an exclusive Burrowes feature. Two adjusting shoes or bearings are set in a special groove in left-hand stile, opposite two elliptical springs set in deep groove in right-hand stile. Frictional contact between screen and slide runs is confined to these four bearings. Screen slides easily without binding, and holds any position for top or bottom ventilation. The adjustment, made with screwdriver, overcomes all inequalities in window frames, such as unequal widths at top and bottom or sagged sills. May be installed inside or outside of sash.



"New Century" Spring Sliding Screen, Wood Frame



Full Size Section "New Century" Adjustable Wood Frame Window Screen

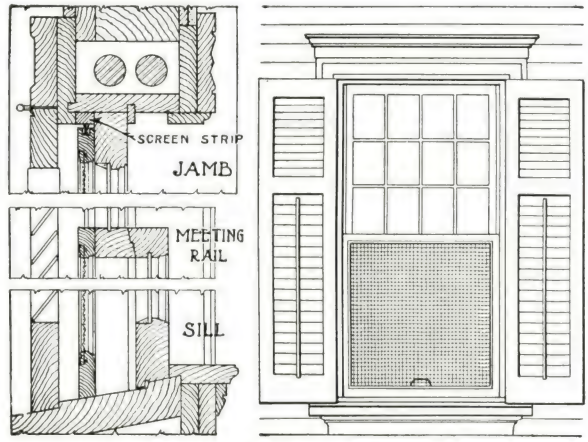
(A) Blind stop. (B) Slide moulding. (C) Left-hand screen stile. (D) Bronze screw bolt through (E) stationary nut operating (F) adjustable shoe or bearing. Deep groove right-hand stile has elliptical tension springs for perfect balance

Patent Spring Sliding Screens, Wood Frames

A sliding screen with shallow groove in left-hand stile. Screen holds any position for top or bottom ventilation, held by springs in deep groove in right-hand stile.

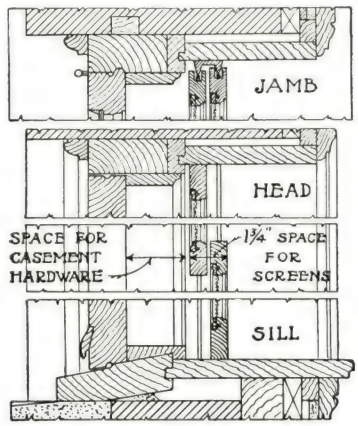
Drop Sliding Screens, Wood Frames

For bottom ventilation only. Deep grooves in both stiles, no springs. Screen inserted over half length runs.



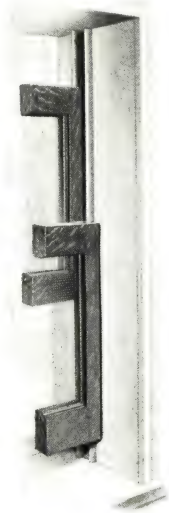
Detail of Window Frame Construction

Showing how extra space may be provided by the architect for screens and blinds or shutters, by inserting a screen strip (width determined by conditions) inside of blind stop



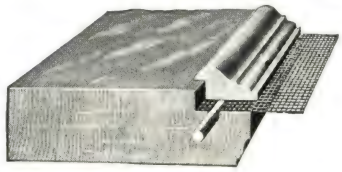
Detail of Casement Window Construction

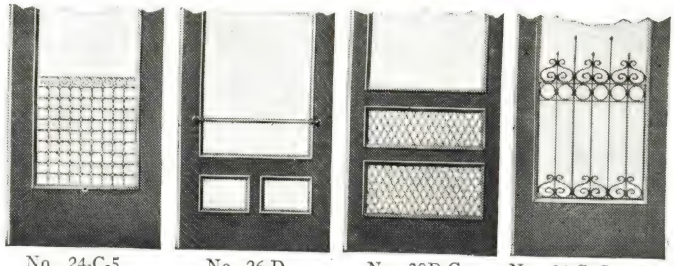
With Burrowes Wood Frame Twin Sliding Screens *(at right)* applied inside of sash



Burrowes Screen Doors, Wood Frames

Made to order from Burrowes or architect's designs and to harmonize with house door in paneling, finish and hardware. Very strong, made with great care from best selected kiln dried stock—netting drawn taut with lock strip and covering moulding. Excellent hardware included—special hardware and finishes on application. Lower panels may have heavy wire guard or ornamental grilles of brass or iron.



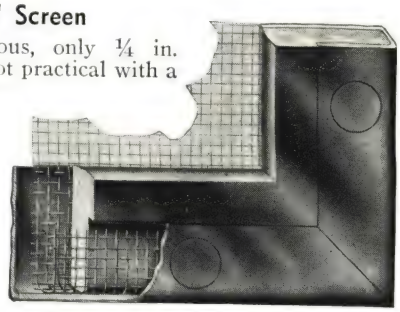


No. 24-C-5 No. 26-D No. 39D.G. No. 24-C Special

A Few Suggestions for Screen Door Treatment

"Regis" Metal Screen

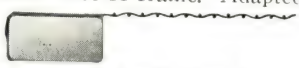
Thin and inconspicuous, only ¼ in. thick, with advantages not practical with a thicker frame, such as twin sliding screens between blind stops. Strong, rigid inner frame, electro-welded at corners; easily rewired. Steel parts are processed to resist rust, enameled any color. Solid bronze if desired. Note diagrams of metal U-guides and runs.



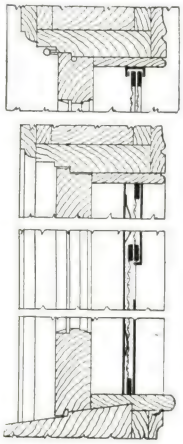
Corner Section of "Regis" Screen Assembled—Full Size

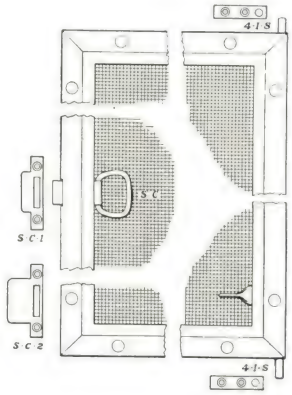
"Primus" Metal Screen

One-piece continuous solid metal frame, electro-welded corners; rustproofed, painted or enameled. Solid bronze, if desired. Netting soldered taut to outer face of frame. Adapted for every shape of opening—circles, ovals, Gothic arches, etc.



Section "Primus" Metal Screen





At Left:

Diagram Showing Burrowes Twin Sliding Screens Applied to Casement Inside Sash

Similar construction, with U-guides reversed, is applied outside on blind stop

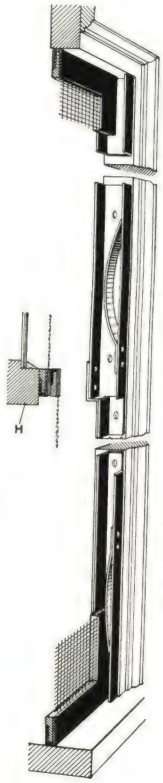
At Right:

Burrowes Full Length Side-pivoted Screen Applied to Casement

Metal keepers for pivot at top and spring actuated pivot at bottom for easy insertion or removal

May be installed in ¼-in. space; pivots and catch kept within thickness of the screen frame; can be used either inside or outside of sash, also as a top hung screen.

Spring Guide Construction for Twin Sliding Metal Screens



Convex Springs Attached to Side Flange of Guides

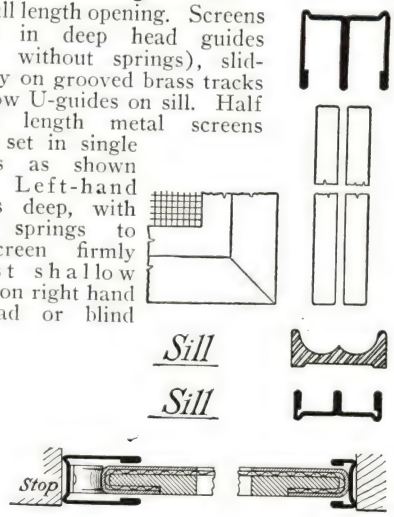
For casements opening either in or out or for other openings where full length screening is desired, we recommend Burrowes Metal Screens in spring guides. Upper half of guide is double width.

Upper screen inserted first through cut-out in side of guide—resting on angle stop at centre.

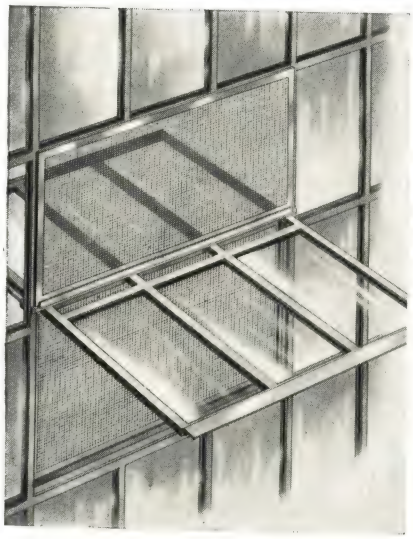
Lower screen inserted through same cut-out, to slide past upper (stationary) screen. Applied to stop beads or blind stops.

Horizontal Sliding Screens

For full length opening. Screens inserted in deep head guides (double, without springs), sliding easily on grooved brass tracks or shallow U-guides on sill. Half or full length metal screens may be set in single U-guides as shown below. Left-hand guide is deep, with convex springs to hold screen firmly against shallow U-guide on right hand stop bead or blind stop.



Metal Screen in Single U-Guides

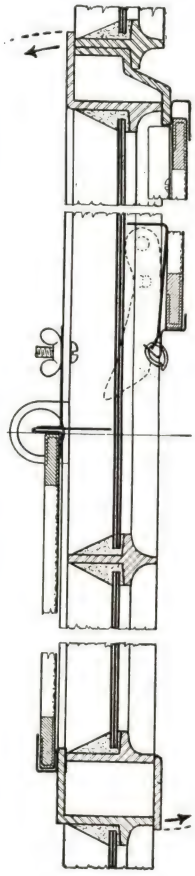


Screens for Steel Sash Ventilators

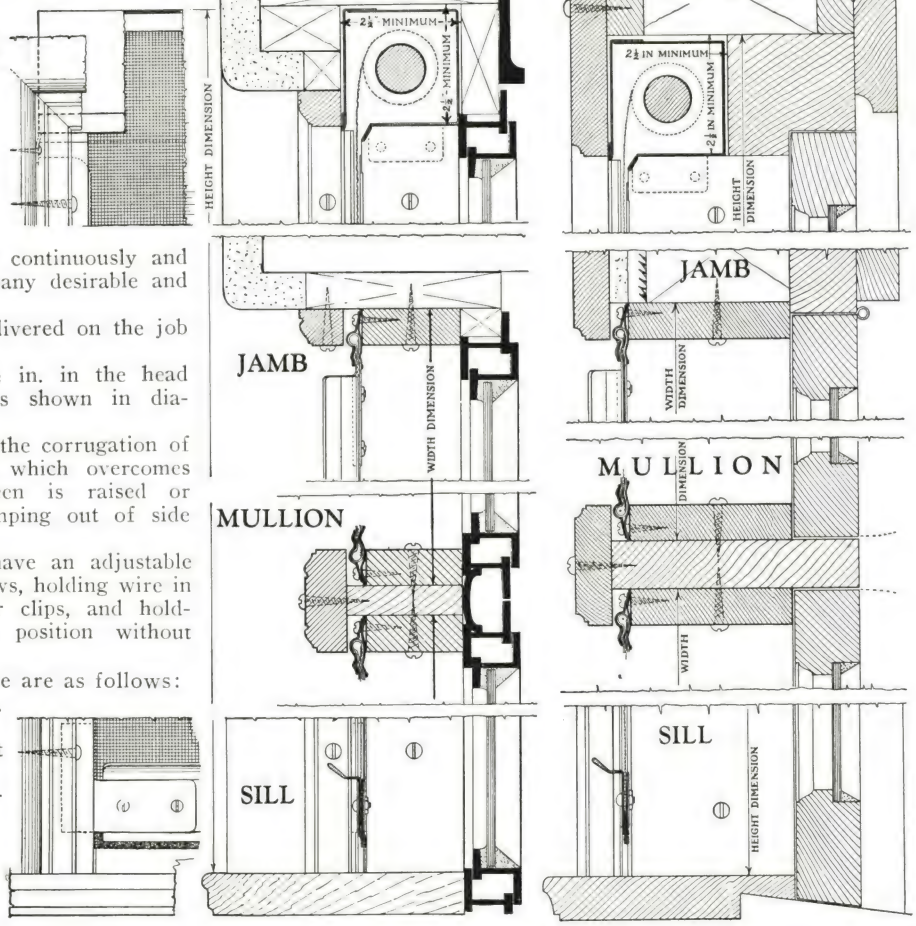
Designers of screens for metal sash ventilators meet new problems with each type of tilting window structure.

Burrowes' long experience in difficult screening and Burrowes Thin Metal Screens—exceptionally well suited for this class of work—make it possible to guarantee satisfactory installations.

The diagram shows an application of Burrowes Screens to standard pivoted metal sash.



BURROWES ROLLING SCREEN



A rolling screen that "works" continuously and well in a hidden housing has many desirable and exclusive features.

Burrowes Rolling Screen is delivered on the job ready for installation.

A minimum space of 2½x2½ in. in the head is required for the housing as shown in diagrams.

A special Burrowes feature is the corrugation of screen near selvage (patented) which overcomes the "spiral crawl" when screen is raised or lowered, preventing it from jumping out of side guides.

The side guides (patented) have an adjustable spring tension controlled by screws, holding wire in place without use of staples or clips, and holding operating bar in a level position without binding.

Twenty Good Features—These are as follows:

(1) Rolls up and down like a window shade.

(2) May be rolled up and out of sight when sash is closed.

(3) Roller mechanism completely housed and concealed.

(4) No semiannual removal, storing and re-installation.

(5) Self-dusting, requiring no "housecleaning" attention or painting.

(6) Unusually strong reinforced selvage.

(7) No metal cleats for reinforcing selvage—hence minimum diameter when rolled up.

(8) Corrugation along selvage (patented) prevents creeping or spiral winding on roller.

(9) Straight rolling greatly prolongs life of screen.

(10) Overcomes tendency to "buckle."

(11) Travels in side guides attached to stop beads, with adjustment screws to insure proper tension.

(12) One member of guide, made of thin spring bronze automatically releases tension as screen moves up or down (patented).

(13) Bottom rail of screen terminates in upright tubular extensions or pawls to insure vertical travel in guides.

(14) Flexible pad in lower edge of operating bar automatically closes down tight on sill.

(15) Maximum unobstructed opening for light and ventilation.

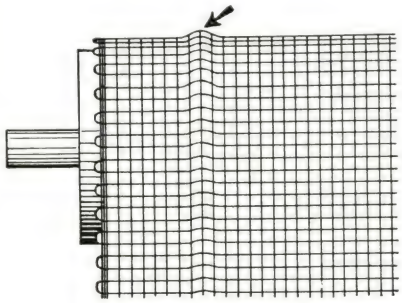
(16) No cross bars to obstruct vision.

(17) Netting, the famous Burrowes "Copbronze," woven to our own special formula, is absolutely rustless in all climates.

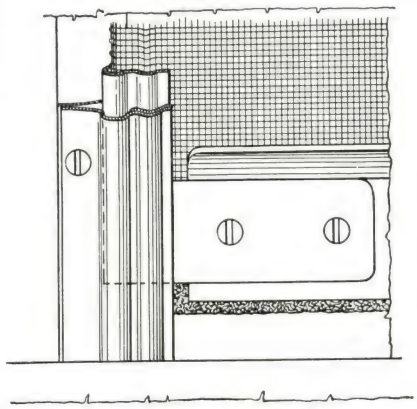
(18) Burrowes "Copbronze" netting is very tough, closely woven to keep out the smallest insects, yet almost as transparent as glass.

(19) In case of accident to screen, requiring new netting, the roll is easily removed.

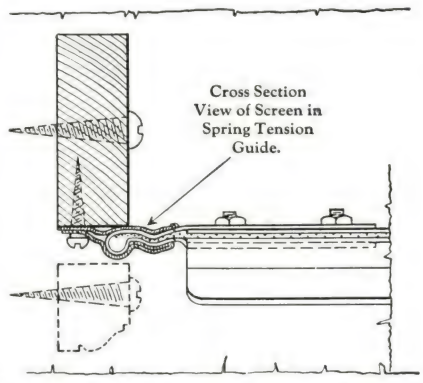
(20) Fullest guarantee.



Burrowes Netting Corrugation
(Patented)
Full size



Elevation View, Lower Left-hand Corner of Screen in Spring Tension Guide
Half size



Cross Section View of Screen in Spring Tension Guide
Half size

CHAMBERLIN METAL WEATHER STRIP COMPANY, INC.

Manufacturers of Chamberlin Nu-Stile (Flat) Metal Screens, Chamberlin Nu-Roll Screens and Fenestra-Chamberlin Rolling Screens

DETROIT, MICH.

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Also Local Representatives and Installers of Wood and Hollow Metal Steel Screens Manufactured by
ROBBINS MANUFACTURING COMPANY, CHICAGO, ILL.

Products and Services

CHAMBERLIN NU-STILE (Flat) METAL SCREENS, CHAMBERLIN BRONZE, ALUMINUM and PARKERIZED STEEL NU-ROLL SCREENS and FENESTRA-CHAMBERLIN ROLLING SCREENS, including their installation by experienced Chamberlin Branch screen mechanics.

ROBBINS WOOD and HOLLOW METAL SCREENS (pages 6-9).

For Chamberlin Weather Strips, Interlocking Thresholds, Calking and In-Dor-Seals, see Manufacturers' Index.

Practical Advantages of Nu-Stile (Flat) Metal Screens

Chamberlin Nu-Stile Screens embody sensationally new flat screen principles. For 40 years manufacturers have tried to solve the mechanical difficulties of manufacturing a solid metal screen with a solid metal spline.

The 1932 model of the Chamberlin Nu-Stile Screen is a realization of decades of research.

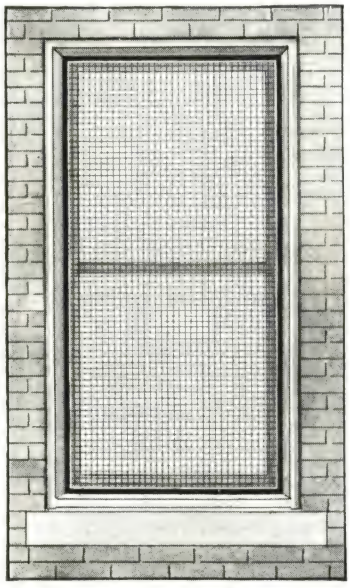
Innumerable and spectacular tests have proved that this Chamberlin Metal Screen represents the accomplishment of what was thought impossible. Dashed to the pavement from the roof of a high building this screen was hardly bent out of shape and nowhere did the solid copper spline show any strain or loosening. For further evidence of the extraordinary holding qualities of the solid copper spline of Nu-Stile Screens see the distortion test illustrated below.

Dimensions—Chamberlin Nu-Stile Screens have sturdy, slender frames ¼-in. thick and ½ in. wide. They are hardly wider than the parting bead of a window frame.

Metal—The solid steel frames of these screens are heavily parkerized for protection against rust and then spray lacquered in any specified color. Further than that, Chamberlin Nu-Stile Screens are parkerized after being completely assembled with the exception of the netting to insure the rustproofing of all parts and edges.

Corners—Chamberlin Nu-Stile Screen frames are electrically butt-welded at the corners, all joints being invisible and unbelievably strong. Reinforcement rails in the larger size screens have a double copper spline to hold the netting at these points.

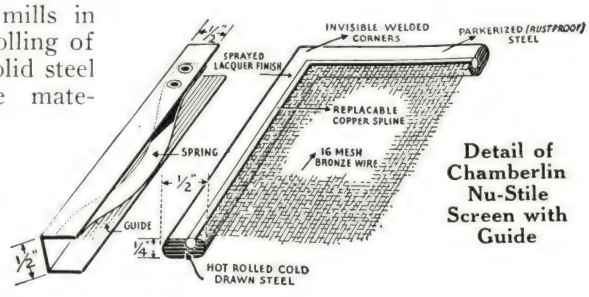
Splines—Anaconda lacquer bronze netting is standard equipment on Nu-Stile Screens and it is firmly held with a newly perfected copper spline wire the use of which requires special patented operations at the steel mills in the rolling of the solid steel frame material.



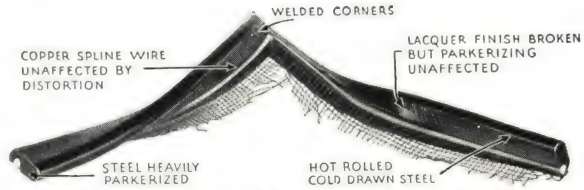
A Chamberlin Nu-Stile, Parkerized Steel, Stationary Screen on a Double Hung Window



Chamberlin Nu-Stile Screen Makes an Inconspicuous Installation on Window of Unusual Design



Detail of Chamberlin Nu-Stile Screen with Guide

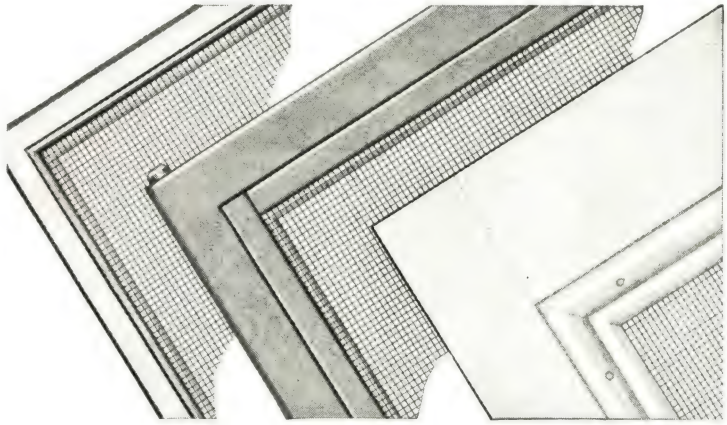


Distorted Mutilated Section of a Chamberlin Nu-Stile Screen

Showing welded corner intact and the solid copper spline steel firmly seated and holding the wire—a test that is fifty times more severe than normal use or misuse

Other Features of Nu-Stile Screens

Chamberlin Nu-Stile Screens must be seen to be appreciated. They are neat, slender and strong, beautiful in appearance, light in weight and easily stored in a minimum amount of space. Of course, they are custom built to fit any window opening including those for curved or elliptical frames. The narrowness and unobtrusiveness of Chamberlin Nu-Stile Screens is adequately illustrated in the illustrations on this page in which the screen frame is drawn in proportion to the other dimensions of an average window.



Nu-Stile vs. Old Style Screens

Nu-Stile Screen Frames (Solid Steel)—½ in. wide, ¼ in. thick. Standard hollow metal screen frames—1 in. wide, ⅜ in. thick. Standard wood screen frames—1¾ in. wide, ¾ in. thick

Practical Advantages of Nu-Roll Screens

CHAMBERLIN NU-ROLL SCREENS
ALWAYS HANDY NEVER IN THE WAY

Chamberlin Nu-Roll Screens are practical and efficient. This type of screen is particularly adaptable to the proper screening of out-opening casements; in many cases it is also practical for double hung windows of wood or steel.

In actual use the advantages of Nu-Roll Screens consist of the following features: (1) They are a permanent convenience because they eliminate the annual trouble and expense of installation, storage and repair. (2) They furnish maximum screening service by being available and out of sight at a moment's notice. (3) They operate like a window shade. (4) They store themselves in a clean, dry and weatherproof housing. (5) They simplify the hanging of draperies and curtains. (6) They eliminate the considerable wear and tear on drapes that is usually the problem with inside screens that are pivoted or hinged. (7) During a rain windows are closed and Nu-Roll Screens are therefore raised, which eliminates the spattering of rain through dusty screen wire. (8) When windows are closed, Nu-Roll Screens are raised, admitting a maximum amount of daylight. (9) No under-sill sash operators are necessary. (10) Windows are easily accessible for cleaning purposes. (11) Awnings can be operated from the inside. (12) When windows are equipped with "health" glass, Nu-Roll Screens are rolled up out of the way to insure the maximum benefit of the sun's rays.

Construction and Installation of Nu-Roll Screens

Chamberlin Bronze, Aluminum and Parkerized Steel Nu-Roll Screens are specifically designed and manufactured to bring to the building industry rolling screens that will insure maximum durability and efficiency by the virtue of non-corroding and highest grade metals that are used in their manufacture, and also by virtue of the mechanical accuracy employed in the assembly and the final installation by Chamberlin factory trained mechanics.

The housing and guides of the bronze screen are made of solid (not plated) cold rolled, oxidized or antique finished bronze. The color of this bronze metal is very attractive and harmonizes readily with most color schemes and furnishings. The housing and guides of the aluminum screen are made of solid cold rolled aluminum and these screens are furnished either in a natural finish or they can be spray lacquered in any harmonizing color. The housing and guides of the parkerized steel screen are made of cold rolled steel heavily parkerized against corrosion and spray lacquered in any desirable color.

Housing—Exceptionally compact; 2 in. in diameter for most screen sizes—maximum 2¼ in. for screens over 70 in. in height; wire cloth opening to have hemmed edges and a heavy weatherproof felt baffle to clean wire during operation and to keep insects out of housing.

Roller—21-gauge, solid brass tubing, perfectly aligned and revolving on ¼-in. rolled steel shaft; roller is packed with a special protective lubricant having a 300 degree melting point.

Bearings—Special Doehler die-cast, rustproof bearings at each end of roller to insure smooth rolling.

Spring—Runs entire length of roller; adjustable for tension and is made of specially drawn, oil-tempered, heavily tinned piano wire, inclosing an auxiliary spring tube to prevent binding of the main spring on shaft.

Guides—Have channels ⅛ in. deep in most cases and can be concealed between ¾-in. divided wood stops. Guides are made of two members—one member to be of solid spring bronze to hug the netting to not only insure insect-tightness, but smooth and uniform operation, and to prevent the screen from slamming



Awnings Are Easily Accessible

It is easy to get at awnings from the inside when windows are equipped with Chamberlin Nu-Roll Screens



Windows Are Easily Cleaned

With Chamberlin Nu-Roll Screens all the extra work of fumbling with the screens is eliminated



Hanging of Drapes a Simplified Problem

In the operation of Chamberlin Nu-Roll Screens curtains and drapes are never disturbed



Daylight Windows

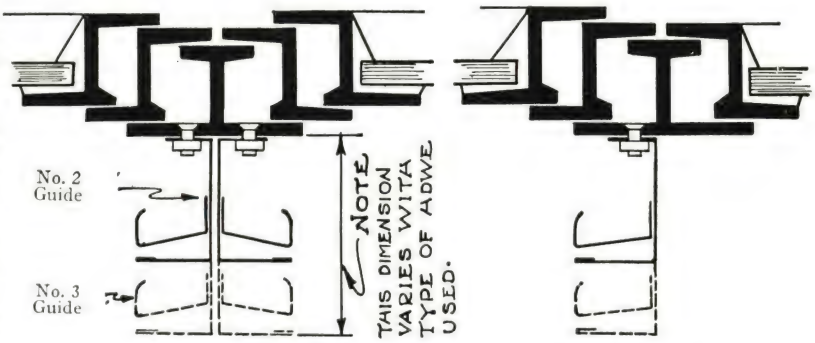
A 16-mesh screen wire will keep out nearly a third of the daylight. Therefore, on dark, rainy days when windows are closed Chamberlin Nu-Roll Screens can be raised to admit a maximum amount of light

up against the housing. This spring bronze member is also adjustable in tension so as to hold the drawbar at any desired point. The rigid guide member automatically interlocks with the drawbar at all times.

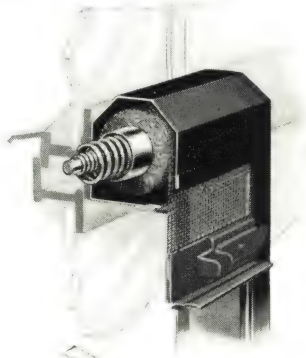
Wire Cloth—Made of specially annealed, non-crystallizing, 16-mesh, solid bronze anaconda wire with *five* extra strands for selvage reinforcement. The full width of the upper edge of the cloth is soldered to the roller.

Operating Bar and Catch—A rigid, two-piece, flanged, adjustable type and is provided with automatic or spring bolt side catches. A weatherproof felt insert between the operating bar and window stool avoids damage to the stool and keeps out all insects.

Installation of Housing and Guides—Generally speaking, Chamberlin recommends screening ventilating sash only, by placing the housing so that screening will not cover stationary lights or transoms. Toward this end the Chamberlin Nu-Roll Screen housing and guides are designed to permit unobtrusive installations.

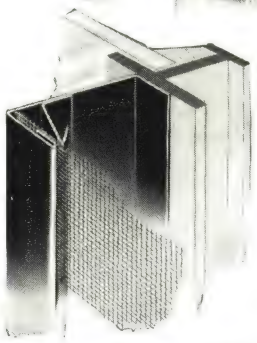


Detail Illustrating an Application of Guides
(Half size)
All jambs must be parallel



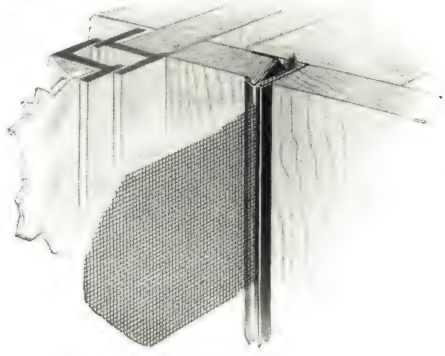
Housing Mounted on Transom Bar

The design and compactness of the Chamberlin Nu-Roll Screen housing permits a neat and unobtrusive installation at the transom bars of steel casements. This means screening ventilating sash only, eliminating the handling of an unnecessarily large screen, avoiding fly pockets and saving money



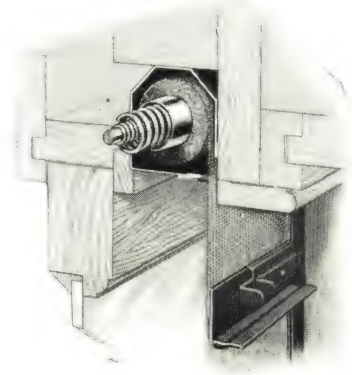
Visible Installation of Guides

The two-angle member of the Chamberlin Nu-Roll Screen guide is made of spring bronze. This member prevents the operating bar of the screen from slamming up against the housing when the screen catch is released. With an up and down motion of the screen it also deflects the selvage edge of the screening back into the guide whenever the netting is accidentally pushed out



Concealed Installation of Guides

By installing the guide, which is $\frac{15}{16}$ in. deep, between $\frac{3}{4}$-in. divided wood stops the guide is practically concealed



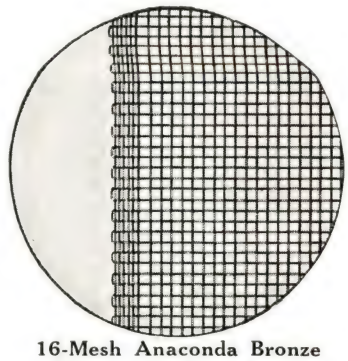
Concealed Housing

This drawing illustrates the simple manner in which the frame head can be detailed to permit a concealed installation of the housing in the case of either casement or sliding windows

Dimension Notation

The dimension notation above simply means that if a two-sash bay is to be screened with a single screen, the deeper guide is necessary to permit the screen to clear the hardware if one sash is to be closed when one is open. A $\frac{5}{8}$-in. clearance must be allowed on steel jamb for bolting screen guide to frame.

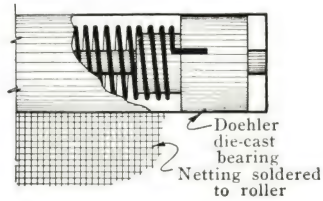
Special Note: A single screen can be used on a two-sash bay, but a separate screen for each sash eliminates the formation of a fly pocket and is, therefore, a more satisfactory arrangement.



16-Mesh Anaconda Bronze Wire with Five-strand, Reinforced Selvage Edge
(Full size illustration)

End Section of Roller in Chamberlin Nu-Roll Screens and Fenestra-Chamberlin Rolling Screens

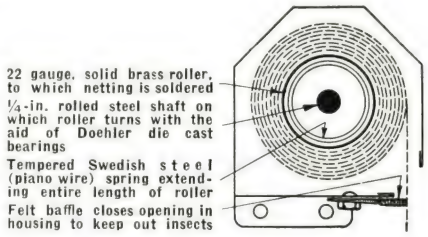
A special rustproof Doehler die-cast bearing is used (instead of the customary wood or steel bearing) to overcome all wearing at this point and any binding that would interfere with a satisfactory operation of the screen



Housing Mechanism of Chamberlin Nu-Roll Screens and Fenestra-Chamberlin Rolling Screens

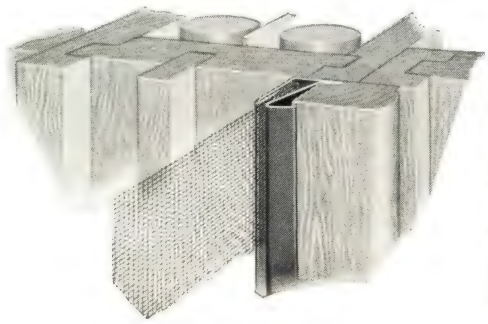
(Half size)

The Chamberlin Nu-Roll Screen housing is 2 in. wide or 2¼ in. wide if screen exceeds 70 in. in height



Complete Details

More complete details may be obtained by consulting your local Chamberlin branch or the Architectural Relations Department at our General Offices in Detroit, Mich.



Guide Acts as Inside Stop

A No. 10 guide is used for double hung Nu-roll screen installations. This guide is mounted on the frame, as shown, acting as the inside stop for the lower sash. The regular wood stop is trimmed down or moved away to make room for the guide

TYPICAL OUT-OPENING STEEL CASEMENTS WITH RECOMMENDED EQUIPMENTS AND MOUNTINGS FOR CHAMBERLIN NU-ROLL SCREENS



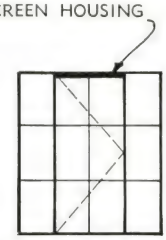
Single Casement Fully Ventilated
Use single Nu-Roll screen at head



Single Casement with Fixed Transom
Use single Nu-Roll screen mounted at transom bar



Single Casement with Hinged Transom
Use single Nu-Roll screen mounted at head



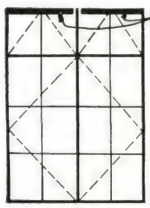
Single Casement with Fixed Side Lights
Use single Nu-Roll screen over casement only



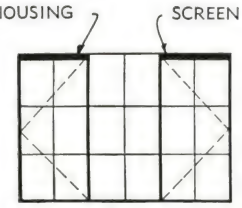
Two Single Casements or One Double Casement Fully Ventilated
Recommended use of two single Nu-Roll screens, optional one double Nu-Roll screen



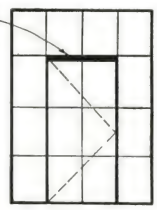
Two Single Casements with Fixed Transoms
Use two single Nu-Roll screens mounted at transom bar



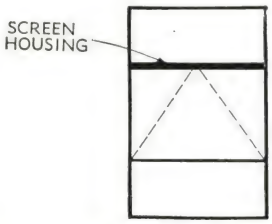
Two Single Casements with Hinged Transoms
Use two single Nu-Roll screens mounted at head



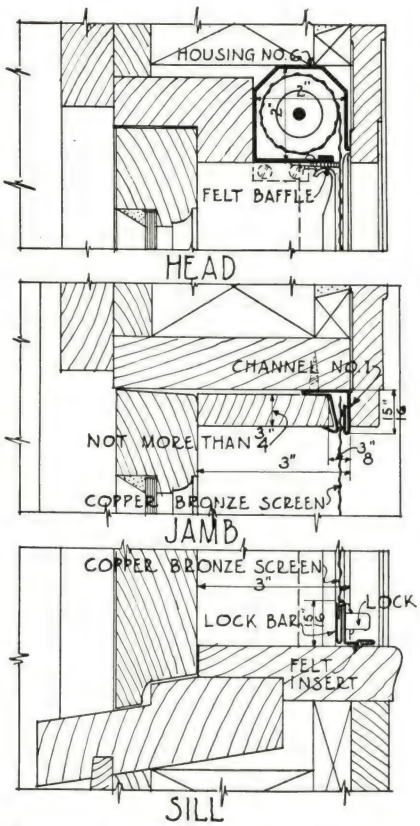
Two Ventilated Casements with Fixed Sash Between
Use two single Nu-Roll screens over casements only



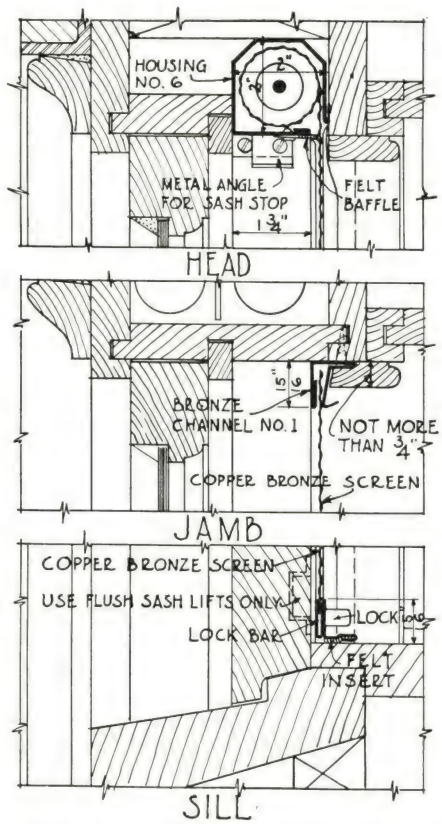
Single Casement with Fixed Side Lights and Transoms
Use one single Nu-Roll screen mounted at transom bar screening ventilator only



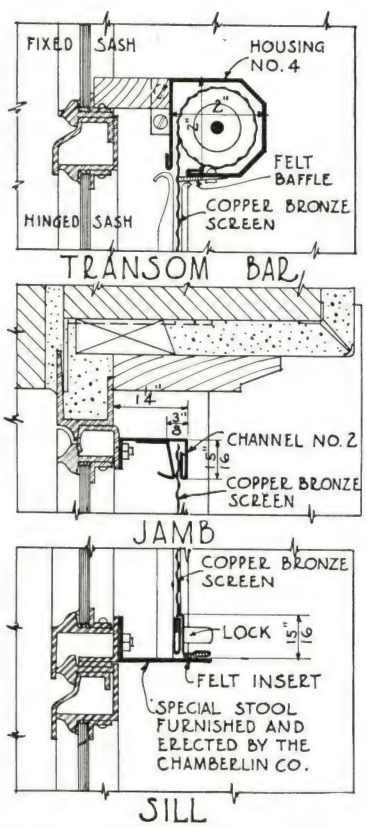
Projected Steel Window
Use one single Nu-Roll screen mounted on guides at transom bar



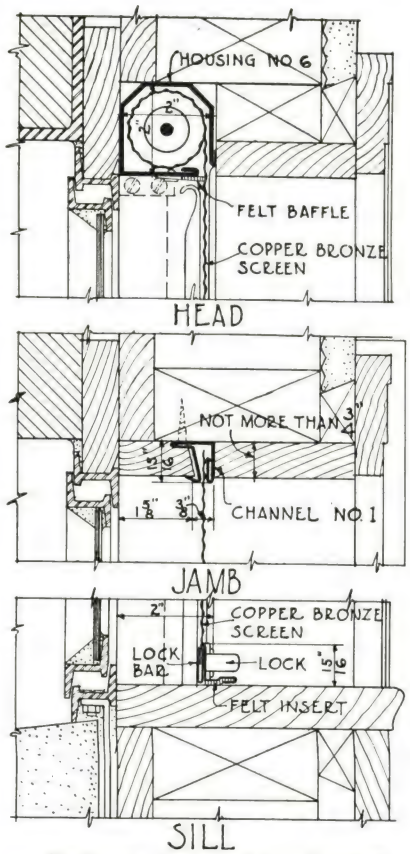
Equipment No. 61 W-W. Concealed installation on out-opening wood casement



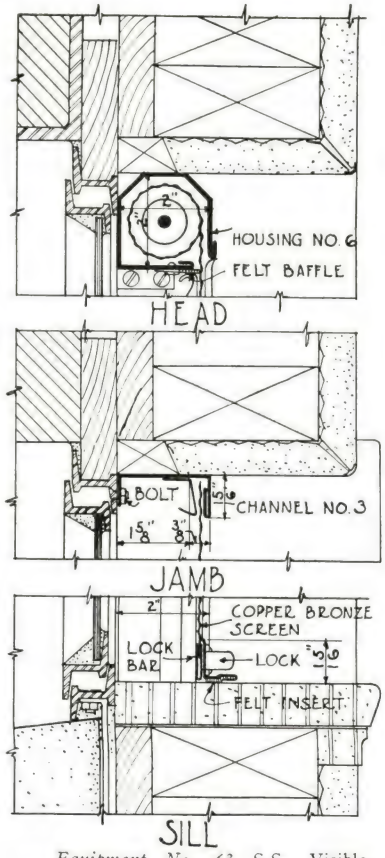
Equipment No. 61 R-W-W. Concealed installation on a wood double hung window



Equipment No. 42 S-S-P. Visible installation on steel projected window

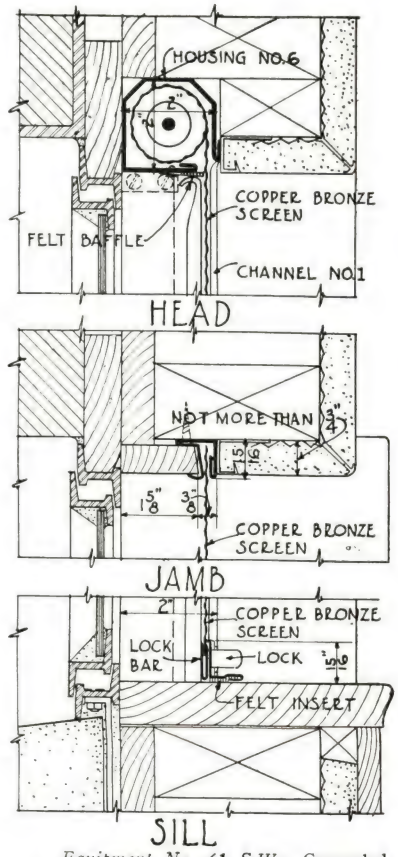


Equipment No. 61 S-W. Concealed installation on out-opening steel casement



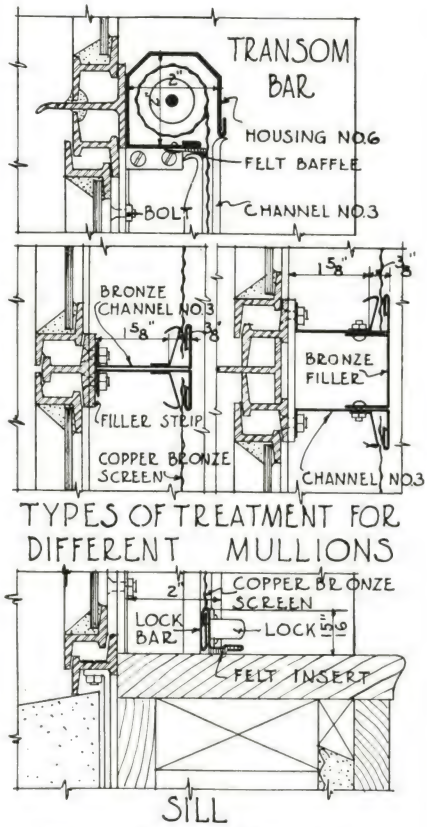
Equipment No. 63 S-S. Visible installation on out-opening steel casement.

Note: Mounting independent of plaster reveals

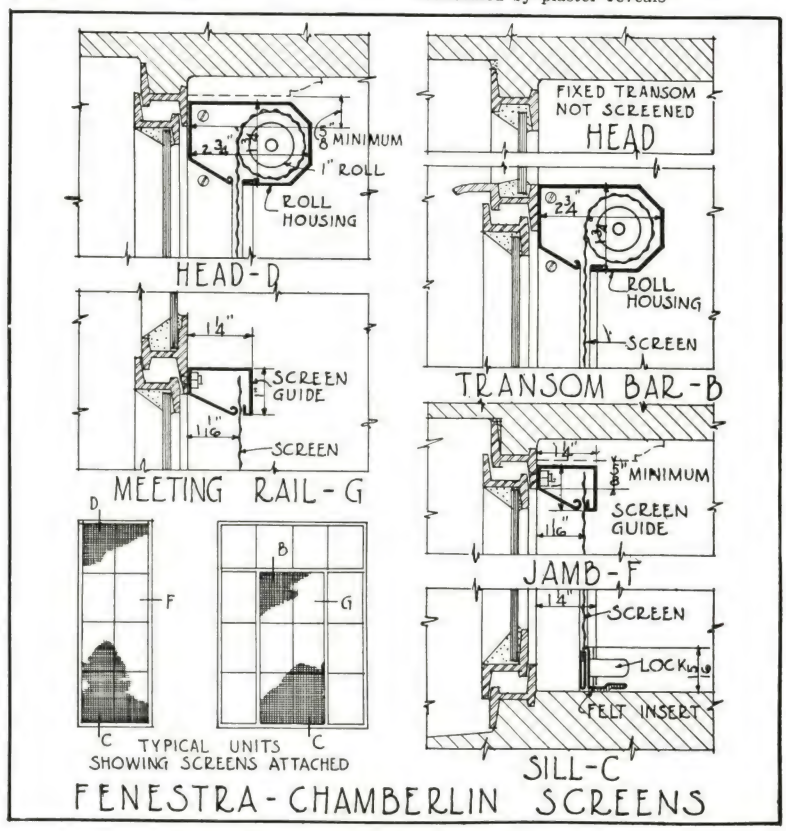


Equipment No. 61 S-W: Concealed installation on out-opening steel casement.

Note: Mounting independent of but concealed by plaster reveals



Equipment No. 63 S-S-T. Visible installation on steel frames with multiple sash and fixed transom in out-opening steel casement



Fenestra-Chamberlin Rolling Screen Equipment

ROBBINS WOOD AND HOLLOW METAL SCREENS

Manufactured by
THE ROBBINS MANUFACTURING CO., CHICAGO, ILL.

Sold and Installed by
CHAMBERLIN METAL WEATHER STRIP CO., INC., DETROIT, MICH.

Chamberlin District Factory Branches Are as Follows

Akron, Ohio	Charlotte, N. C.	Dayton, Ohio	Indianapolis, Ind.	Minneapolis, Minn.	Pittsburgh, Pa.
Atlanta, Ga.	Chicago, Ill.	Denver, Colo.	Jacksonville, Fla.	Nashville, Tenn.	Portland, Ore.
Baltimore, Md.	Cincinnati, Ohio	Des Moines, Iowa	Kansas City, Mo.	Newark, N. J.	Providence, R. I.
Boston, Mass.	Cleveland, Ohio	Detroit, Mich.	Los Angeles, Calif.	New Haven, Conn.	Richmond, Va.
Buffalo, N. Y.	Columbus, Ohio	Fargo, N. D.	Louisville, Ky.	New York, N. Y.	St. Louis, Mo.
Champaign, Ill.	Dallas, Tex.	Flint, Mich.	Memphis, Tenn.	Omaha, Neb.	San Francisco, Calif.
Charleston, W. Va.	Davenport, Iowa	Harrisburg, Pa.	Milwaukee, Wis.	Philadelphia, Pa.	Schenectady, N. Y.
South Bend, Ind.	Terre Haute, Ind.	Toledo, Ohio	Washington, D. C.	Wilkes-Barre, Pa.	

Sales Offices in 60 Other Cities of the United States

Robbins Screens

Robbins Hollow Metal Screens with frames of bronze or galvanized steel; Robbins Wood Frame Screens for windows and doors; Robbins Wood and Hollow Metal Porch Screens.

Services and Installation

Since its establishment over 50 years ago the Robbins Manufacturing Company has specialized in the exclusive manufacture of high quality, expertly finished, made-to-order screens. Ample manufacturing facilities insure prompt delivery. Distributing and installation facilities are furnished by the Screen Division of one of the best organized factory branch organizations in the country—the CHAMBERLIN METAL WEATHER STRIP COMPANY. The combined screen experience of nearly a century of Robbins and Chamberlin is available to discriminating architects and builders seeking expert co-operation in the solution of their screening problems.



Types of Screens

Robbins screens are furnished in every known type of wood or hollow metal screen for every kind of window and door.

General Specification Data

Robbins Wood Screens—Frames made of white pine, unless otherwise specified.

Frames $\frac{13}{16}$ in. thick have stiles from $1\frac{5}{8}$ to $2\frac{1}{4}$ in. wide and base rails from $2\frac{1}{4}$ to $3\frac{1}{2}$ in. wide. When frames are $1\frac{1}{8}$ in. thick stiles are $2\frac{1}{4}$ in. wide and base rails from $2\frac{3}{4}$ to 4 in. in width. Robbins screen frames are thoroughly sandpapered and are then finished in specified colors with three coats of pure lead and oil. Corners are joined with a double mortise joint and the copper bronze wire is secured in place with the improved Robbins lock strip method of fastening each strand without the use of tacks.

All screens are numbered and duplicate numbers are furnished for each opening.

Robbins Hollow Metal Frame Screens — Made of bronze or electro galvanized steel.

The Robbins Hollow Steel Screen is a one-piece tubular section made from cold rolled copper, intent, electro galvanized steel .031 in. thick. Stiles and rails are 1 in. wide by $\frac{7}{16}$ in. thick. Finish two coats of enamel, baked on.

The Robbins Hollow Bronze Screen is a one-piece tubular section made from commercial bronze .031 in. thick.

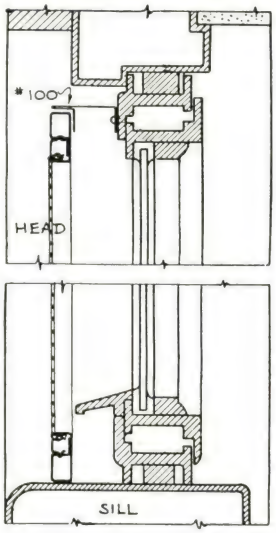
Robbins hollow metal frame screen corners are reinforced with a corrugated metal corner $2x2\frac{3}{16}$ in. to insure rigidness. The copper bronze screening is secured with a spline that rests flush with the frame. The spline will not twist or curl up when removed. Robbins screen hardware is made of solid brass.

Special Note: For extra large openings Robbins hollow metal screen frames are $1\frac{1}{2}$ in. wide and $\frac{7}{16}$ in. thick.

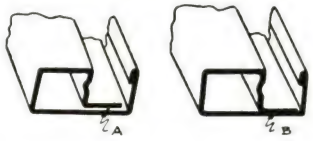
Robbins Porch Screens—Made of white pine unless otherwise specified. They are joined, wired and painted as specified above for Robbins wood frame screens. Robbins porch screens have frames $1\frac{1}{8}$ in. thick with the stiles and top rails $2\frac{1}{4}$ to $3\frac{1}{2}$ in. wide and with base rails $2\frac{3}{4}$ to $5\frac{1}{2}$ in. wide.

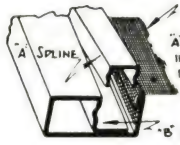
Robbins Door Screens—These are $1\frac{1}{8}$ in. thick and made of white pine unless otherwise specified. Unless otherwise specified stiles, top rails and cross rails are $2\frac{1}{4}$ to 4 in. wide; base rails $2\frac{1}{2}$ to 8 in. wide.

Robbins screen door frames are joined with a full mortise and tenon joint. The netting is secured in place as in the case of wood window screens. Robbins screen doors are equipped in the lower panels with the Robbins No. 1 Diamond guard wire, flat or twisted grilles.

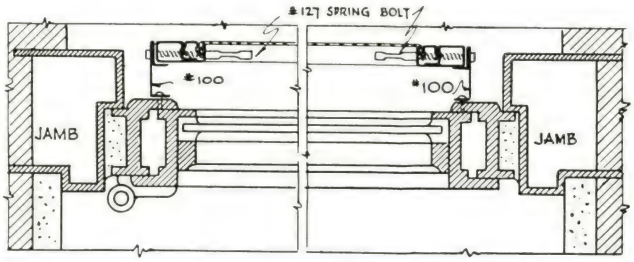


THE ROBBINS METAL FRAME SCREEN BEFORE WELDING. NOTICE THE UNJOINED DOUBLE THICKNESS AT "A" AFTER WELDING THERE IS A PERFECT, SOLID SUBSTANTIAL, SWAYLESS UNION AT "B"

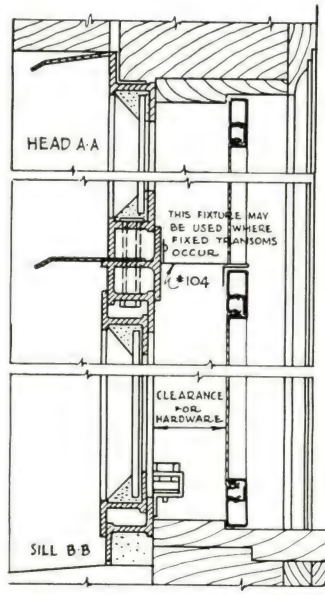


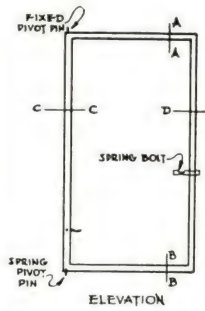


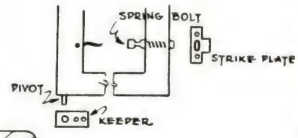
ROBBINS METAL SCREENS ARE A ONE PIECE TUBULAR SECTION .031 THICK.
STILES & RAILS 1" x 7/16"
OR
STILES & RAILS 1½" x 7/16"

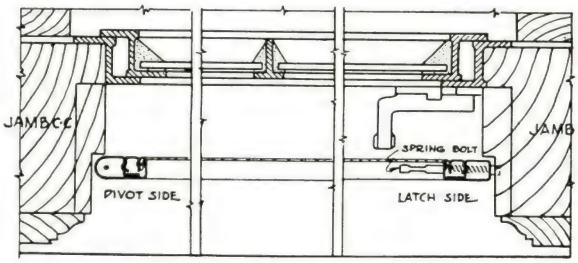


STATIONARY SCREEN FOR CASEMENTS WITH PROJECTED WATER LIP.

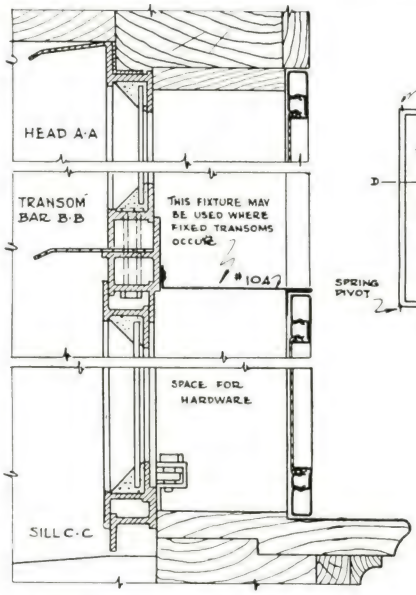


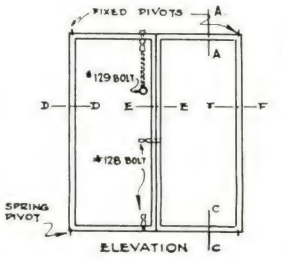


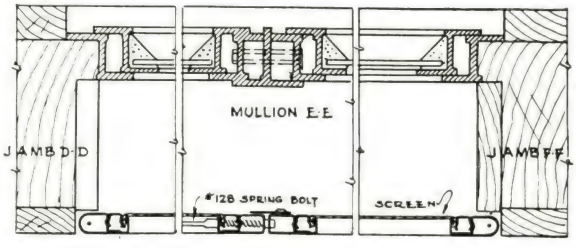




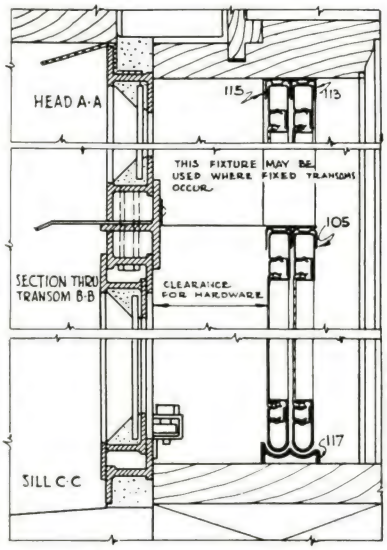
METAL SINGLE HINGED SCREEN FOR SINGLE OUTOPENING CASEMENT

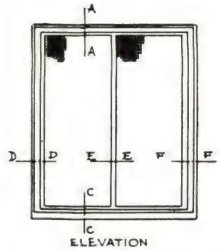


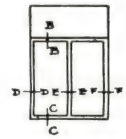


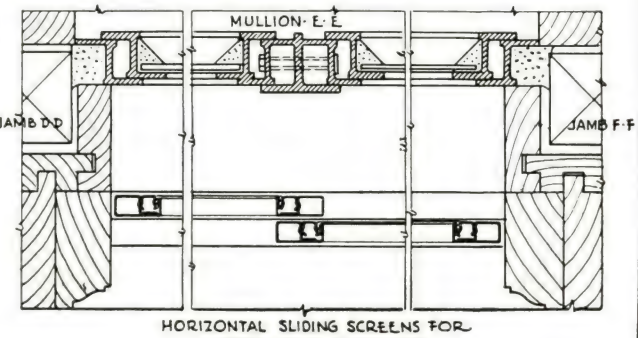


PAIR OF METAL SCREENS FOR OUTOPENING CASEMENTS

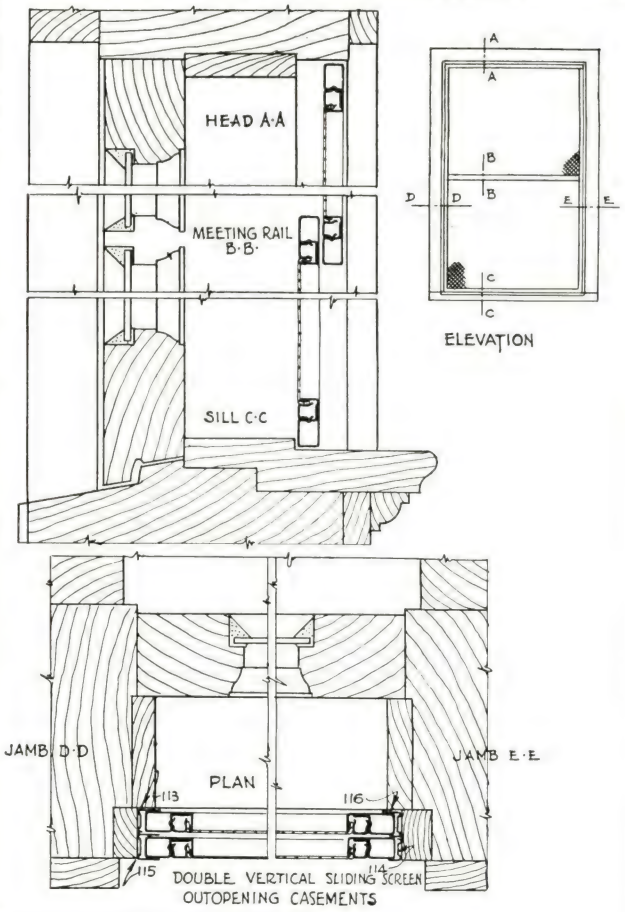


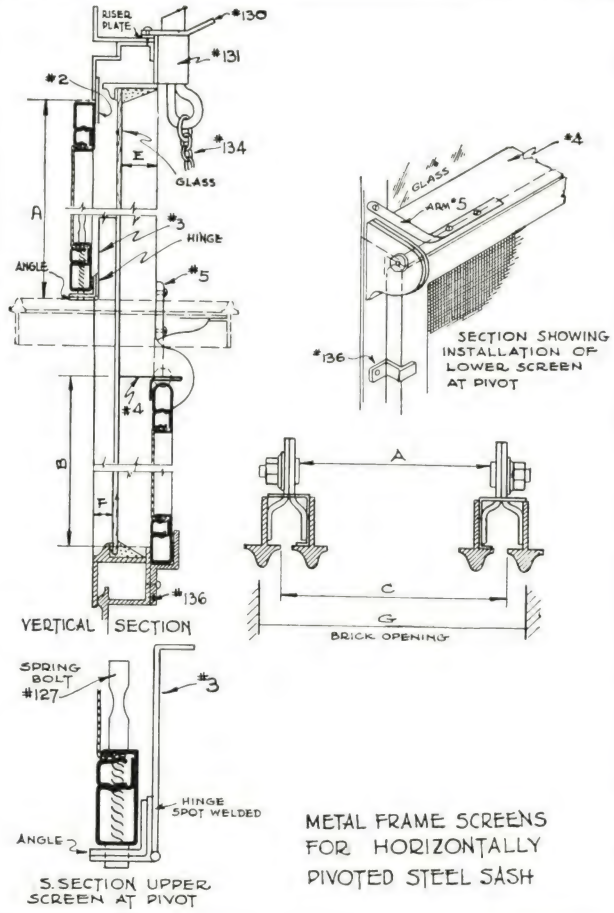


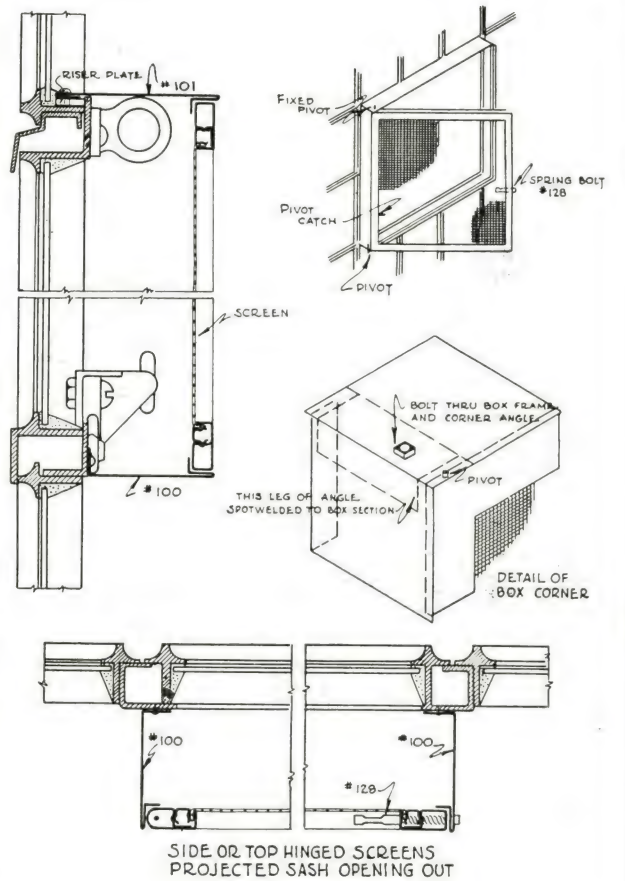


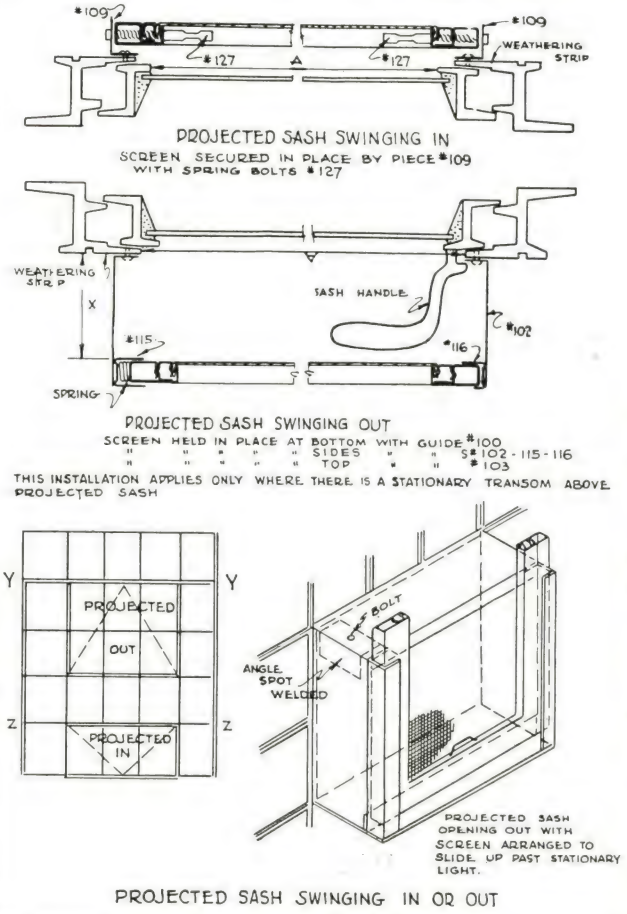


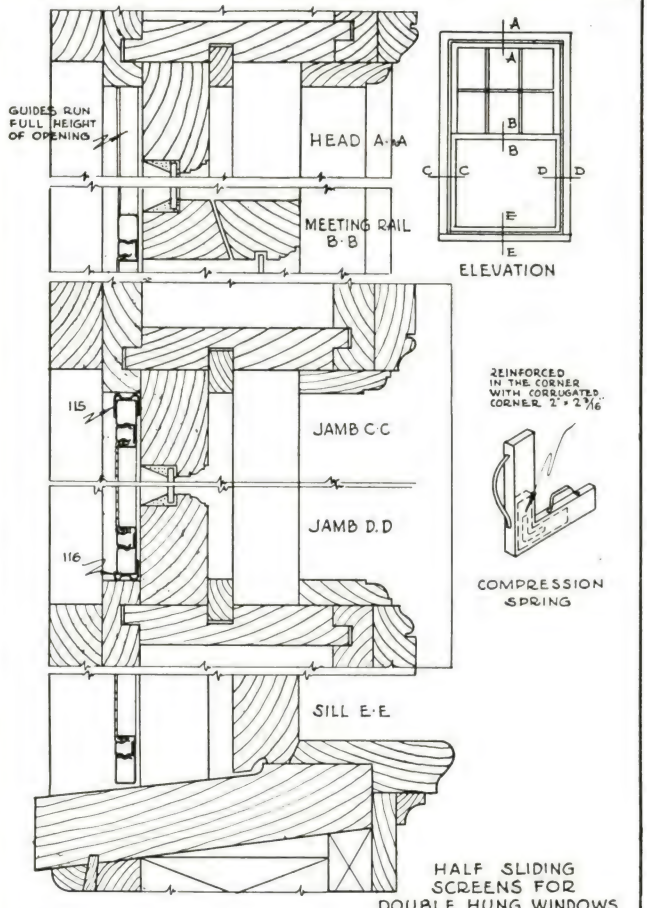
HORIZONTAL SLIDING SCREENS FOR OUTSWINGING CASEMENTS


HEAD A-A
MEETING RAIL B-B
SILL C-C
ELEVATION
JAMB D-D
PLAN
JAMB E-E
113
116
115
114
DOUBLE VERTICAL SLIDING SCREEN
OUTOPENING CASEMENTS

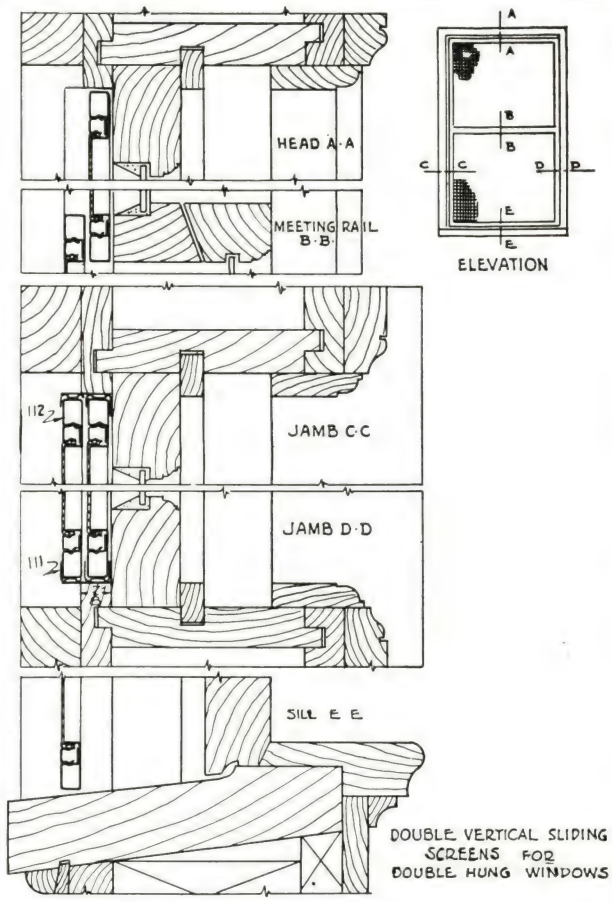

RISER PLATE
#130
#131
#2
#134
GLASS
HINGE
#3
#5
ANGLE
#4
#136
VERTICAL SECTION
SPRING BOLT #127
HINGE SPOT WELDED
S. SECTION UPPER SCREEN AT PIVOT
SECTION SHOWING INSTALLATION OF LOWER SCREEN AT PIVOT
BRICK OPENING
METAL FRAME SCREENS FOR HORIZONTALLY PIVOTED STEEL SASH


RISER PLATE
#101
FIXED PIVOT
SPRING BOLT #128
PIVOT CATCH
PIVOT
SCREEN
#100
BOLT THRU BOX FRAME AND CORNER ANGLE
PIVOT
THIS LEG OF ANGLE SPOTWELDED TO BOX SECTION
DETAIL OF BOX CORNER
#100
#100
#128
SIDE OR TOP HINGED SCREENS PROJECTED SASH OPENING OUT

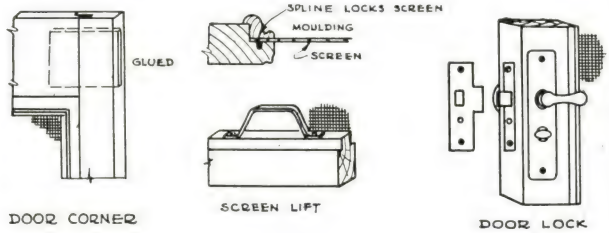

#109
#127
#127
#109
WEATHERING STRIP
PROJECTED SASH SWINGING IN
SCREEN SECURED IN PLACE BY PIECE #109 WITH SPRING BOLTS #127
WEATHERING STRIP
SASH HANDLE
#102
X
#115
#116
SPRING
PROJECTED SASH SWINGING OUT
SCREEN HELD IN PLACE AT BOTTOM WITH GUIDE #100
" " " " SIDES " " " #102 - 115 - 116
" " " " TOP " " " #103
THIS INSTALLATION APPLIES ONLY WHERE THERE IS A STATIONARY TRANSOM ABOVE PROJECTED SASH
Y
Y
PROJECTED OUT
Z
Z
PROJECTED IN
BOLT
ANGLE SPOT WELDED
PROJECTED SASH OPENING OUT WITH SCREEN ARRANGED TO SLIDE UP PAST STATIONARY LIGHT.
PROJECTED SASH SWINGING IN OR OUT

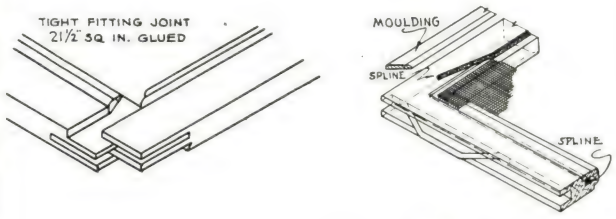


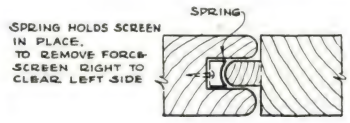
HALF SLIDING SCREENS FOR DOUBLE HUNG WINDOWS

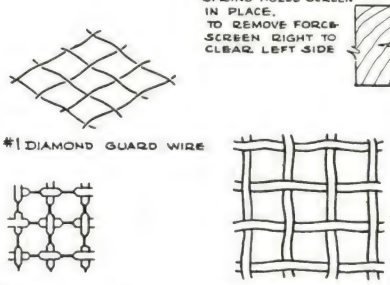


DOUBLE VERTICAL SLIDING SCREENS FOR DOUBLE HUNG WINDOWS

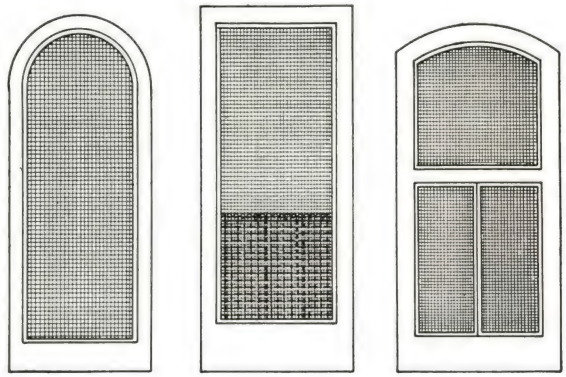


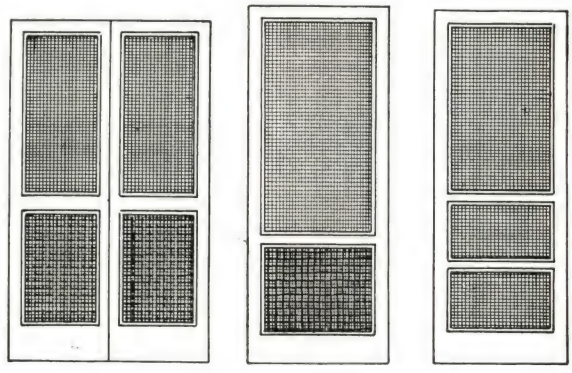






WOOD DOOR & SCREEN DETAILS





A FEW TYPICAL DESIGNS OF ROBBINS WOOD SCREEN DOORS

CHASE BRONZE AND COPPER INSECT SCREEN CLOTH

CHASE BRASS & COPPER CO.

—INCORPORATED—

WATERBURY, CONN.

NEW YORK, N. Y., 80 Lafayette Street
BOSTON, MASS., 411 "D" Street
BUFFALO, N. Y., 25 Ellicott Street
NEWARK, N. J., 361 Halsey Street
PHILADELPHIA, PA., 46 No. 6th Street
BALTIMORE, MD., 307 E. Lombard Street
PITTSBURGH, PA., 855 North Avenue, West
CINCINNATI, OHIO, 222 Post Square
CLEVELAND, OHIO, 5005 Superior Avenue
DETROIT, MICH., 2798 E. Grand Boulevard
CHICAGO, ILL., 1300 W. Harrison Street
MILWAUKEE, WIS., 512 North Water Street
MINNEAPOLIS, MINN., 145 No. 10th Street
ST. LOUIS, MO., 314 No. 2nd Street
NEW ORLEANS, LA., 429 Camp Street
DALLAS, TEX., 1407 Main Street
LOS ANGELES, CAL., 210 Central Avenue
SAN FRANCISCO, CAL., 680 Second Street
OAKLAND, CAL., 1808 Peralta Street
SEATTLE, WASH., 1957 First Avenue, So.

Products

SCREEN CLOTH: Chase Commercial Bronze and Pure Copper.

For Chase pages on Copper Roofing Materials and Door Saddles, Brass and Copper Pipe, and Copper Water Tubing, see Manufacturers' Index.





Chase Commercial Bronze Insect Screen Cloth

Is a most economical, non-rusting material for screening windows, doors and porches where quality, ultimate cost and permanence are controlling factors.

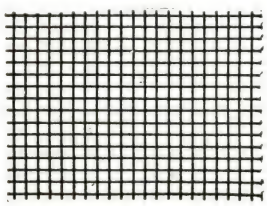
Chase Commercial Bronze Insect Screen Cloth is harder, stronger and more resilient and durable than pure copper cloth. Bronze cloth when released after having been bent under pressure of the thumbs, will spring back into its original flat, straight surface, whereas pure copper cloth when bent under even a moderate pressure remains permanently distorted.

Antique Finish

In places where *bright* finish is undesirable Antique Finish, Chase Commercial Bronze Screen Cloth is an ideal substitute for the regulation bright bronze. The finish on this type of cloth gives it a very dark bronze color. *Antique* finish is produced by a special process which adds a permanent dark coating to the wire *before* it is woven into cloth, thus insuring uniform color. This process in no way detracts from the rust resisting qualities of the screen.

Chase Pure Copper Screen Cloth

This cloth is exactly what its name implies: screen cloth woven from 99.9% pure copper wire that is drawn as hard in temper as it is possible to make. Copper of course is non-rusting and needs no painting. It does not give as good results as bronze where large surfaces are to be covered, owing to its softness and liability to damage and being stretched out of shape after it is installed. Chase Copper Screen Cloth is clearly and unmistakably labeled *"copper,"* or if the wrapping has been removed it can be readily identified by testing with the fingers for resiliency and strength.



16-Mesh Screen Cloth

Size of Mesh to Use

The term *mesh* is generally understood to mean the number of openings in a linear inch and that is the standard by which our screen cloth is manufactured.

16-mesh is used more than any other size because it gives better service in guarding against both mosquitoes and house flies.

14-mesh will protect against flies but will not bar out mosquitoes.

18-mesh is required in some tropical climates and close to Southern seashores, in order to protect against the extremely small mosquitoes and gnats that infest those localities.

Standard Widths

Chase Commercial Bronze Bright Finish Insect Screen Cloth is always available for immediate warehouse shipment in all *even widths* from 18 to 48 in., i.e., 18, 20, 22, 24, 26, etc. All of these widths are available in either 14, 16 or 18-mesh.

Antique Finish bronze cloth is also carried in all even inch widths from 18 to 48 in. in 14, 16 and 18-mesh. Chase Antique Bronze Screen Cloth can also be furnished in 54, 60, 66 and 72-inch widths.

Chase Pure Copper Insect Screen Cloth is carried in stock in all *even inch* widths from 18 to 48 in. in 14, 16 and 18-mesh.

Specification

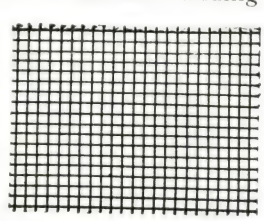
Insect Screens—All movable windows, doors and also front (or side) porches shall be equipped with insect screens covering the entire opening.

Frames of all screens to be made of well seasoned, clear white pine with mortise tenon corners securely wedged and glued or with coped rail and stile with doweled joint. To be painted with 3 coats of best lead and linseed oil in colors to harmonize with surrounding trim.

The insect screen wire to be 16-mesh, commercial bronze as manufactured by the CHASE BRASS & COPPER CO.

All hardware to be solid brass or bronze.

Installation of screens to be made under direction of architect.



18-Mesh Screen Cloth

CORRY METAL CORPORATION

TELEPHONE
556

Artisans in Modern Screening
CORRY, PA.

CABLE ADDRESS
"Cormetco"

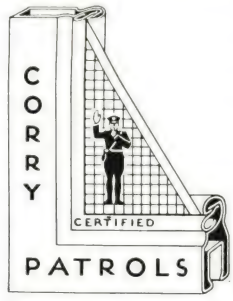
PATENTED REWIREABLE WOOD AND METAL SCREENS OF ALL TYPES

Architecturally Endorsed—Nationally Represented

Our Presentation

In this catalogue we wish to convey the scope of our screening, its outstanding features of construction, and brief specifications.

We do not propose to show all the structural details of every type of Corry Patrol Screening as this would be impossible in a limited catalogue of this size. For more complete descriptions we refer you to our architectural catalogue F-52 and also our color pictorial catalogue F-32, sent on request.



Trade Mark Registered

Features of Corry Frame Construction

Corry Patrol metal screening has many new features of design. The wire groove has been designed to wire and rewire with the least possible trouble. The outer face wall of wire groove is convexed while the inner face wall is perpendicular, giving a space between to hold solder while it is fluxed in electric welding machine. Thus a continuous lock or weld is effected, binding the framing secure and rigid, while the convexed outer wall of wire groove produces a wire groove and framing of great strength.

Both faces of Corry Patrol metal screen framing are coved and convexed to produce not only a framing of beauty, but one of maximum strength and rigidity. This structural feature also provides for a type of corner reinforcement which produces a corner of maximum strength. Corry Patrol corners do not weave. They remain rigid at a corner of maximum strength. Corry Patrol ing may be rewired many times. This is also true of Corry Patrol roll screens.

Corry Patrol wiring splines are made of full hard material giving great resiliency.

Metal Door Specificational Data

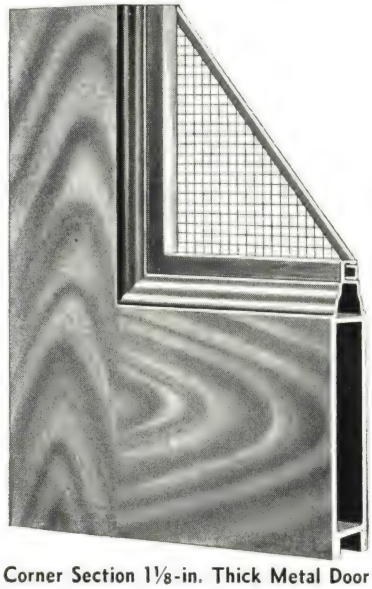
½-in. Thick Metal Doors—

The stiles and top rail are 2 ins. wide and the bottom rail 5 ins. wide. Single panel doors have a 11¾-in. bottom rail. All material .032 thick or 20 B&S gauge. Reinforcements are 20 B&S gauge. Stiles are reinforced for butts, latch and any other hardware. Top rail, cross rail and bottom rail reinforcements extend into full width of stiles.

Wired with .011 or 29 B&S gauge 16-mesh antique bronze wire cloth. Solid brass or bronze hardware with coil spring is furnished.

⅝-in. Thick Metal Doors—

Same specifications as ½-in. thick doors, except stiles and top rail are 2¾ ins. wide and bottom rail is 5¾ ins. wide. Bottom rail is 11¾ ins. when doors are single



Corner Section 1⅛-in. Thick Metal Door



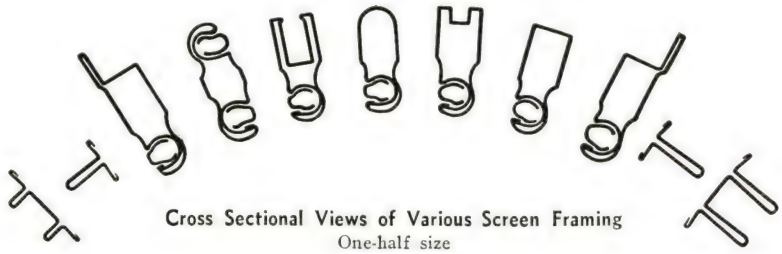
Metal Screen Door with Spider Web Grille
Variety of designs unlimited



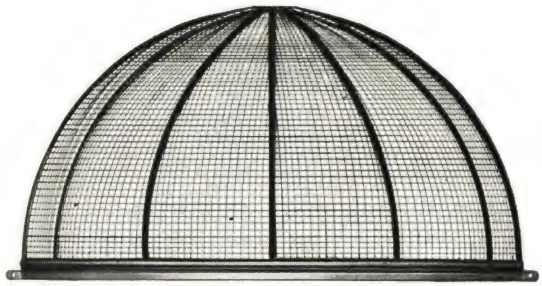
Corner Section ⅝-in. Thick Metal Door, Panel Effect

CORRY CERTIFIED PATROLS

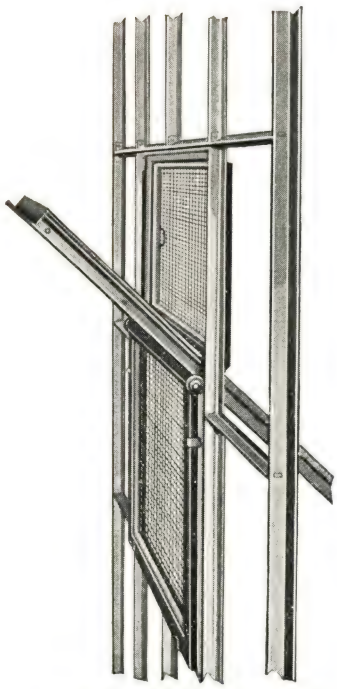
Trade-Mark Registered



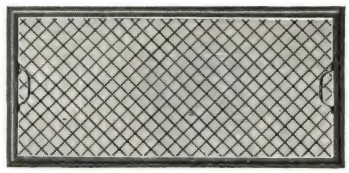
Cross Sectional Views of Various Screen Framing
One-half size



Basket or Hemispherical Screen



Factory Center Pivoted Steel Sash Screens



Cellar Screen of the Spring-in Stationary Type with Diagonal Mesh Guard



Out-opening Steel Projector Sash and In-opening Projector Sash Properly Screened

panel. Fabricated of .040 or 18-gauge stock. Internal reinforcements are .050 thick or 16 B&S gauge.

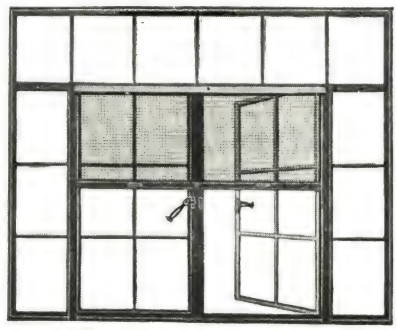
Wired with .011 or 29 B&S gauge 16-mesh antique bronze wire cloth. Solid brass or bronze hardware with liquid check is furnished.

1⅛-in. Thick Metal Doors—

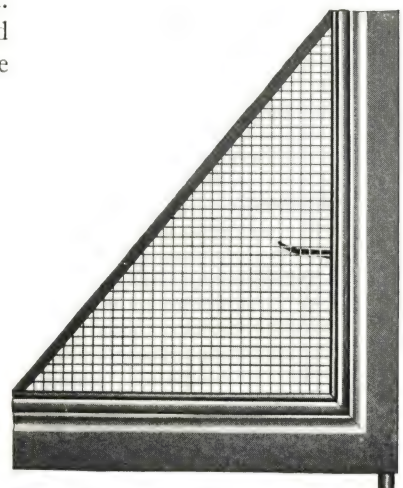
Stiles and top rail 3¾ ins. wide, cross rail (one per door) 3¾ ins. wide where desired. Bottom rail 5¾ ins. wide for two panel doors or 11¾ ins. wide for single panel doors. Fabricated of .050 or 16 B&S gauge stock. Internal reinforcements .065 or 14 B&S gauge stock. Wired with .015 or 26 B&S gauge 16-mesh antique bronze wire cloth. Solid brass or bronze hardware with heavy liquid check, cylinder lock and ball bearing butts are furnished.



Corner Section of Metal Vertical Sliding Screen Showing Friction Springs, in Deep Groove



Double Out-opening Steel Casements with Roll Screen Covering Both Vents



Corner Section of Side Pivoted Screen Showing Lever Bolt

Flat Screen Specificational Data

$\frac{7}{16}$-in. Thick by 1$\frac{1}{8}$-in. Wide—

Framing is in one piece fabricated of .028 or 21 B&S gauge material. Can be increased to .030 thick material if so desired. Wire holding spline .018 thick full hard material. Internal corner reinforcements extend into framing to a depth of 2$\frac{1}{4}$ ins. They are of .037 or 19 B&S gauge material.

Wired with .011 or 29 B&S gauge 16-mesh antique bronze wire cloth. All hardware built in or concealed, except operating levers, etc.

CORRY CERTIFIED PATROLS

Trade-Mark Registered

$\frac{1}{2}$-in. Thick by 1$\frac{1}{2}$-in.Wide Framing —and $\frac{1}{2}$-in. Thick by 2-in. Wide Framing—

Same as $\frac{7}{16}$x1$\frac{1}{8}$-in. framing, except fabricated of .032 thick or 20 B&S gauge material. Corner reinforcements are of .040 thick or 18 B&S gauge stock and extend into framing 2$\frac{1}{2}$ ins.



Roll Screen

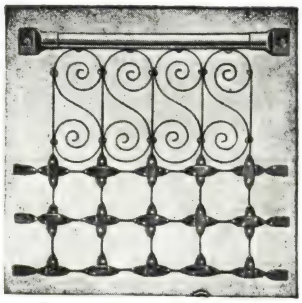
Roll Screen Specificational Data

The roll case, side guides and lift rail are constructed of .028 thick material or 21 B&S gauge; the wire cloth rollers are of brass or steel .012 thick or 28 B&S gauge; the wire cloth roller axis is $\frac{1}{4}$-in. in diameter; the sill contact strip is the best quality wool felt, $\frac{1}{4}$ in. thick; the end members or guide shoes are of brass .037 thick or 19 B&S gauge; the catch bolt lever or handles are of solid brass; while the tension springs are of the best music wire .072 or 15 B&S gauge. The wire cloth roller operates on ball bearings. The wire cloth in all cases is .011 or 29 B&S gauge, 16-mesh antique bronze. Steel roll cases, side guides and lift rail are electro galvanized on both sides before fabrication. Corry Patrol roll screens are easily rewireable at both the roller and lift rail ends. Contact felt is not glued to lift rail, but held securely in groove by an ingenious method.

The left rail of Corry Patrol roll screens are an innovation in that no bolts, screws, rivets, welding or soldering are required in their fabrication. The wire spline and end shoes lock the two parts of same together very securely. Corry Patrol roll screens are reversible on the job, which is another attractive feature. No notching of guides necessary, so they may be shortened readily on the job by removing catch bolt strips.



Door Style No. 14 with Quarter Twist Grille, Scroll and Rod—Raised Wood Panel Design

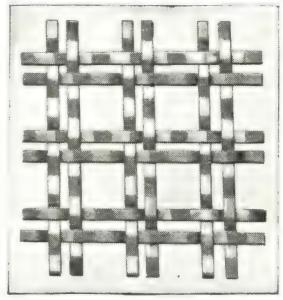


Quarter Twist Grille with Double Scroll and Rod Nos. 3 and 4

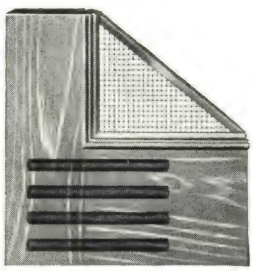
Wood Frame Screens and Doors

Corry Patrol wood doors, wood screens and tailor made guards in steel or bronze have, we maintain, no equal. They must be seen to be appreciated. Beautiful guards are not only a protection to the wire cloth but add much to the attractiveness and appearance of the door or screen on which they are placed.

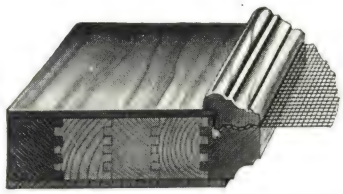
Our nearest representative will gladly submit samples. Just a line to us will place you in immediate touch with him.



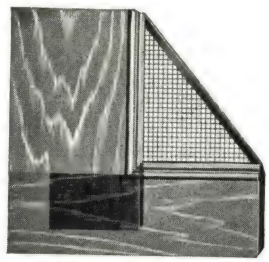
Double Flat Ribbon Grille Nos. 13 and 14



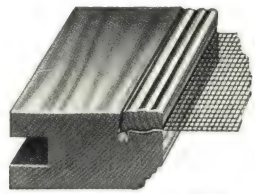
Wood Door Corner, Oak Doweled Construction



Sectional View Laminated Veneered Door Construction



Wood Door Corner, Mortise and Tenoned Construction



Sectional View of Sliding Screen Stile

THE CINCINNATI FLY SCREEN CO.

CINCINNATI, OHIO

SALES AGENCIES IN PRINCIPAL CITIES OF THE UNITED STATES

Products

CINMANCO ALL-METAL REWIREABLE FLY SCREENS; "EZ" SLIDE WOOD FRAME SCREENS; and WOOD and METAL FRAME SCREEN DOORS.

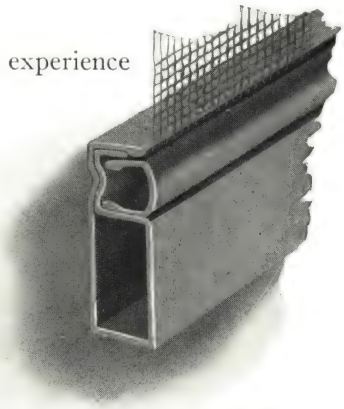
The Company

This company has had over thirty years' experience in building fly screens. Thousands of satisfied customers will attest to Cinmanco's reputation and integrity.

Service and Facilities

A highly specialized field organization has been developed to assist architects with their screen problems.

The large, modernly equipped plant of THE CINCINNATI FLY SCREEN CO., and its ideal, central location assure prompt deliveries.



Actual size

Cross Section of Cinmanco All-metal Screen

Cinmanco All-metal Screens

Cinmanco All-metal Screens are made of bronze; or galvanized, copper content steel strip. These frames are tubular in construction, assembled on correct mechanical principles, and spot-welded. Cinmanco All-metal Screens can be furnished in a large variety of types and finishes to suit the particular requirements—vertical, horizontal, sliding, hinged, basket, circle, segment top, bow, or any shape desired.

Features—***Rewireable***—The screen cloth is securely held in the groove by a rounded spline that will not cut the cloth. This spline can easily be removed for rewiring the screen.

Reinforced—Frames are sturdily reinforced by inside metal angles.

Detachable Springs—Easily removed and renewed.

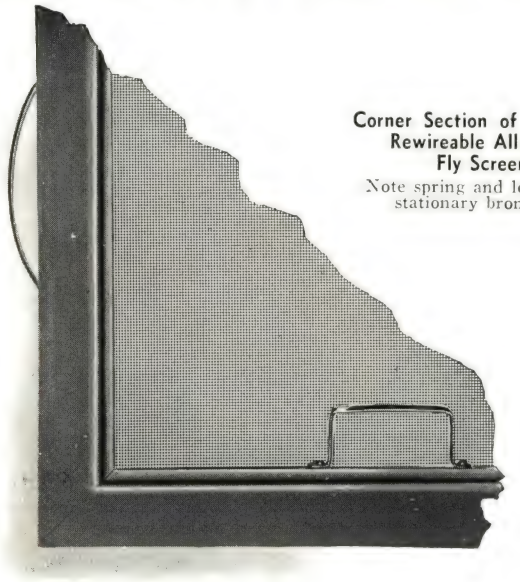
Bronze Wire Cloth—Cinmanco genuine 90% copper, rustless, bronze wire cloth, 16-mesh, is regularly furnished.

Galvanized black enameled wire cloth, monel metal, or aluminum cloth can also be had, when specified. Meshes from 16 to 60.

Free Ventilation—Nothing to obstruct.

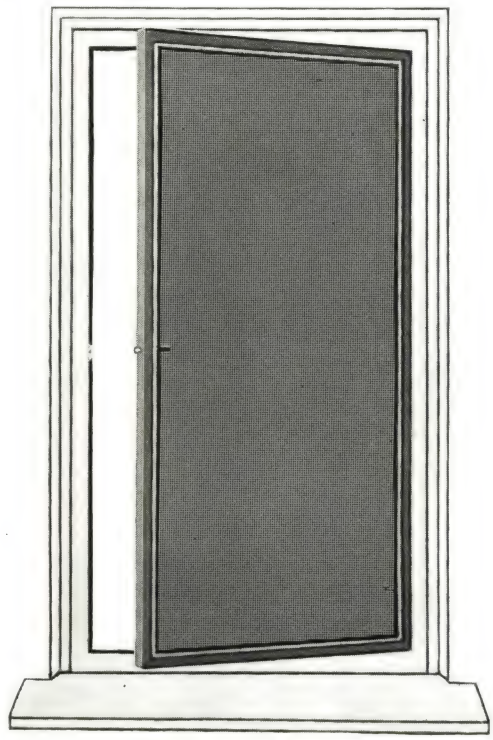
Cinmanco Hinged Screens

Cinmanco Hinged Screens are used for casement or pocket windows and are hung at either side or top by means of one stationary rod and one sliding rod; the sliding rod is operated from the inside. These rods rest in bronze sockets secured to the window frame. The screen is fastened with a round spring bolt, permitting easy operation.



Corner Section of Cinmanco Rewireable All-metal Fly Screen

Note spring and location of stationary bronze lift



Side Hinged Screen

Screen Doors

Wood — Cinmanco Screen Doors are made of carefully selected, well-seasoned lumber — white pine, oak, cherry, mahogany, walnut, or other woods, as specified.

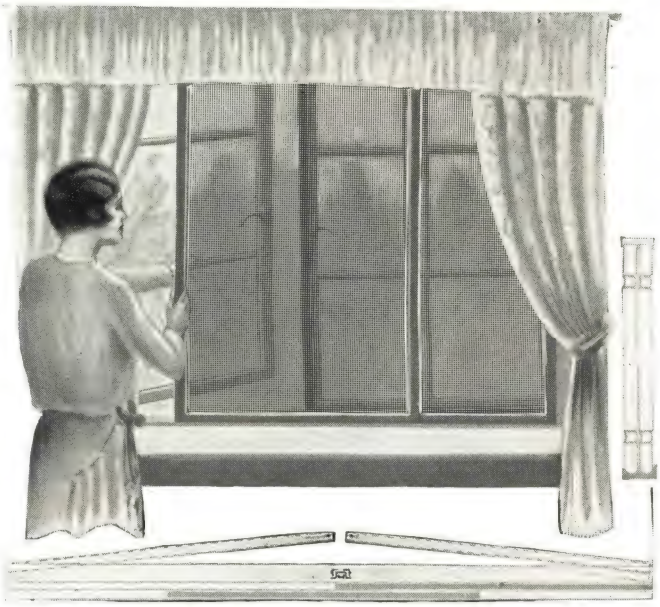
All doors are 1⅛ in. thick (unless otherwise ordered), mortised, glued, and wedged. Special care is given to produce a superior door in every respect. Highest quality paints, stains, and varnishes are used, all carefully rubbed down.

Hollow Steel, Bronze, Aluminum and Nickel Silver — Cinmanco All-metal Screen Doors are built for permanence. Corners and joints are fully welded, resulting in a rigid, one-piece construction that eliminates all possible twist and assures perfect fit under all conditions. Especially adapted for casement doors where narrow stiles are desired.

Cinmanco Doors are furnished with 16-mesh bronze wire cloth, and special bronze locks, hinges, and flush bolts. Steel doors can be supplied in colors or grained finish to match any woodwork; bronze doors, in natural bronze or light to dark statuary finish.

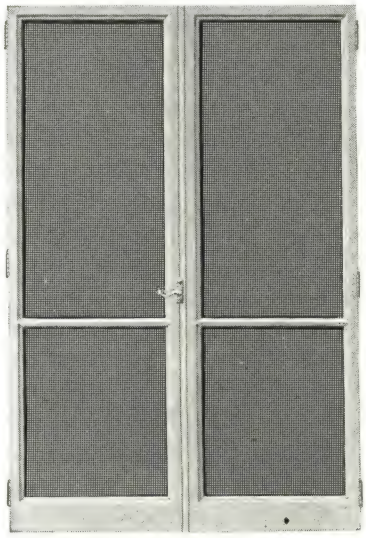
Screen Door Grilles— The Cinmanco Catalog illustrates a wide variety of screen door grilles for selection.

Screen Door Hardware —The hardware for Cinmanco Screen Doors has been carefully selected for beauty and durability. The mortise door latch is solid bronze and can be furnished in a variety of finishes. Five knuckle, steel bushed, loose pin bronze butts, or sherardized steel plated butts can be supplied.



Horizontal Sliding Screens

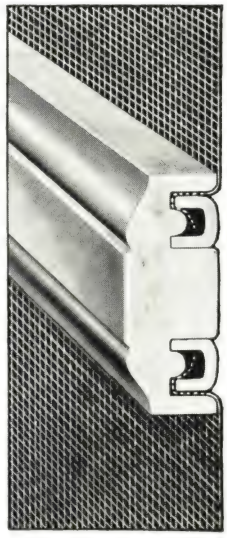
Cinmanco treatment for wide casement or porch openings, resting on sill or rail. Roller bearing allows 1¼ in. for metal frame screens, and 1¾ in. for wood frame screens in total width on stool



Cinmanco Hollow Metal Doors



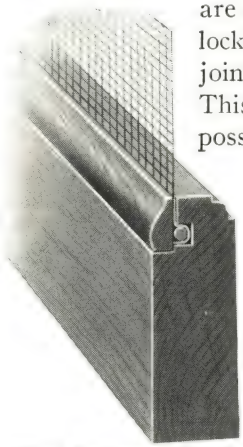
Right—In Cinmanco All-metal Screen Doors the screen cloth is tightly anchored in an extruded moulding by a rounded-edge spline that will not cut the cloth. This feature also permits easy rewiring



Left—Stiles and rails are made of 14-gauge seamless tubes of steel, bronze, aluminum or nickel silver. Corners and joints are fully welded, making a sturdy one-piece door

"E-Z" Slide Wood Frame Screens

The corners of the "EZ" Slide Wood Frame Screens are securely framed together by interlocking concealed mortise and tenon joints, glued and securely wedged. This construction gives the greatest possible strength and makes the joints impervious to the weather.



Cross Section of Wood Frame Screen

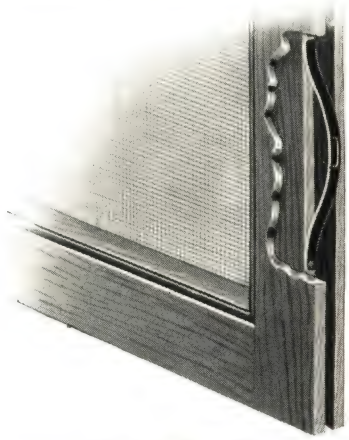
Showing groove and lock strip

The springs used in the wood frame screens are elliptic in shape and are made of steel clock spring; they will last as long as the screen itself.

The wire cloth is attached to the screen frame by means of a groove and lock strip that keeps it perfectly tight and smooth. Its holding powers are equal to the strength of the wire itself. By this method the screens can be easily rewired.

Duplicate numbers are furnished to be put on window sills, thus making it a simple matter to return the screens to their proper places.

Zinc metal or wood guides are furnished with this equipment.



Cross Section of "EZ" Slide Wood Frame Screen

Sleeping Porch or Solarium Screens

Made to harmonize with the surroundings.

THE HIGGIN MANUFACTURING CO.

Window and Door Screens

GENERAL OFFICES AND FACTORY

NEWPORT, KY.

BRANCH FACTORIES: KANSAS CITY, MO. and TORONTO, ONT.

SALES AGENCIES IN MORE THAN FIFTY OF THE LARGER CITIES THROUGHOUT THE COUNTRY

Look up our Local Office in Telephone Directory, or write to Newport, Ky., for information

The Company

This company, since its inception in 1893, has been makers of the finest quality all-metal screens, made to order. Thousands of these screens, installed more than thirty years ago, are today still serving satisfied owners. The firm financial standing and reputation for integrity of this company have meant much to the architect and his client.

The company's national advertising has gained nationwide acceptance of its products. The alertness in meeting the many difficult screen problems arising in modern building construction has made Higgin many warm friends.

Facilities

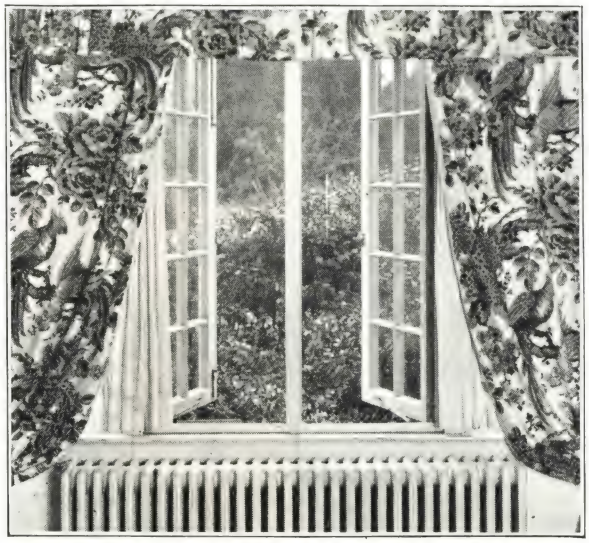
The extensive plants of THE HIGGIN MANUFACTURING CO. are centrally located and prompt deliveries can be made to all parts of the United States. Facilities are constantly being increased to meet the growing demand for Higgin products.

Every possible style of sash, every conceivable shape, every type of opening can be neatly and perfectly fitted with a Higgin Screen. Manufacturing all types of screens—rolling, hinged, sliding and stationary—this company is unbiased in its recommendations. The experience of Higgin screen experts backed by so complete a line permits a choice of screens best adapted to harmonize with the architectural effect of the building, be it a residence, a commercial building or an institution. The best of materials and workmanship render Higgin Screens the screens of a lifetime. Thousands of them have been in use for more than a quarter of a century. Many of the finest homes, apartments, hotels, hospitals, and other buildings in this country are "Higgin" screened.



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An Installation of Double Side Hinged Screens for Out-opening Casement Windows
Draw curtains are used here

Designing Service

An engineering, research and advisory department is maintained at the home office in Newport, Ky., where the more serious problems arising in an ever advancing building field are given careful yet prompt attention. This department is always ready to work out screening or weatherstripping details or provide as complete information as is possible for every type of work, commercial, residential or institutional. Detail folders, as well as full scale drawings covering many varied conditions, may be had for the asking. If you would like these details or have a specific problem to be solved, write Desk 15, THE HIGGIN MANUFACTURING CO., Newport, Ky.

Estimates are cheerfully furnished from any of the local sales offices or from the home office.

Field Organization

This company has developed through years of experience a highly specialized field service with headquarters in the principal cities. These men are near at hand to render expert service in assisting the architect in meeting his special problems in the screen and weatherstrip lines.

Installation Service

In addition, thoroughly competent fitting organizations are continuously maintained, insuring the installation of the work in the most workmanlike manner.

SCREENS FOR OUT-OPENING CASEMENT WINDOWS

Horizontal Sliding Screens

These screens are primarily for use inside on double or group casement windows. The equipment consists of two or more screens sliding horizontally in a solid brass grooved track at the sill and channel guides at the head. The window trim may be detailed to receive the equipment as shown in the detail to the right, or it may be placed in openings not especially designed. The width of head and sill track is 1⅛ in. and of course clearance must be allowed for sash hardware. Roughly a reveal of from 2¾ in. to 4 in. is necessary.



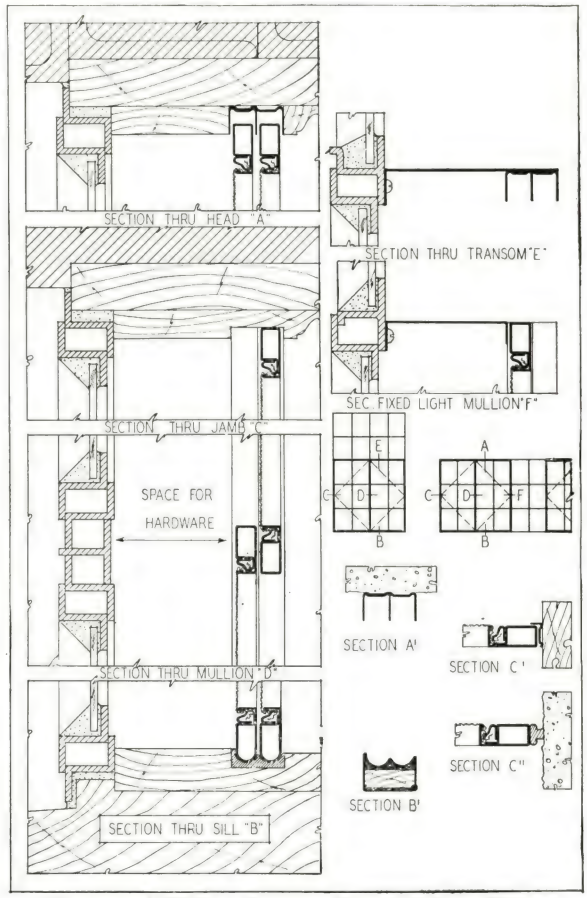
Operation of Horizontal Sliding Screens

Where fixed transoms occur it is often advisable to mount the channel guides on metal flanges which are attached to transom bar of sash (Sec. E). Where fixed sash are used either beside or between casements a single grooved track and head channel similar to the double track illustrated, may be employed. In this case only the movable sash is screened, with the track running the full opening width. The space between the screen and sash mullion is sealed with a channel shape of metal (Sec. F) which is so formed that the screen will slide by it.

At the jamb sides of the screens, some method of closing the light line is essential, especially where there is unevenness. Two methods are indicated here. Section C' shows a small angle usually finished to match the window trim, into which the screen fits when closed. Where jambs must be kept free, a felt member may be attached to jamb edges of screen to contact with reveals and take up any unevenness in wood plaster or tile surfaces (Sec. C").

Section B shows a sill track which may be removed when screens are taken out of storage. The only attachment needed at the stool are two small keeper blocks fastened either into the stool or into the jambs. On unusually wide openings an intermediate fastening is required.

Horizontal sliding screens do not interfere with curtains, drapes, shades or venetian blinds. They are easily slipped out for storage and like all Higgin Metal Frame screens require little space. They are the ideal solution for screening wide groups of casements. No mullion pieces are required affixed to sash mullions to support screens. Screens are divided to harmonize with design of sash, that is rails of screens line with rails of sash.



Horizontal Sliding Screens Detailed Into Trim

Inside Side Hinged Screens

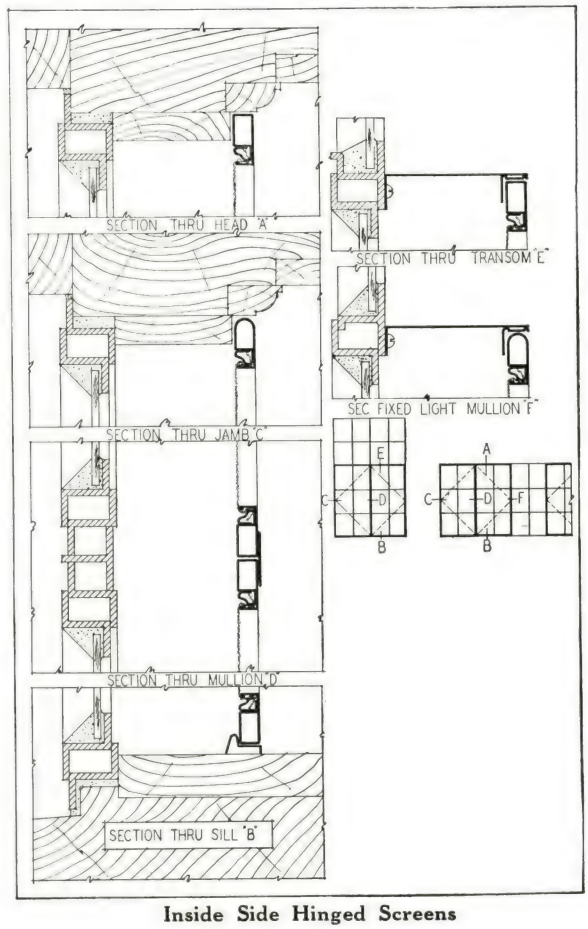
This type of equipment may be used for single or double out-opening casements, wood or metal, where there is no interference with curtains or drapes. Where curtains are desired with side hinged screens, draw curtains are recommended.

A rabbet ½x½ in. should be provided at the head and sides and if possible at the sill. Where there is no rabbet at the sill No. 142 bronze sill rabbet strip may be used. This keeps bottom rail of screen off stool and prevents dragging finished surface.



Side Hinged Screens
Operate smoothly and easily and are readily removed for storage

The screens are equipped with No. 27 pivot hinges and fixed pins on the hinged side and No. 26 latch on the lock side. For double hinged screens a plate astragal is used, top and bottom bolts for the stationary leaf are No. 402. Where fixed transoms occur a fixture as shown in Section "E" may be used so that the screen need not extend the full height of the opening. The fixture shown in Section "F" may be used where fixed lights occur so that the entire opening width need not be screened.



Inside Side Hinged Screens

HIGGIN ALL-METAL ROLLING SCREENS APPLIED TO CASEMENT WINDOWS

Roll them up as you would a window shade—Higgin All-metal Rolling Screens disappear like magic into a concealed assembly box built right into the window opening. There they remain, a moment, an hour or all winter, out of sight, out of the way. No storage problem here. Roll them down, automatically they lock as raising bar reaches window stool, a guardian of health and comfort, a protection against fly and mosquito.

Higgin Rolling Screens are especially suited to out opening casement windows, where screens must be placed inside. This type screen permits use of any style curtain or drape which best harmonizes with interior decorations, without the least interference when it becomes necessary to open or close window.

Of course, while primarily suited to out opening casements, rolling screens are also adapted to most every type of window where inside screens may be used.

Where rolling screens cannot be used, there is another Higgin All-metal Screen to take its place and serve as satisfactorily as the disappearing type.

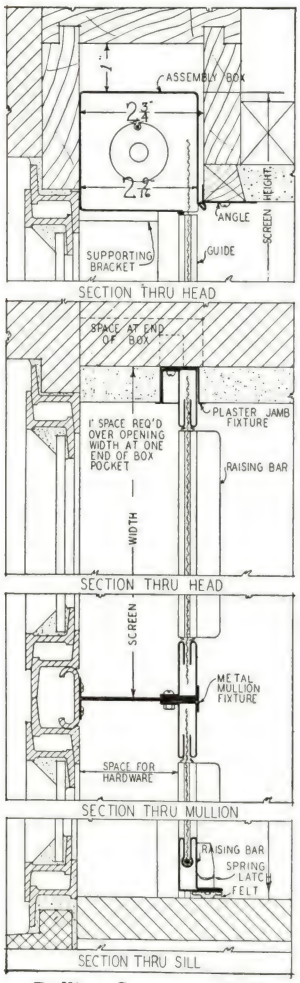
Installation

Higgin All-metal Rolling Screens may be installed in almost any type of opening. General details for various types of windows are shown.

The designer is free to use his own ideas as to trim or construction of windows so long as ample provisions are made for housing the assembly box. Many architects prefer to leave the assembly box and guides fully exposed, eliminating the necessity of a special housing.

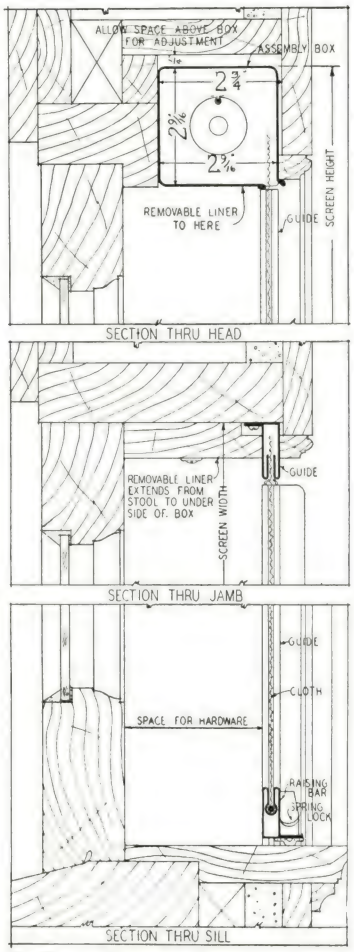
Dimensions required for the concealed installation are given in the quarter scale drawings on this page.

Sizes—Higgin Rolling Screens may be installed in any opening the width of which is from 10⅜ to 61¼ in. Assembly boxes are made only in variations of 1 in. and the over-all lengths of the boxes run ⅜ in. over the inch mark, that is 10⅜, 11⅜, 12⅜, etc.

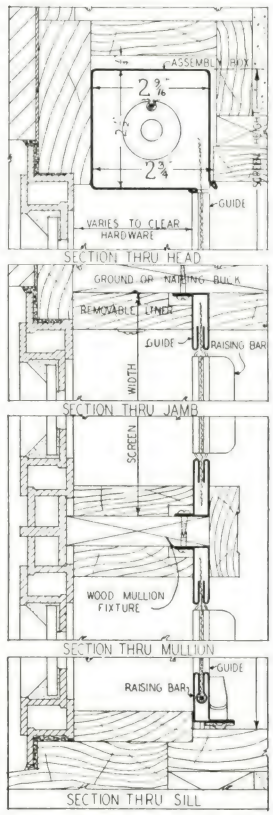


Rolling Screen in Full Plaster Reveal

Showing special channels required (furnished by Higgin)



Rolling Screen Detail, Wood Casement and Wood Trim



Sectional Detail of Rolling Screen on Steel Casement Window with Wood Trim

The raising bars however are made in two lengths. When opening widths run from ⅜ to ⅛ in. inclusive over the inch the shorter bar is used. This brings the fastening flange of the guide on a line with the box ends.

For openings running ⅞ to ⅝ in. over the inch the longer raising bar is furnished. In this case the fastening flanges of the side guides extend beyond the ends of the box ¼ in. (each side). All width dimensions should be given exactly, the factory determining which width of raising bar to furnish.

Those widths running ⅜ and ⅞ over the inch require no packing strips. All other dimensions do, and these are furnished by this company. Packing strips vary from ⅛ to ¼ in. in thickness and are the same widths as guide flanges.

Detailing

Higgin Rolling Screens may be installed on present work usually without any modification in existing trim. In this case both the assembly boxes and the guides are fully exposed, but due to the attractive finish, the screens are quite inconspicuous.

The details on this page show the rolling screens built into the trim of the window, a practice generally followed on new work. The details are intended to give the architect requirements for the screens. The construction of the windows and the design of trim may be detailed to individual taste and requirement.

Where screens are to be installed in full plaster reveals particular attention should be called to the space above and at end of the assembly box required for its installation.

A number of details other than shown have been prepared and will be sent on request. The company's Technical Department will gladly work with the architect on special requirements.



Higgin Rolling Screens Lock Automatically from the Inside

A mere touch on the spring bolts at each side will permit the screen to raise sufficiently to clear sash hardware



Closing the Screens Requires Little More Effort Than Opening Them

Even tension from top to bottom of the opening is one of the many features of Higgin Rolling Screens



Storage Problem Solved

Release the spring latches, the screen will rise automatically about half way, a slight push upward on the raising bar will send the screen to the assembly box where it will stay until again pressed into service

SCREENS FOR INSWINGING CASEMENTS

Inswinging casement screens of the type shown to the right are placed on the outside and are stationary held in position with ring spring bolts engaging in keepers secured to sash frame.

Where weather drip bars occur at the sill and friction adjusters at the head, a roll fixture as indicated may be provided. This eliminates the use of a box over the entire opening. Screens of this type cover only the operating sash.

Where rabbets are provided a sufficient distance from the sash to clear drip bar or other obstructions, full opening screens of several types may be employed. One method is a fixed screen seating in the rabbet and held with fixed pins on one side and spring bolts on the other. Pins and bolts engage in flat keepers affixed to jambs. Where it is necessary to get at awnings the top hinged screen is more practical as it may be opened and closed quite readily. This equipment consists of a fixed pin and a spring pivot hinge at the top engaging in flat keepers. At the sides at a convenient height, either spring bolts or mortised beveled spring latches may be employed. If either of the above types are desired and there is no rabbet, small angles can be furnished by this company attached to jambs and head to receive screens.

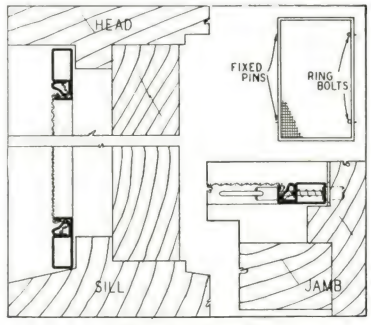
A third method is the stationary screen in guides. This is quite similar to the vertical sliding type equipment except that the screen covers the entire opening and is of course immovable. Channel guides are secured to the jambs and the screens are held in these by compression springs attached to screen on one side.

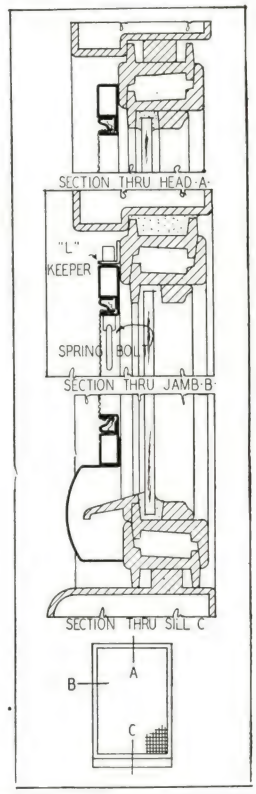
Screens of Special Shapes

In connection with the stationary type screen a word might be said on special shapes. This company is in a position to furnish and accurately fit almost any shape of window, door or porch, whether full circle, half circle gothic or other design. Side hinged screens may also be especially shaped where conditions are favorable.



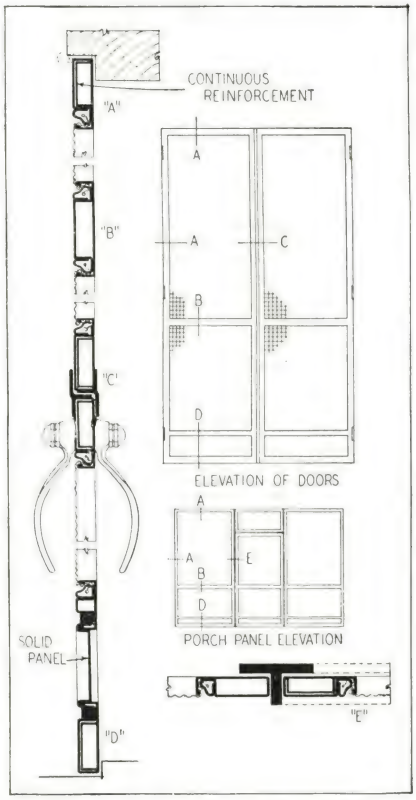
Stationary Screens on Outside for Inswinging Casements





Details for Inswinging Steel Casements

LIGHT METAL DOORS AND SCREEN PORCH PANELS



Quarter Scale Drawing of the 1½-in. Metal Screen Door

Showing section through bottom rail, meeting stiles, etc. In the lower right one panel of a screened porch is shown

Doors—The light metal doors illustrated are particularly adapted to full length steel casement doors. The stiles and top rails are only 1½ in. wide with cross rails one or two inches. The height of bottom rail may vary. It is usually arranged to match the bottom rail of the casement door. These screen doors are but 7/8 in. in thickness and therefore can be hung in a shallow rabbet. Stiles are strongly reinforced as are the corners. The bottom rail is formed with a recessed panel spotwelded to screen frame.

All in all the doors are very rigid. Screen cloth is held by metal splines in the same manner as in the Higgin metal frame screen.

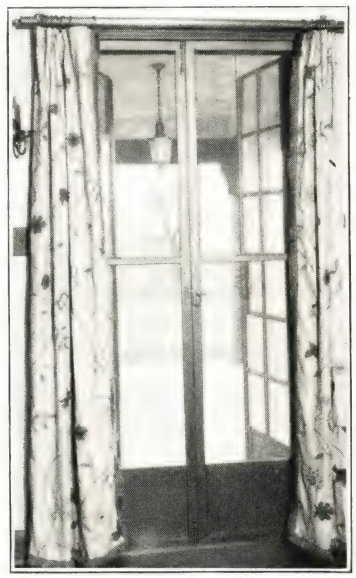
Doors are hung on one and one-half pairs of butt hinges per leaf. Latches are of the mortise type with ornamental lever handle.

For double doors, half oval bottom bolts are used. These doors may be had in steel, any color finish or in bronze, statuary finish or left unfinished to weather.

Panels—Panels of the same design as the light metal doors illustrated above may be used for porch work. The paneled bottom rails are not necessary and may be eliminated where a greater degree of ventilation is required. Entrance doors to the porch may be one of two types, that illustrated above, or the "Higgin 5/8-in. Bronze doors" shown on Page 9. Several types of hanging stiles to support doors can be furnished. The one illustrated in the detail drawing to the left is a tee shape which forms its own rabbet. This can be furnished only in steel. The other hanging stile regularly furnished is of solid bronze tubing with angles to form rabbets.

Whether porches have been particularly detailed for screens or not does not matter to Higgin as hanging frames and rabbets of various designs can be furnished to meet almost every condition.

An illustration of a screened-in porch is shown on Page 9. Here the 1½ in. frame screen was used throughout, even in the door which can hardly be distinguished in the center of the right-hand opening.



Installation of a Pair of Higgin 1½-in. Stile Metal Doors Used Inside in Connection with Outopening Full Length Casements

DOUBLE HUNG WINDOWS

Double Vertical Sliding Screens

Double Hung windows whether of wood or metal may be screened in a number of ways. Three are illustrated here. Double vertical sliding screens operate in channel guides secured to blind stops. Shallow guides are placed on one side and deep guides on the other. A spring channel guide may be used at the head to hold top screen rigidly in place. Compression springs are placed on screens (two to each) and operate in the deep guides holding the screens in any desired position while operating. Bronze lift handles and sill tacks are provided for each screen. Metal frame screens are particularly suited to double hung windows. Their stiles and rails are so narrow that in many cases it is difficult to see the screens at all.

Half Height Sliding Screens

This type screen covers only the lower part of the double hung window, extending from the sill to the putty line of the meeting rail of the upper sash. The Half Sliding screen operates in the same manner as the double vertical sliding having single channel guides at jambs (full height) in place of the double type.

Top Pivot Hinged Screens

Double Hung windows may also be screened full height with top pivot hinged screens. The screens may be placed in metal angle rabbets as illustrated in the detail or they may be installed in the rabbet formed by the blind stop. The screens at the top are equipped with a fixed pivot at one side and a spring pivot at the other. To remove the screens for storage it is only necessary to release the spring pivot which is operated by an inconspicuous lever handle flush with the surface of the screen. At the sides are mortised latches, lever operated. Stay bars may be provided to hold screens out from windows, for window washing.

Rolling Screens

The advantage of rolling screens for double hung windows is the absence of the storage problem. When rolling screens are raised to the top of the window they are in storage yet instantly accessible. The disadvantage is that they must be placed inside for continued satisfactory performance so that the screen must be raised each time the windows are operated.

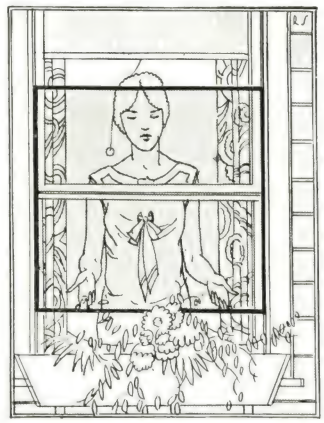
Whether one sash or the other is open there is always a "fly pocket" between the lower sash and the screen. Here flies and other insects congregate and it is difficult to keep them out of the house. With outside screens insects too are outside and there is no way for them to get in.

The detail in the upper right hand corner of this page shows Higgin Rolling Screens installed on double hung windows.

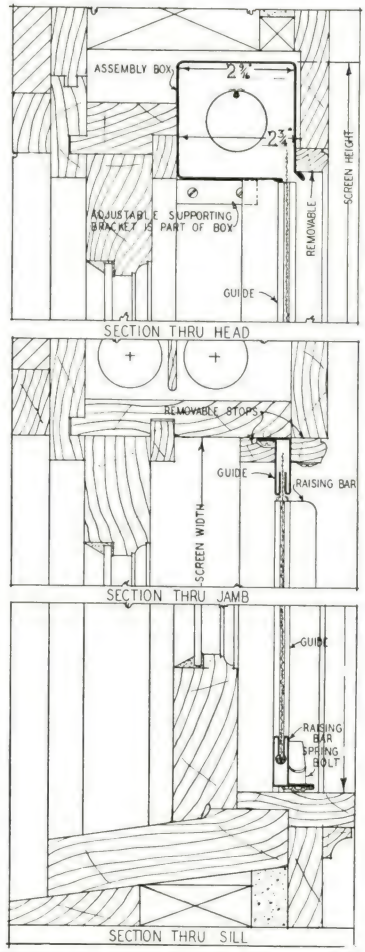
The sectional view shows one method of installing rolling screens. Quite often on this type window the assembly box is placed exposed under the top side of the window frame.

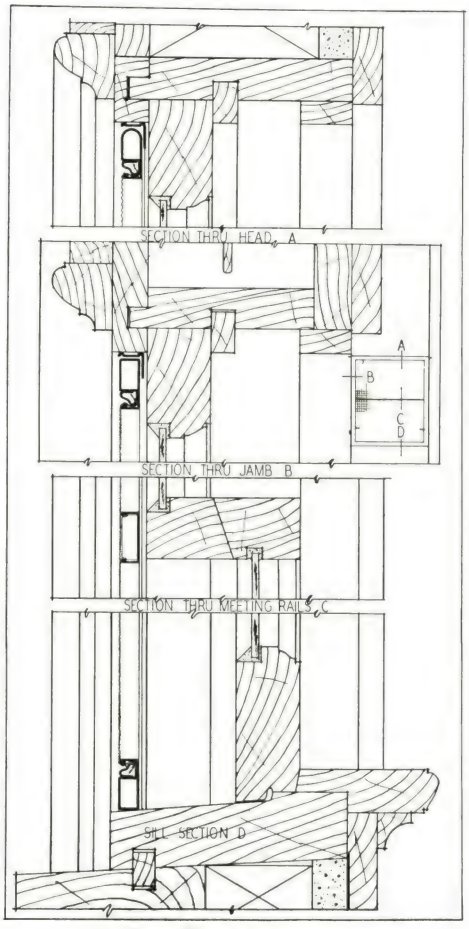
The guides too may be exposed, being screwed directly to the stop beads.

In the jamb section the fastening flange of the side guide is shown turned towards the outside. This may be reversed should it ever be necessary.

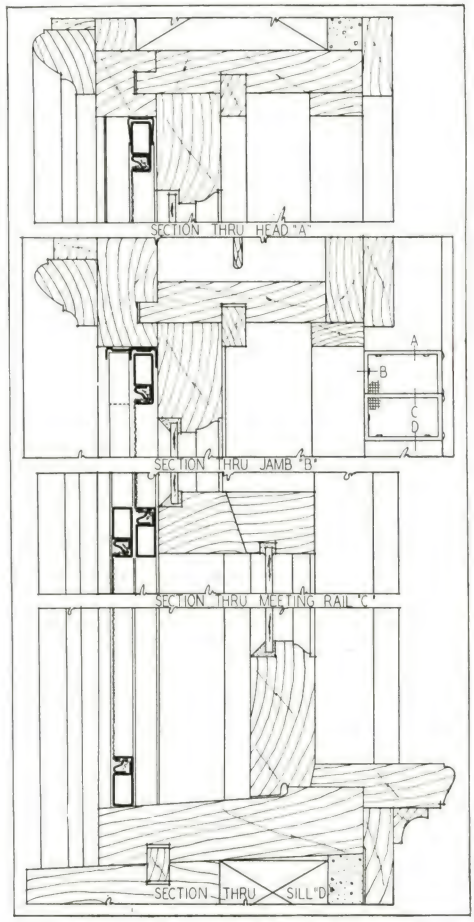


Access to Flower Boxes or Awnings Simple with Either the Half Sliding or Double Vertical Sliding Screen





Top Hinged Screens



Double Vertical Sliding Screens

HIGGIN ALL-METAL SCREEN EQUIPMENT FOR PIVOTED SASH

The equipment consists of a straight metal frame screen placed at top of opening on the outside and a like screen on the bottom inside (see illustration). These screens are set in angle frames permanently attached to window frame with machine screws.

Metal contact rolls attached to ventilator at center close up space between ventilator and screens.

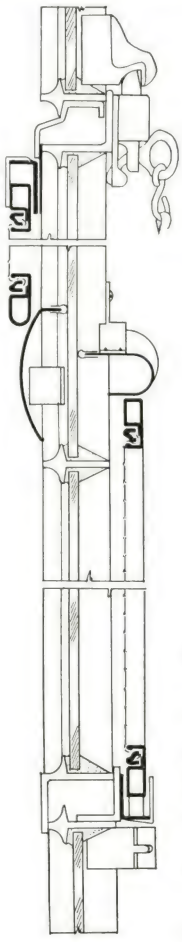
Patented features of Higgin equipment insure positive contact between rolls and screens at all times, no matter at what angle ventilator is set.

Rolls and angles become a permanent part of window but screens may be easily removed and replaced. Higgin equipment is adaptable to any type or make of either metal or wood pivoted sash.

We study each individual problem and make installations right on the job, giving personal, expert supervision.

Screens, rolls and angles are made to measure for each individual opening.

Complete details for various manufactures of pivoted sash will be sent on request.



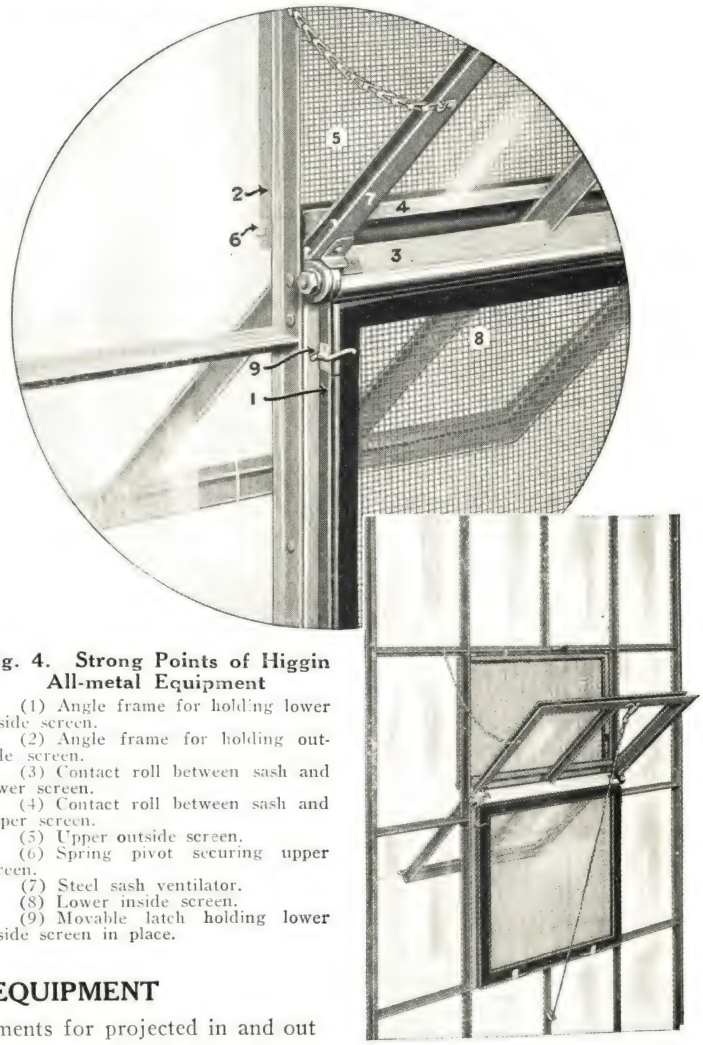


Fig. 4. Strong Points of Higgin All-metal Equipment

(1) Angle frame for holding lower inside screen.
(2) Angle frame for holding outside screen.
(3) Contact roll between sash and lower screen.
(4) Contact roll between sash and upper screen.
(5) Upper outside screen.
(6) Spring pivot securing upper screen.
(7) Steel sash ventilator.
(8) Lower inside screen.
(9) Movable latch holding lower inside screen in place.

PROJECTED TYPE STEEL SASH EQUIPMENT

To the right are details of several types of screen equipments for projected in and out steel sash. The right-hand detail shows a projected-out type sash with top pivot hinged screen in metal box. The depth of the box is governed by the extension of the sash hardware. With the attachment of a friction stay and ring pull, this equipment may be used for openings high off floor, where pole operation is necessary.

The center section is also a projected-out type steel sash, the screen equipment being of the vertical sliding type. The side guides in which the screen slides are mounted to tapered angles fastened to the sash. The taper permits the clearing of the top weathering of the ventilator when it is being opened. To use this equipment the ring pull on the sash must be omitted and there must be a fixed light of glass above the ventilator so that the screen can be raised far enough to permit access to the sash hardware. When the sash is closed the screen rests on top of the sash hardware.

To the left is one type of screen equipment for projected-in type steel sash. The screen is held stationary (yet easily removable) with ring bolts in tapered metal flanges at the sides which slip over the side weathering of the sash. These side members are held by friction, no screws being needed. The same type of equipment can be furnished, the hook being omitted, to screw onto the sash weathering.

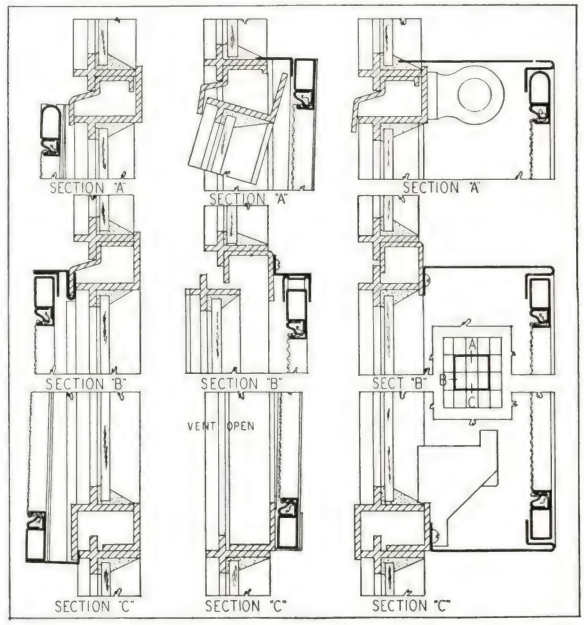


Fig. 5. Screen Equipment for Projected Type Steel Sash—Opening In and Out

BASEMENT WINDOW EQUIPMENT

This company has designed a simple yet effective equipment for standard types of basement sash, details of which may be had for the asking.

EQUIPMENT FOR OTHER TYPES OF STEEL SASH

This company has made a careful study of all types and kinds of steel sash, counterbalanced windows, austral windows, monitor and continuous sash, and skylights with mechanical operators, etc., and is in a position to offer complete screening service for these.

HIGGIN ALL-METAL SCREEN CONSTRUCTION

The details on this page are for the most part full size and show the Higgin All-metal Rewirable Screen and some of the accessories used in connection with them.

Screen Frame—The frame itself is illustrated below.

The frame is of hollow or tubular construction with a groove formed on one side to receive the wire cloth. The netting is held permanently taut by a cam shaped non-resilient metal spline which locks in the groove of frame. All edges coming in contact with the screen cloth are rounded, eliminating any danger of sharp edges cutting the wire strands. The screens are easily rewired without removing screws or rivets or damaging the frame or spline.

The frames are assembled on heavy "ell" shaped reinforcements which extend into the frame or moulding at least 2 in. and lock mechanically.

Two widths of moulding are manufactured, one $1\frac{1}{16}$ in. wide and the other $1\frac{1}{2}$ in. wide. They are made in both steel and bronze. Steel mouldings are spot-welded through the spline groove, bronze mouldings are soldered.

Finish of Frames—Steel frame screens may be finished in black enamel baked on or in special colors to harmonize with surrounding trim. All lacquered or enameled screens are first given a prime coat thoroughly baked on, the coating covering not only the exterior but the inside of tube as well. The metal itself is copper content steel electro galvanized in the flat, which with the prime and finish coats provides double protection at every point.

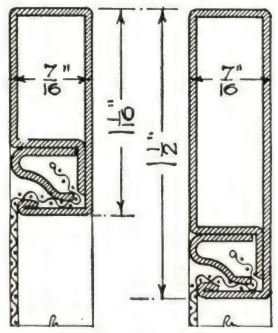
Bronze frame screens are made of the best grade of commercial bronze and may have statuary finish or may be left natural color unlacquered to weather.

Wire Cloth—Only genuine Anaconda bronze wire cloth is used in Higgin Screens. Standard mesh is 16 to the inch (by mesh is meant the number of spaces to the inch). The thickness of the wire for this mesh is .011. Extra heavy cloth may be had if desired, the diameter of which is .015.

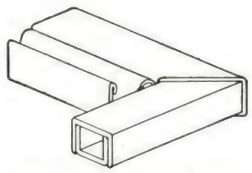
Other meshes which may be furnished are, 18, 20, 24 and 40; 18 and 20-mesh are often used in localities troubled with very small insects. For protecting fine machinery or delicate manufacturing operations a special dusttight equipment has been designed in which 40-mesh cloth is used. Cloth as fine as 100-mesh has been used for this purpose. Both 24 and 40-mesh cloth are employed for vision screens for banks and other ground floor offices.

Hardware—In the group of illustrations are shown some of the more common items of hardware for metal frame screens of the hinged type. All this hardware is of solid bronze and is especially designed and manufactured by this company.

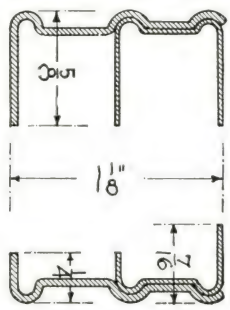
The illustrations show various accessories, such as guides, etc., used in connection with sliding screens. The drawings are full size.



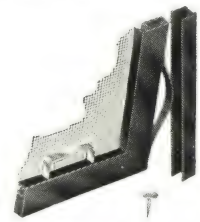
Tubular frame screens are made in two widths of rails as dimensioned above.



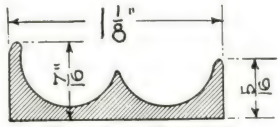
Corners of screen frame are mitered and assembled on "ell" shaped reinforcements of design illustrated above.



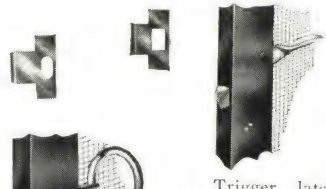
No. 316-317 double channel guides for double vertical and horizontal sliding screens.



Corner of vertical sliding screen showing lift handle, compression spring, sill track and guide.



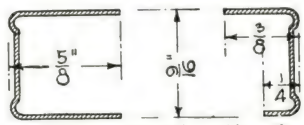
No. 132 Extruded brass sill track for horizontal sliding screens. A single track of the same design can be furnished.



Trigger latch and keeper for hinged screens.



A sectional view of tubular frame screen showing groove for cloth and cloth in groove before spline is inserted. When spline is in place it holds cloth permanently taut.



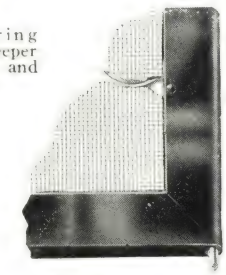
Single channel guides for half sliding and full height stationary screens.



Ring spring bolt with keeper for hinged and fixed screens.



Left:
Utility angle guide.
Right:
No. 142 bronze sill rabbet strip for side hinged screens prevents lower rail of screen from scraping finished stool.



Trigger operated pivot hinge for top and side hinged screens. Pivot at opposite corner of screen is fixed.

HIGGIN ROLLING SCREEN CONSTRUCTION

The Higgin All-metal Rolling Screen consists of a metal box in which are assembled the roller tube to which the wire cloth is attached, the spindle and coil spring, 16-mesh genuine Anaconda Bronze wire cloth with double woven wire selvage edges, metal side guides and a one-piece rewirable raising bar complete with friction shoes and a pull operated spring bolt.

Assembly Box—Assembly boxes are made in two sizes, one 2⅛ in. square at ends and one 2⅜ in. square at ends. The first mentioned takes screen cloth up to 96 in. in height while the small box takes cloth for openings not exceeding 62 in. in height. The ends are of the flush type allowing a maximum margin of cloth in the side guides. The caps are equipped with metal bushings which support the spindle, spring and roller tube and prevent the pull of the screen from wearing on the spindle ends.

At each end of the assembly box are adjustable support brackets which when attached to the jambs support the box and hold it rigid.

Roller Tube—The roller tube is 1¼ in. in diameter and has a pear shaped groove running its entire length into which the wire cloth is held by means of a wire rod spline. The raising bar is equipped with a similar groove. All edges of the spline grooves are rounded so that there is no danger of sharp edges cutting the screen cloth. To rewire a Higgin Rolling Screen it is only necessary to pull the old cloth out of the grooves, crimp the new cloth around the wire splines and reinsert in the groove in the roller tube and raising bar.

Spring—The spring is oil tempered and encased in non-running grease. An automatic or self adjusting feature prevents binding or sticking and assures smooth and easy operation of the screen. Any degree of tension can be given the spring from outside the assembly box.

Side Guides—The side guides are 1⅜ in. deep, permitting from ¾ to 1 in. of cloth in them at all times. Guides are provided with a flange by which they are attached to the jambs of the opening.

With the guides and assembly box both independent of the surrounding trim, special jamb liners and other finish may be eliminated. Both Box and Guides may be left exposed.

Raising Bar—The raising bar to which the screen cloth is attached at the bottom, is equipped with friction shoes which fit into the side guides, guiding the screen in its operation up and down. Automatic spring latches are provided on raising bar. The strikes engage in adjustable keepers attached to guides. Even though the finished stool shrink or warp, the keepers can be adjusted so that the raising bar will always contact tightly. To raise the screen it is only necessary to release these pull operated spring bolts and the screen will raise of its own accord to a distance sufficiently above the sash hardware to permit opening and closing of the sash. A slight push upward sends the screen home to the assembly box for storage, or it may be lowered again to the sill.

To prevent marring finished stools and to take up any irregularities, the raising bar is provided with a felt or fabric strip on the bottom. This feature also eliminates objectionable light lines.

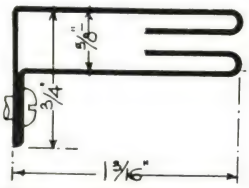
Wire Cloth—16-mesh genuine Anaconda bronze wire cloth is used in Higgin rolling screens for Anaconda bronze never rusts and therefore always remains strong and serviceable. The edges of the cloth have double woven wire selvages adding to the strength of the cloth and keeping it in shape. The fine mesh bronze wire is almost invisible, ever admitting light, air and sunshine.

Each Part Renewable—The mechanical features of the Higgin Rolling Screen have been carefully worked out on the unit system. So simple is its construction that in case of accident any part or portion of the screen may be renewed without affecting any other part.

Finish—This company has adopted as a standard a neutral finish for all exposed metal parts. Of course exposed parts may have special color finish if desired, but the standard color is so neutral that it blends with any finish.



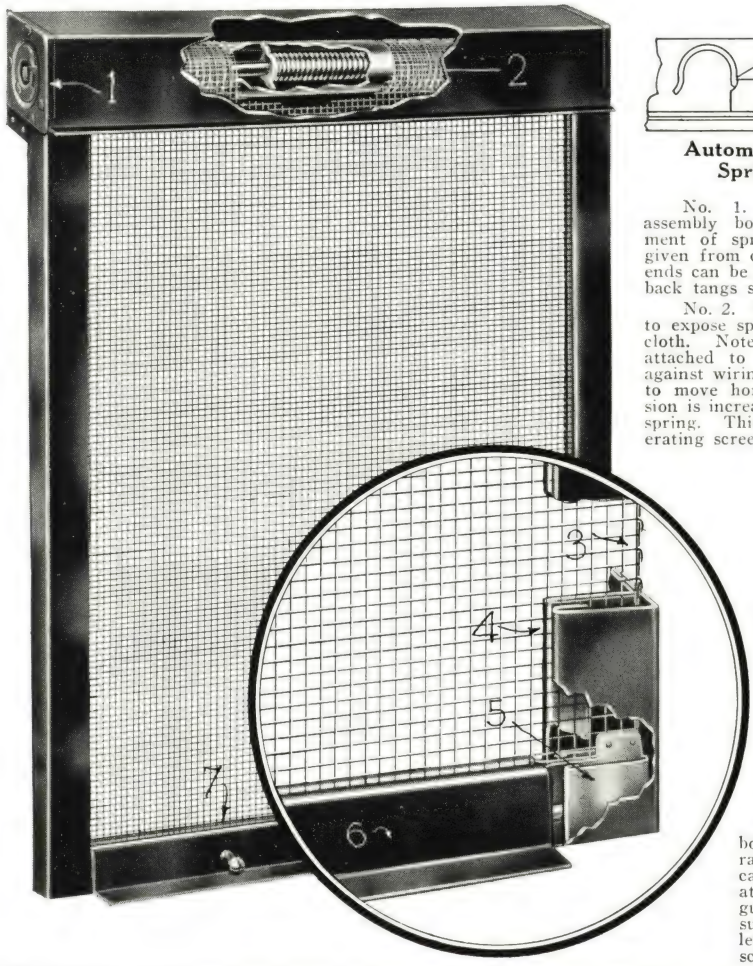
Sectional view through roller tube showing spindle and rewiring groove.

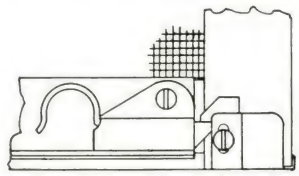


Cross section through guide. Regular position of fastening flange is under box, but guide may be reversed to bring fastening flange to room side of screen when specified.



Section through raising bar showing rewiring groove, knob operator for spring bolts and felt or fabric cushion which prevents raising bar marring stool and seals light line.





Automatic Locking Spring Catch

No. 1. Winding end of assembly box. Perfect adjustment of spring tension can be given from outside of box. Box ends can be removed by bending back tangs shown.

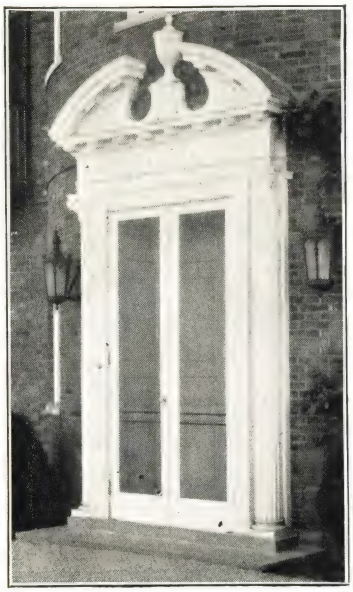
No. 2. Shows box cut away to expose spring roller tube and cloth. Note the automatic lug attached to spring which locks against wiring groove but is free to move horizontally when tension is increased or decreased on spring. This means smooth operating screen.

No. 3. Double woven wire selvage edge of cloth adds strength and holds wire strands in shape.

No. 4. Side guide of screen. Note depth of cloth in guide.

No. 5. Friction shoe attached to raising bar (No. 6) guides screen in its operation up and down. Friction shoes sticking in guides not possible.

No. 7. Pull operated spring bolt in each end of raising bar automatically locks in notches at bottom of side guides. Slight pressure of finger releases these when screen is to be raised.



Higgin Wood Screen Doors

Higgin screen doors are designed to be in harmony with the architectural treatment of the opening. These doors are made in almost any wood and finish. Where no details are furnished the Higgin Field Expert makes the door to conform as closely as possible with the house door, not only in general design but in finish too. Many types of ribbon grille are carried or the architect may design his own. Hardware is the best and for the most part especially prepared for Higgin

Right

Higgin Bronze Doors

This door is not intended for heavy duty. It may be used on residence either at the chief door or those to terraces, porches, etc. It is made only in bronze and is $\frac{9}{16}$ in. thickness with stiles and rails either 2 or 3 in. wide. Cross braces are recommended. Wiring of the doors is accomplished in the same manner as described for metal frame screens, so they are rewirable. Doors are strongly reinforced but due to their thinness extreme heights are discouraged. Besides entrance doors this same type of construction is used for fixed panels and porch work. Some beautiful results have been obtained in this connection.



Below

Metal and Wood Porch Screens

Each porch screened is a new problem to Higgin. Each is individually treated and the many installations throughout the country are proof of Higgin's competency. Porch screens may be constructed of the Higgin bronze door shape illustrated and described above, of the 1½-in. frame described elsewhere, or of wood. No matter what the shape of the opening or how difficult it may seem Higgin is equal to it. A highly trained Field Staff working with our Technical Department will solve your problem nicely

OUTLINE SPECIFICATIONS FOR HIGGIN SCREENS

Metal Frame Screens (Higgin Page 7)

Window screens shall be of hollow or tubular construction with $\frac{7}{16}$-in. by ($1\frac{1}{16}$-in.) (1½-in.) stiles and rails, of not less than .032 cold rolled copper content steel electro galvanized in the flat; best grade commercial bronze. Steel frames shall be electrically spotwelded. Bronze frames soldered. Stiles and rails shall be assembled on reinforcing corners extending into frame at least 2 in.

Screen cloth shall be genuine Anaconda bronze 16 (18, etc.) meshes to the inch. Cloth shall be held in groove in screen frame with cam shape non-resilient metal spline which can be readily removed and replaced for the renewing of cloth, without distorting spline or damaging screen and without removing screws or rivets.

Screens (steel) shall have two coats baked on, inside and out, black enamel finish; special color lacquer finish; statuary bronze (bronze frame screens); unfinished to weather (bronze frame screens).

All hardware shall be as manufactured by THE HIGGIN MANUFACTURING COMPANY, Newport, Ky. Screens shall be numbered with corresponding numbered tacks in sill.

Rolling Screens (Higgin Page 8)

Windows (so specified) shall have Higgin All-metal Rolling Screens. The equipment shall consist of metal box in which are assembled the roller tube to which wire cloth is attached, spindle and self-adjusting coil spring, 16-mesh genuine Anaconda bronze wire cloth with double woven wire selvage edges. Metal side guides and a one piece rewirable raising bar complete with felt cushioned bottom, friction shoes and automatic locking spring latches complete the equipment. The assembly boxes shall have adjustable support brackets, removable end caps and a ready means of adjusting spring tension. Side guides shall be provided with flanges for fastening to jambs and adjustable keepers to receive strike of spring latches.

Screens shall be so constructed that the wire cloth or any part of the equipment can be removed and replaced without damage to any other portion.

Screens shall be installed in a neat and workmanlike manner according to details of the manufacturer and shall be left in perfect working order.

1½-in. Width Frame Metal Doors (Higgin Page 4)

Openings (so specified) shall have Higgin Metal Doors with stiles and top rail 1½ in. wide by $\frac{7}{16}$ in. thick. Bottom rails shall be of recessed panel type and shall correspond in height to the house doors. Doors shall have rewirable (2 in., 1 in.) brace at nearest cross rail of house door, below center. All stiles and corners shall be strongly reinforced.

Each leaf shall be hung on one and one-half pairs of butt hinges. Latches shall be of mortised type with ornamental lever handles. For double doors top and bottom bolts shall be of half oval surface type. Provide tee astragals for all double doors.

Doors shall be of (steel) (bronze) with screen cloth as specified for window screens. Doors (steel) shall be finished to match house doors; (bronze) shall be statuary bronze finish; shall be left unfinished to weather.

Wood Screen Doors (Higgin Page 9)

Screen doors (locate) shall be of (pine, quartered oak, etc.). All wood shall be well seasoned true and straight. Doors shall be 1⅛ in. thickness (or state thickness) with stiles and rails arranged to harmonize with house doors. All joints shall be mortised, glued and wedged. Wire screen cloth shall be held in a groove in door frame with a rattan spline easily removable for rewiring. Spline and groove rabbet shall be covered with a neat flush moulding.

Hardware shall be complete with butt hinges (3 each leaf), mortised latches, top and bottom bolts, etc.

Note: Higgin Doors are made to cover the individual requirement. Architects' details are followed. Doors can be equipped with checks, and grille of various designs.



Higgin Bronze Doors (Higgin Page 9)

Screen doors (locate) shall be of solid bronze, hollow metal type construction, $\frac{9}{16}$ in. thickness with stiles and rails (2 in.), (3 in.) wide. Doors shall have bottom rails 6 to 8 in. high, 2-in. cross rails. Hardware shall consist of bronze hinges (3 each leaf), mortised latches, knob and lever handles, escutcheons, etc. Provide tee astragals and top and bottom bolts on double doors.

Rolling Screens for Out-opening Casements (Higgin Page 3)

Out-opening casement windows shall be equipped with Higgin Rolling Screens. Assembly boxes shall be concealed (they may also be exposed) in pockets at head of windows provided by others. Guides shall be secured to jambs and shall be true and straight. This contractor shall install screens before finished trim is applied. He shall instruct the carpenter and mill contractor on the detailing and application of all trim coming in contact with the screens.

Horizontal Sliding Screens (Higgin Page 2)

Out-swinging casements shall have horizontal sliding screens to slide in grooved brass track at sill and channel guides at top. Unless rabbets are provided at jambs, metal angle rabbets or felt strips shall be furnished to seal light line and take up unevenness. Screens shall be divided to harmonize with sash units. Provide transom, mullions or other fixtures where required.

Side Hinged Screens (Higgin Page 2)

Windows shall be equipped with single or double in-opening; out-opening; side hinged screens complete with concealed pivot hinges, latches and for double type, astragals and top and bottom bolts. Provide angle rabbets, transom, mullions and other fixtures where required.

In-swinging Casement Window Screen (Higgin Page 4)

Metal in-swinging casements shall be screened on the outside with stationary screens and held with ring spring bolts engaging in metal angle keepers attached to sash. Screens shall be easily removable. Where weather drip bars or friction stays occur, metal roll fixtures shall be secured to screen frame to overcome these obstructions.

In-swinging casements have rabbets provided on outside to receive screens. (a) Screens shall be stationary, held with spring bolts engaging in flat keepers attached to jambs. (b) Screens shall be top pivot hinged with fixed pivot at one corner and trigger operated spring pivot at opposite corner for the ready removal of screens. Mortise spring latches shall be furnished, one at each side near bottom of screen. (c) Screens shall be stationary, full height in channel guides affixed to jambs. Screens shall be held in place with compression springs attached to one edge of screen frame.

Rolling Screens for Double Hung Windows (Higgin Page 5)

Double hung windows shall have rolling screens on inside, with assembly box concealed (it may also be exposed) in pockets provided by others in the head of window frame. Guides shall be attached to pulley stiles and partially concealed with a stop bead.

Double Vertical Sliding Screens (Higgin Page 5)

Windows shall be equipped with double vertical sliding screens covering complete opening and shall have full height double channel guides, compression springs, lift handles, etc. Meeting rails of screens shall line with meeting rails of sash on double hung windows.

Top Hinged Screens (Higgin Page 5)

Windows shall have full height top hinged screens complete with concealed pivot hinges, latches or spring bolts. Where no rabbets are provided furnish metal angle rabbets.

Half Sliding Screens (Higgin Page 5)

Double hung windows shall have half height vertical sliding screens complete with compression springs, lift handles and full height channel guides. Screens shall extend to and contact with meeting rail of sash.

Screen Equipment for Center Pivoted Steel Sash (Higgin Page 6)

All center pivoted steel sash (state where) shall have Higgin Special Pivoted Sash Screen Equipment. This shall consist of a flat metal frame screen outside to cover the upper part of the vent and a metal frame screen inside to cover the lower part of the vent. At the center, both inside and out, shall be contact rolls which engage with screens to make a flytight job. Screens, both inside and out, shall seat in metal angle rabbets attached to sash. Screens shall be readily removable, but angle frames and contact rolls shall be permanently fastened to steel sash with machine screws. (This equipment may be had in steel or bronze.)

Screens for Projected-in Steel Sash (Higgin Page 6)

Projected-in type steel sash shall be screened on the outside. Equipment shall be Higgin No. 2501 and shall consist of a special metal fixture at each side forced over outside weathering of sash frame. The screens shall have two fixed pivots to engage in slots at top of each side fixture and be supported thereby. Screens shall be locked with spring bolts, one on each side rail engaging in keeper holes in side fixtures. Affixed to the bottom of the screen frame, a metal contact piece of bronze shall be furnished. This member shall contact with sash frame and provide a flytight job.

Screens for Projected-out Steel Sash (Higgin Page 6)

Projected-out type steel sash shall have screen contained in a four-sided metal box fastened to steel sash frame. Box shall extend no more than to clear sash hardware. Screen shall be top pivot hinged type with spring bolts at sides for locking. Screens shall be readily removable but box shall be a permanent part of the sash.

Where two vents occur one over the other, one metal box may be used with two top pivot hinged screens. On the outside of top rail of lower screen an astragal shall be provided which shall permit screens to be operated independently of one another.

Screens for Basement Steel Sash

Basement screens shall be Higgin No. 2512 type. This consists of a metal frame screen with a zee-shape adjustable fixture attached to each side rail of the screen. When screen is installed the zee-fixture engages with outside weathering of sash and holds screen at top and bottom tightly against sash weathering outside.

Patents

Higgin products are covered by basic patents which fully protect all important features.

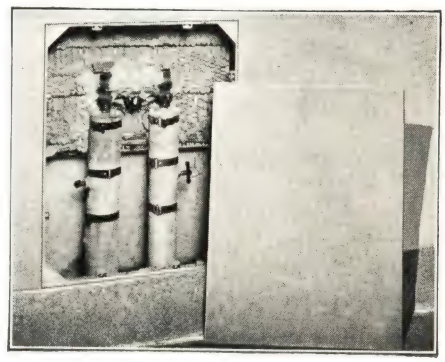
OTHER HIGGIN PRODUCTS

Venetian Blinds—This company manufactures Venetian blinds for residential and commercial uses. The material and workmanship is of the best. The residential blind is made with 1¾-in. wide slats and finished in any color. Commercial blinds for offices, hospitals, banks, etc., have 2¾-in. slats and are regularly furnished in four standard colors. Complete details may be had for the asking.

Access Panels—Higgin Access Panels are fully described in another section of this catalogue. Architects throughout the country specify Higgin Access Panels as they do away with the old type wood access door and frame. They are all of metal—fit flush—are substantially built and convenient to operate.

Light-tight Shades—This is one of the latest Higgin Products. A light-tight rolling shade for X-ray rooms, eye examination rooms, operating rooms and many other places where light must be barred. Raised, these shades permit maximum daylight; closed, there is utter darkness. They may be installed in present openings or built into the window trim. Full details and description on request.

Metal Storm Sash—This, too, is a new Higgin Product—metal storm sash interchangeable with metal frame screens. They are ideal for out-opening casements. The frame is $\frac{7}{16}$-in. thick by 1½-in. wide. The glass is double strength. Storm sash may be of the pivot hinged or sliding types.



The illustration at right shows a Higgin access panel behind the supply end of a tub. The panel lid has been removed exposing the supplies so artfully concealed when the lid is in place

DISAPPEARING ROLLER SCREEN COMPANY

1252-1260 West Temple Street, LOS ANGELES, CAL.

AGENTS IN ALL PRINCIPAL CITIES

Product

"In-Vis-O" Disappearing Roller Screens.

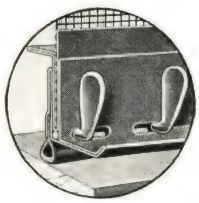
In-vis-o DISAPPEARING ROLLER SCREEN Co.

Standard "In-Vis-O"

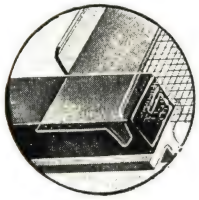
New extra small yet roomy hexagon housing has locked flush type end caps. Designed especially for steel sash transom bars, etc. Hexagon housing also made in regular large size for high openings. All housings made with "In-Vis-O's" famous patented deflected lip, eliminating friction, prolonging life of wire cloth, and diminishing noise. All "In-Vis-O" Roller Screens can be used with or without metal grooves—"In-Vis-O's" adjustable telescoping metal grooves insure quick and inexpensive installation. Standard "In-Vis-O" can also be had with one or more of the Super "In-Vis-O" features.

Super "In-Vis-O"

Is a super-refined roller screen of high quality, containing all of the best features of the Standard product together with ball bearing metal roller; rewireable 6-ply metal slide (can be had in long terne or bronze) with central control and automatic catch; and flat cable selvaged edge wire cloth.







Outstanding Features and Advantages of "In-Vis-O"

(1) Central control prevents screen from flying up and will stop screen at any place.

(2) Rubber cushioned slide fits uneven window stools and prevents marring.

(3) Six-ply metal slide designed for great strength and easy handhold.

(4) Automatic catch locks screen securely. A touch releases brake and screen rolls freely to top of window.

(5) Ball bearing metal roller, made only to order, insures smooth and easy operation. Not a stock product and additional time must be allowed for special manufacture.

(6) All metal rollers are spiral wound with wire cloth locked in, insuring smoothly rolled wire cloth.

(7) Triple x (xxx) safety check on the ends of slide prevents the screen and slide bar from pulling out of grooves.

(8) Metal rollers, housings, slides and grooves available in long terne or bronze metals.

(9) Flat cable selvaged edges have strength of steel. Enough small wires of great tensile strength woven into selvages to equal a steel tape on each edge without piling. Made to "In-Vis-O's" exclusive specifications in *genuine monel, mono bronze, special bronze, and silver finish.*

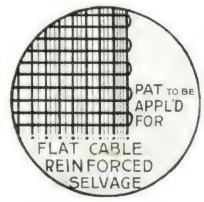
(10) New flush type end cap adds neatness to housings in exposed positions.

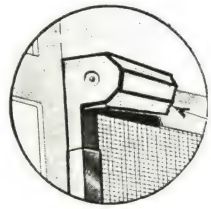
(11) Adjustable telescoping metal grooves make screens easy to remove for repairs.

(12) New hexagon housing in two sizes. One extra small but roomy for steel sash transom bars, etc., up to 4 ft. 4 in. high. One regular size for larger openings.

(13) Patented frictionless deflected lip housings give longer service and quieter operation.

(14) End caps securely locked on eliminate all danger of screen coming apart.

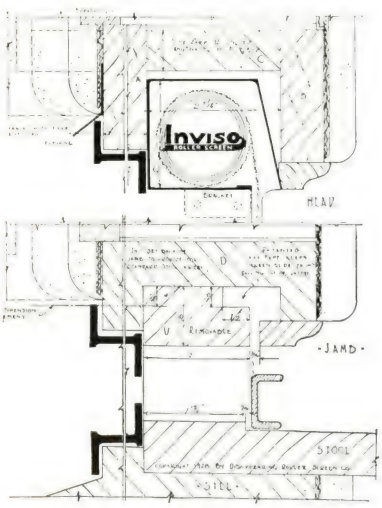




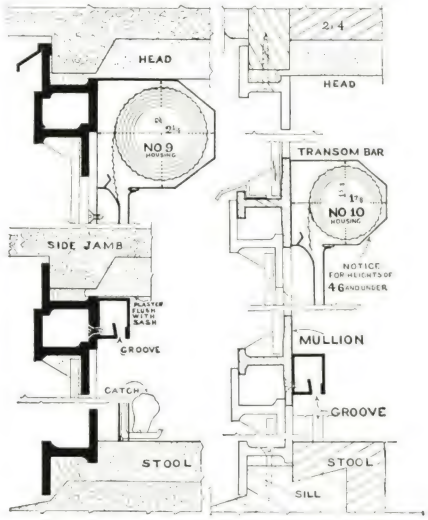


A background of nearly a quarter of a century of outstanding improvements and refinements has popularized roller screens and made "In-Vis-O" a roller screen that has no superior.

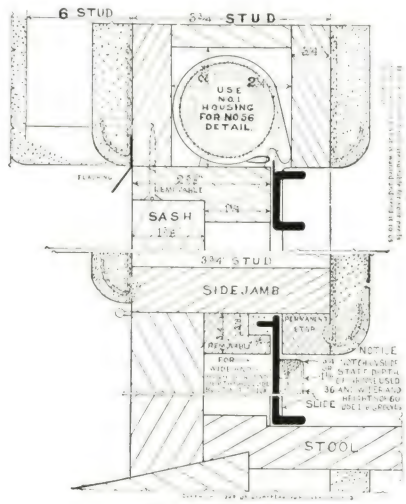
"Ask Your Architect, He Knows," is "In-Vis-O's" true slogan.



Detail No. 80



Detail No. 93 Detail No. 94



Detail No. 56

Write for complete catalogue of full size details.

JOHNSON METAL PRODUCTS COMPANY

Manufacturers of Wood and All-metal Window, Door and Porch Screens; Weatherstrip

1316 Holland Street
ERIE, PA.

NEW YORK OFFICE, 101 Park Avenue—Telephone, AShland 4-8320

Products

ALL-METAL RE-WIRABLE WINDOW, DOOR and PORCH SCREENS; SCREEN DOORS.

Also Weatherstrips; Radiator Cabinets.

Architectural Service

Architects are cordially invited to submit their screening problems to us. The simple construction of our screen enables us to manufacture special shapes and designs for any purpose, viz.:

Auto busses	Railroad cars
Boats and yachts	Steel sash

Send for a corner section of the JOHNSON Screen and study it at close range. You are not obligated in any way.

Construction

The JOHNSON Screen is of metal construction throughout. The steel, bronze, and screen cloth are the very best obtainable.

The frame is formed of two channel bars, rolled to special design, the lower bar having an angle brace through its entire length which is sweated securely in position. The top bar is approximately the width of the lower one, but with flanges curved in.

Steel Frames—Made of finest quality copper-bearing electro-galvanized steel, .025 in. in thickness, with either sprayed lacquer or baked enamel finish over a baked prime coat. This produces the most durable finish obtainable. The JOHNSON Screen is rigid and strong and the one-piece triangular corner brace, sweated in, gives a solid corner construction which will support several hundred pounds. The closing channel interlocks with the main channel, forming a complete finished frame.

The reverse curve of this channel makes a most effective clamp for the wire cloth, every strand of wire being locked rigidly in place for the entire length and breadth of the screen.

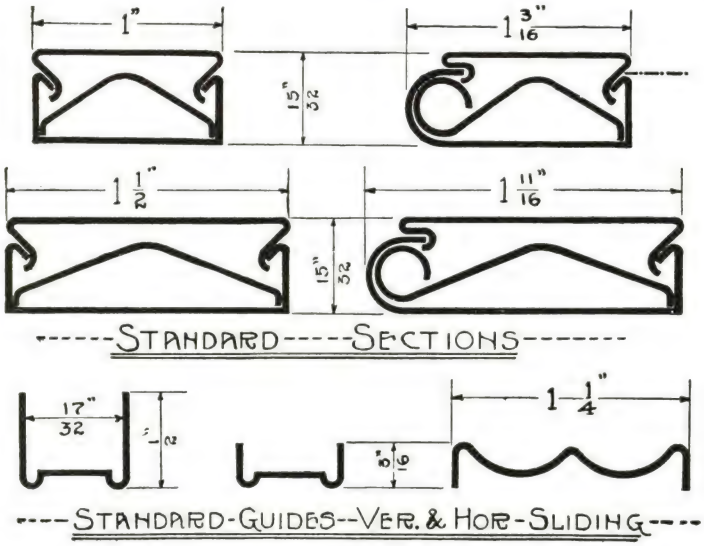
Bronze Frames (Non-rusting)—Made of commercial bronze of finest quality, .026 in. thick. Finish—natural, oxidized, or sprayed lacquer.

Screen Cloth—16-mesh bronze wire cloth is our standard. Other sizes furnished when requested.

Types of Screens

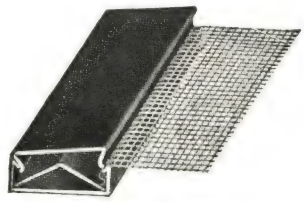
Screens are made to cover entire opening, or part of opening. Screens for entire opening are made stationary, top hung, side hung (the latter two being hinged or pivoted), or sliding (vertical or horizontal).

We also manufacture cage screens, porch screens and screen doors. Sliding screens operate full height of frame on our standard guides.



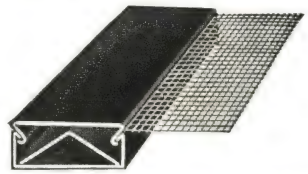
STANDARD SECTIONS

STANDARD-GUIDES--VER. & HOR-SLIDING



Methods of Screening

JOHNSON frames are outstanding in the ease and speed with which they may be screened or re-wired



Upper and Lower Channels of the Johnson Tubular Patented Frame Interlocked

(Patent 1698885)

Johnson Screen Installations

New York Hospital, New York, N. Y.
Maine General Hospital, Portland, Me.
Metropolitan Hospital, New York, N. Y.
Lakeside Hospital, Cleveland, Ohio
Cornell University, Ithaca, N. Y.
Kresge Company, Detroit, Mich.
Masonic Home, Utica, N. Y.
Morrisania City Hospital, New York, N. Y.
Ford Motor Company, Detroit, Mich.
New York Central Depot, Buffalo, N. Y.
Elbert Hubbard II, East Aurora, N. Y.
Standard Oil Corporation
Duke University, Durham, N. C.
Essex Mountain Sanitarium, Verona, N. J.
Children's Hospital, Boston, Mass.
Osteopathic Hospital, Philadelphia, Pa.
Homeopathic Hospital, Gowanda, N. Y.
Tulane University, New Orleans, La.
New Blessed Sacrament Rectory, Albany, N. Y.
Rockland State Hospital, Orangeburg, N. Y.

JAMESTOWN SCREEN & MFG. COMPANY, INC.

"Artistic Sentinel" Metal and Wood Screens and Doors, Roll Screens

JAMESTOWN, N. Y.

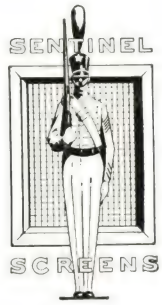
REPRESENTATIVES IN ALL PRINCIPAL CITIES

Products

The Jamestown line of screens is surpassed in completeness and design by no other manufacturer in the industry. It includes:

Metal and Wood Window Screens	Casement Roll Screens
Metal Frame Screen Doors	Porch Screens
Wood Frame Screen Doors	Pivoted and Cage Screens
Standard Roll Screens	Vision Screens
	Special shaped screens
	Guards

All are manufactured and fully protected by patents by the JAMESTOWN SCREEN & MFG. COMPANY, INC., enabling a centralization of responsibility and an unbiased choice of the proper screen for each individual purpose.



Specifications—Metal frame screens shall be of hollow *double*-tubular construction as manufactured by JAMESTOWN SCREEN & MFG. COMPANY, INC., Jamestown, New York, formed in a single piece from .025 electro-galvanized steel [*or bronze*], to produce a truss type section $\frac{7}{16}$ x 1⅛ in. continuously soldered along its entire length. All corners are to be reinforced with snug fitting interior angles extending 2 in. into adjacent sides. Wire cloth shall be of 16 mesh (or other specified) bronze, held in place by a metal spline moulding designed for the ready replacement of the cloth. Steel framed screens shall have a baked enamel finish inside and outside in a selected color; bronze frames to be in natural finish (or oxidized and lacquered).

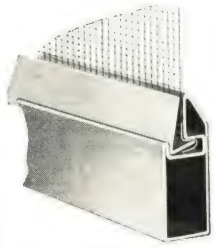
Sliding screens shall run upon ribbed guides of same material as screen frames (or of bronze) which extend into the inside channel sections of each stile. The screens shall be held in place by means of tempered steel compression springs concealed at all times within the frame member, and shall be provided with suitable lifts.

Pivoted screens shall be hung upon one fixed and one movable trigger operated pivot, mounted in a rounded edge member of the screen frame. The opposite side is to be provided with a drop lever spring bolt latch, all hardware being of bronze or brass.

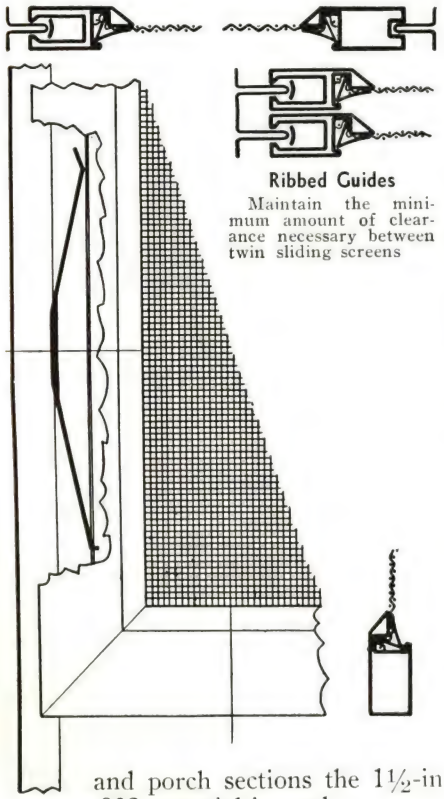
Stationary, top hung, or hinged screens shall have square edge frame members on all sides, and shall be provided with suitable hardware.

"Sentinel" Metal Frame Screens

The Sentinel frame is distinctive in appearance and design, constructed in truss formation to give unusual strength and rigidity. It is fully rewirable. The simple moulded bevel on the exterior sheds dust and water, makes the frame outline symmetrical, and adds to the attractiveness of the window. Sliding screens, retained by concealed springs, and running by internal contact on a ribbed track, possess smoothness of operation and protection against a marred finish not afforded by channel guides.



Sentinel Frame Section



Ribbed Guides

Maintain the minimum amount of clearance necessary between twin sliding screens

Steel frames are heavily galvanized and finished in baked enamel inside and outside in colors to match any sample. Bronze frames may be in natural or special finishes as specified. All corners are internally reinforced and soldered.

The standard section is $\frac{7}{16}$x 1⅛ in. rolled in a single piece from .025 thick material, .032 material also being furnished when specified. For extremely large openings and porch sections the 1½-in. wide framing of .032 material is used.

Metal Screen Doors

Metal frame screen doors are manufactured in galvanized steel or bronze construction in five distinct types and weights according to intended use as follows:



1⅛-in. Section

Special Light: Balcony doors and large casement openings. $\frac{7}{16}$x1½-in. stiles and rails; .032-in. stock.

Light: Metal casement doors and occasional entrances. ½x2-in. stiles and cross rails, 3-in. top rail, 6-in. bottom rail; .032-in. stock.

Medium: Door openings where service is not too severe. ⅝x2-in. stiles and cross rails, 3-in. top rail, 6-in. bottom rail; .032-in. stock.

Heavy: Residence main and service entrances. ⅝x2-in. stiles and cross rails, 3-in. top rail, 6-in. bottom rail; .050-in. stock.

Extra Heavy: Public buildings where subjected to constant usage. 1⅛x3¾-in. stiles, cross rails, and top rail, 6-in. bottom rail; .050-in. stock.

12-in. wide bottom rails substituted for 6-in. in single panel doors where no cross rail is used.

All of the above types are heavily reinforced and constructed, and are provided with bronze mortise hardware. Door checks are recommended in connection with the last three types in particular.

Specifications—Metal frame screen doors shall be of hollow galvanized steel (or bronze) construction as manufactured by the JAMESTOWN SCREEN & MFG. COMPANY, INC., Jamestown, New York, and shall contain 16-mesh (or other) oxidized bronze wire cloth, held in place by a removable metal spline. Frames shall be suitably reinforced at all joints and to receive hardware which shall be of bronze or brass, and consist of 1½ pairs butts for each door, a suitable latch, and top and bottom bolts for the inactive leaf of each pair of doors. Pairs of doors shall also be provided with suitable astragals. Steel frames shall be finished in a selected color baked enamel; bronze frame doors in natural (or special) finish.

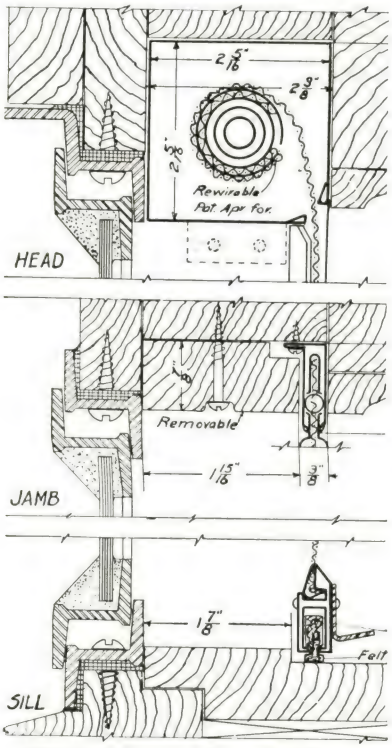


Special Bronze Door

ROLL SCREENS

Jamestown roll screens are made in two types. Equal in quality, they differ in design only to make them more suited to their specific purpose. The roller is easily rewirable without the use of solder, as is also the tubular lift rail which runs in narrow guides at each side with a ball bearing running surface. The bronze wire cloth extends ¾ in. into each guide. Either type is furnished in natural or finished bronze, or in any color of baked enamel over galvanized steel construction. Each is fully guaranteed and covered by patents.

The *Standard Type* is of more conventional design for an all-purpose roll screen to be built into the opening frame or to be mounted upon the surface of the sash or frame. The roll box is square and of sufficient size to accommodate cloth for high openings.



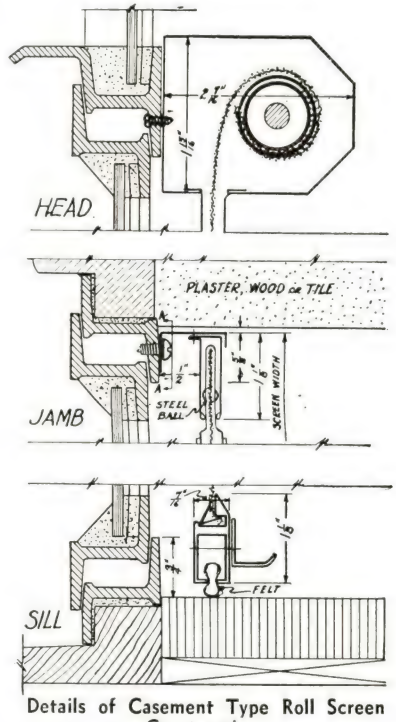
Details of Standard Type Roll Screen Construction

The *Casement Type* is for direct application to steel casement frame without relation to head jamb or sill condition. The hexagonal shaped box may be attached at the head or upon the transom bar of the sash, and the guides are secured to projector jamb strips by which they are attached to the sash. These provide just enough clearance to avoid small projections on the surface of the window without detracting from its appearance.

Specifications—Furnish roll screens of electro-galvanized steel (or bronze) construction as manufactured by the JAMESTOWN SCREEN & MFG. COMPANY, INC., Jamestown, New York. The roller shall be fully rewirable and mounted upon a steel shaft running in bronze bushings. The coil tension spring shall be capable of adjustment by means of a screwdriver applied to end of the steel axle shaft. The entire assembly shall be enclosed in a pressed metal box with easily removable end covers.

Screen cloth shall be of bronze and shall extend into each guide not less than ¾ in.

Lift rail shall be of tubular construction and rewirable by means of a metal spline. Bronze end pieces shall slide with ball bearing contact in each guide, and provide a positive spring catch at either end. A felt contact strip shall be inserted in the bottom edge of the rail for the protection of the sill.



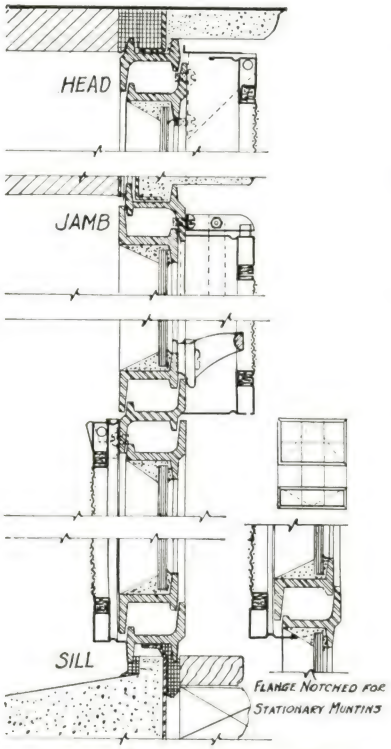
Details of Casement Type Roll Screen Construction

Special Screens

The JAMESTOWN SCREEN & MFG. COMPANY, INC. has developed a great number of specially shaped and designed screens to meet unusual conditions and problems.

The *"Projector-Type"* framing has been developed for use in connection with various types of steel sash either for pivoted or stationary screens. It eliminates the necessity of providing a separate pressed subframe or "projector box" by providing as an integral part of the frame a flange of the proper depth to give sufficient clearance for hardware or other projections on the surface of the sash. Thus the screening arrangement is simplified and the entire assembly is removed at the same time.

An example of its application to projected sash is shown at the left. Note that the depth of the flange may be varied according to requirements. More detailed information for specific applications will be furnished on request.



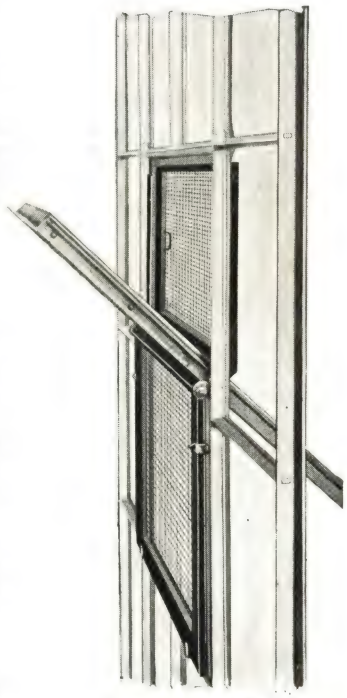
Projector Screen on Projected Sash

Pivoted Sash Screens

The method developed for the screening of industrial sash is an extremely simple and practical one. Since all work is performed on the inside, the installation requires a minimum amount of labor.

The exterior screen requires no drilling and tapping of the sash. It is held in place by full length clips and slides vertically, following the motion of the pivoted ventilator. The lower screen, mounted on the inside, rests upon two hangers at the bottom, and is held in place by turnkeepers at either side. Metal fitting pieces suitably notched to accommodate the sash members are provided in order to maintain close contact between the screens and the sash at all times.

The standard Sentinel type frame section is used, and the fitting pieces are specially designed according to the make and type of sash.



Center Pivoted Sash Screen

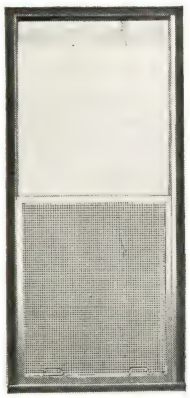
KANE MANUFACTURING COMPANY

Manufacturers of "Kane Quality" Insect Screens
Bronze, Steel, Aluminum and Wood Frame Screens—Roll Screens

MAIN OFFICE AND FACTORY

KANE, PA.

SALES OFFICES AND DISTRIBUTERS IN ALL PRINCIPAL CITIES

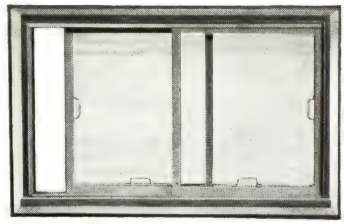


Single Sliding

Products

"KANE QUALITY" FLAT WOOD FRAME SCREENS, FLAT and FLANGED METAL FRAME SCREENS and ROLL SCREENS—custom-made for any make, type or shape of window, porch or door opening.

For our pages on Weatherstrips and Accessories of zinc, brass, bronze and copper, and Venetian Blinds, see Manufacturers' Index.

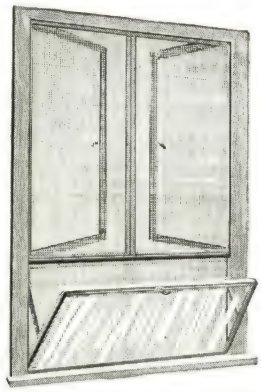


Double Sliding

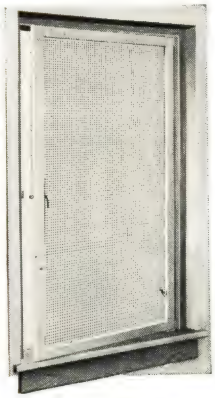
Experience and Facilities

For over forty years, the KANE MANUFACTURING COMPANY has been engaged in the manufacture of Rustless Insect Screens for doors and windows. A degree of perfection has been reached which is only possible through the combination of long experience and exceptional manufacturing facilities.

The Kane factories are ideally located from both shipping and manufacturing standpoints, and are designed and equipped to make "Kane Quality" a leader in the industry.



Combination Casement



Pivoted Single Casement

Service

Kane Sales Offices and Distributers are located in all principal cities. Efficient organizations are maintained—thoroughly versed in estimating, measuring and installing—through whom our patrons are assured of satisfactory handling of their specifications.

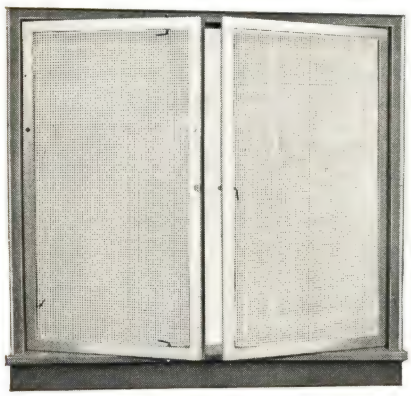
Architects and builders will find our service most complete in every detail, and are invited to consult our Sales Offices and Distributers regarding their requirements.

"Kane Quality" Screens

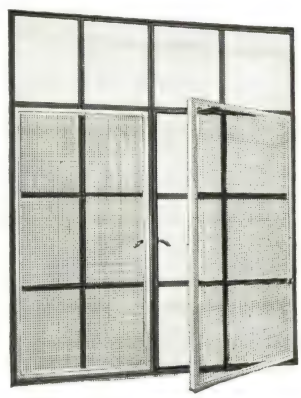
The KANE MANUFACTURING COMPANY has set a high standard of quality in screen manufacture. This quality is thoroughly apparent in the finished product and in the satisfying service obtained through many years of use.

"Kane Quality" Screens are made from Anaconda bronze, electro-galvanized cold rolled alloy steel, aluminum, Canadian white pine or other selected woods, in conformance to the architectural design. They can be supplied in a wide variety of finishes, or painted in harmony with any existing or desired color scheme.

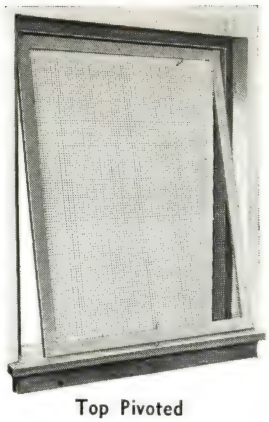
They will fit the openings accurately and are made of durable and reliable materials. They are easy to operate as well as being easily removed or replaced. Light in weight, yet without sacrifice of strength and rigidity, ease of handling is facilitated.



Pivoted Double Casement



Residence Casement

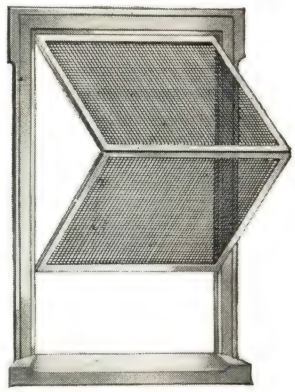


Top Pivoted

The finish and color are given special treatment to insure them against the weather and other destructive elements.

"Kane Quality" Screens are easily rewirable should the screen fabric be damaged accidentally. They have many exclusive features of design which make them unsurpassed as regards service and appearance.

Porch screens particularly require expert knowledge and skillful workmanship because of the great variety in design. "Kane Quality" porch screens meet all conditions and with their fastening methods are easily installed or removed.



Lift-Fold

"KANE QUALITY" RUSTLESS INSECT SCREENS

Types of Screens

The selection of the proper screen for different types of openings requires careful attention. Our representatives will gladly advise of the best type for your particular requirements.

When the construction of window casings will permit, outside screens covering the full window openings are preferable to inside screens as free access may be had to shades, draperies and sash fixtures on the interior of the windows.

Screens covering entire openings, such as top-hung, side hinged or pivoted, double vertical or horizontal sliding and roll types, form a variety of equipment for screening all types of sash in the most practical manner. Satisfaction depends upon the type of equipment selected.

Single sliding screens covering one-half of double hung sash windows and operating on guides are economical equipment, for such windows as the screens may be used opposite the lower sash when raised or the upper sash when lowered.

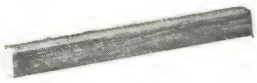
Double sliding screens applied to either double hung or casement sash openings permit easy access to windows when cleaning them and they do not interfere with sash fixtures or draperies.

The new and exclusive Lift-Fold Screen can be applied to most standard wood and metal double hung windows, and is easily removed or applied from the interior.

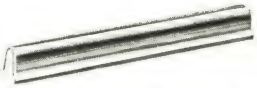
Flanged Screens are designed specially for metal or wood casements in residences, offices, schools, institutions, industrials, etc., where sufficient depth must be provided to clear hardware and moving parts.

Roll Screens can be applied to all types of double hung and casement windows, with built-in concealed box or visible installation.

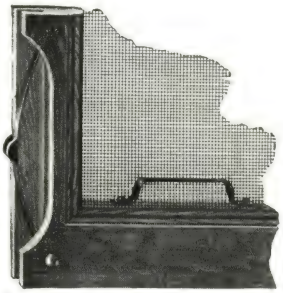
"KANE QUALITY" WOOD FRAME RUSTLESS INSECT SCREENS



Regular No. 16 Guide for Sliding Screens



No. 20 or 21 Metal Covered Guide



Section of Sliding Screen with Riveted Corner, Pull, and Flanged Friction Spring

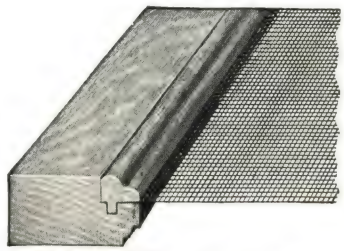
Custom-made to Exact Specification

Wood frame screens are made from selected domestic and imported lumber thoroughly seasoned and kiln-dried. It is our custom to use the same kind of lumber as is used in the sash which the screen is to cover, so that the finish may be carefully matched. For outside screens, however, we recommend the use of No. 1 Canadian White Pine painted to match the exterior color of sash.

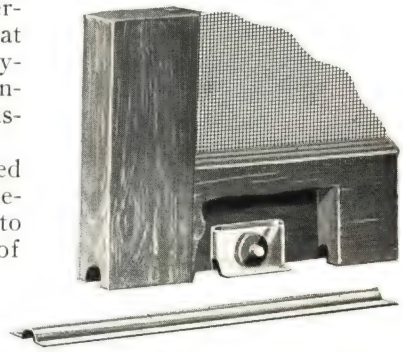
All corners are full mortised and tenoned joints, tightly wedged and held with waterproof glue. In addition to this, the standard $\frac{13}{16}$-in. thick screens for exterior use have a special brass rivet in each corner. The stiles and rails of all screens have a rabbet and groove into which the wire netting is rolled, then covered with a neat moulding having a spline on underside which is forced into the wire groove so that every strand of netting is fastened, each strand carrying its own weight (no tacks are used), making unsightly, baggy wire impossible. The moulding is fastened with brass brads.

Standard screens are $\frac{13}{16}$-in. or $1\frac{1}{8}$-in. finished thickness, but can be furnished in any thickness desired. The widths of stiles and rails are made to conform with the size of screens, keeping back of glass line wherever possible.

Painted frames receive three (3) coats of pure linseed oil, white lead and zinc. Stained work receives one (1) coat of filler and two (2) coats of spar varnish.

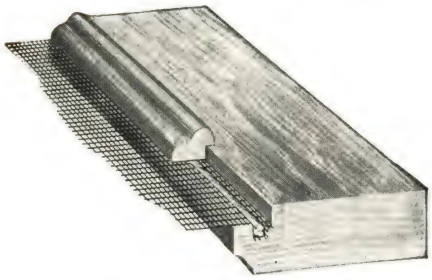


Method of Wiring Wood Frame Window Screens



Horizontal Sliding Screen with Sheave and Brass Guide

"KANE QUALITY" WOOD FRAME RUSTLESS SCREEN DOORS



Method of Wiring Door Screens

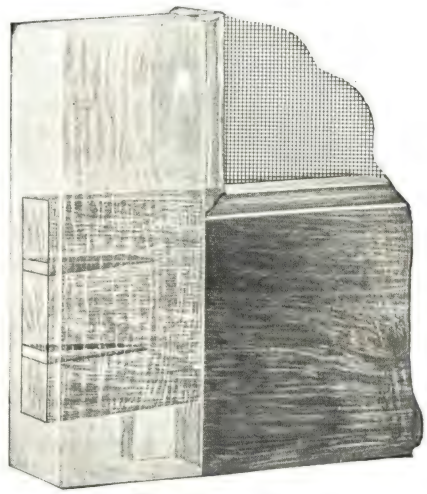
Frames are made from selected lumber, thoroughly dried, and the doors will not sag or warp. Standard dimensions are 1⅛ in. thick with 3½-in. stiles and top rails and 5¾-in. bottom rails, except single-panel doors which have 11-in. bottom rails.

Other frame thicknesses and widths, and in any design, furnished as may be specified.

Corners are full mortise and tenon, wedged and glued.

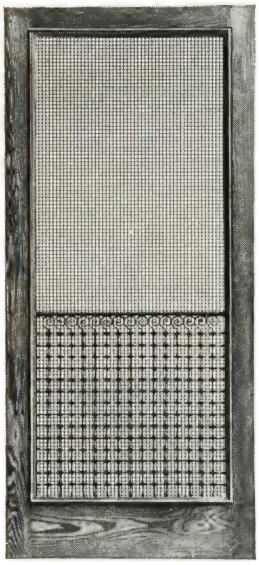
The screen cloth is held in the grooved frame with a special jute cord and covered with neat moulding. This method of wiring has proven most satisfactory to prevent breakage of the screen cloth at the joint from vibrations which occur in service when a more rigid fastening method is used.

Grilles—To protect the lower panels of door screens from damage, we recommend and furnish a variety of brass and bronze grilles, ornamental in design and finish when specified.

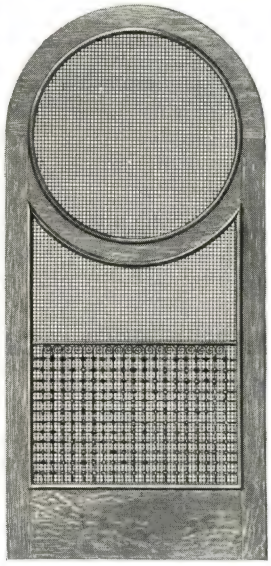


Door Corner Joint

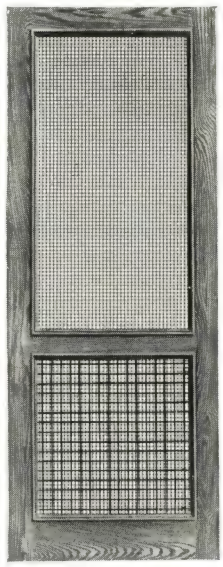
Types of "Kane Quality" Wood Frame Screen Doors



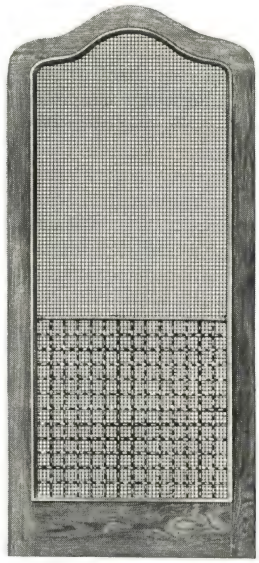
Door No. 19 with 10-X Guard



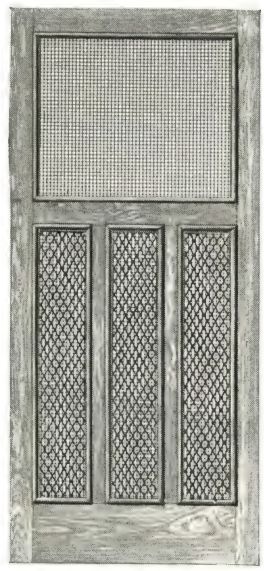
Circular Panel Door with No. 13-X Guard



Door No. 20 with No. 12 Guard

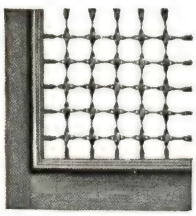


Door No. 19, Special, with No. 12-Y Guard

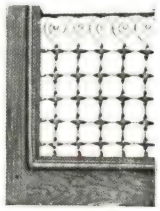


Door No. 24 with No. 14 Guard

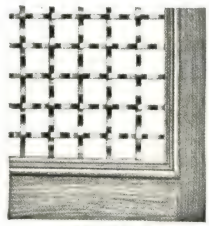
Ornamental Brass and Bronze Grilles for Screen Doors



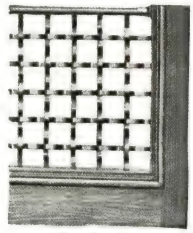
No. 10



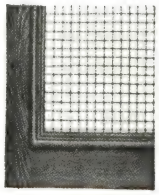
No. 10-X



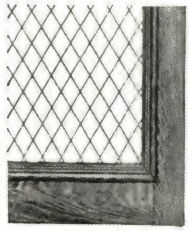
No. 12



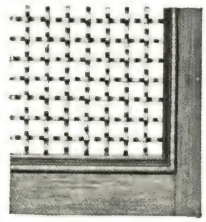
No. 12-Y



No. 15

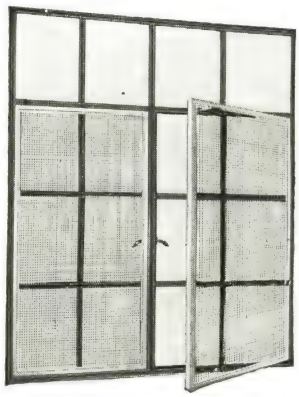


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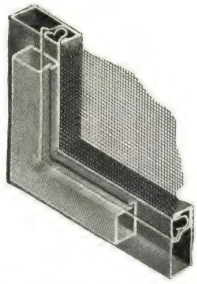


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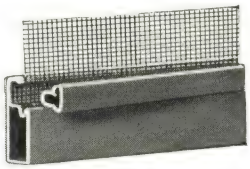
"KANE QUALITY" METAL FRAME RUSTLESS INSECT SCREENS



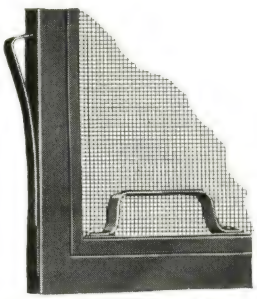
Residence Casement
Either double side hinged or single top hinged or flanged screens can be supplied for residence casement windows



Sturdy Internal Corner Insert
Reinforces and strengthens the corners, assuring rigidity and resistance to torsional stresses



Moulding Holds Screen Cloth Evenly and Securely
Gives neat appearance. Screens are rewirable by removing the molding



Corner Section of Sliding Screen with Riveted Pull
Heavy duty spring holds screen in any desired position and prevents slipping or falling

Anaconda Bronze, Galvanized Steel and Aluminum Tubular and Flanged Frames

Tubular Frame Screens

Are made from Anaconda bronze, electro-galvanized cold rolled alloy steel or aluminum. The maximum rigidity and resistance to torsional stresses are obtained by the tubular frame, internally reinforced at mitred corners with an insert member forced into place, or by a special electric welding process giving 100% fusion. The molding holds the screen cloth evenly and securely, forms a neat flush joint with the frame and makes easy the removal and replacement of screen cloth if it becomes necessary.

Regular frames are $\frac{7}{16}$ in. thick and 1 in. wide for usual sizes of window screens.

Special frames are $\frac{7}{16}$ in. thick and 1½ or 1⅞ in. wide for larger screens, such as French windows, porches and small doors.

Frames may be had with outside edges either square or rounded.

Screens for full size of openings are equipped with fastening and operating fixtures best adapted to meet such conditions as may occur—hooks and eyes or spring bolts for stationary screens; top hangers or pivots for suspending at top of openings; loose leaf and loose joint hinges or pivots for casement screens.

Flanged Screens

Are supplied with $1\frac{5}{16}$ and $1\frac{13}{16}$ in. flanges, with cold rolled one-piece frame. Other sizes can be furnished to meet all requirements, with built-up frame of two cold rolled pieces.

Flanged screens are designed especially for wood or metal casement windows where sufficient depth must be provided to clear hardware and moving parts. They are of neat appearance, have an insect-tight seal and materially reduce cost of installation as compared to combined price of flat screens and fitting pieces. They are particularly adapted to homes, clubs, hospitals, apartments, etc.

Lift-Fold Screens

Are supplied with frames $\frac{7}{16}$ in. thick and 1, 1½ or 1⅞ in. wide with movable pivots in the top rail of each screen and roller pivots in the bottom rail of lower screen. Jamb guides are cold rolled sections with prepared attaching holes. Head weathering angle is formed with end cuts to interlock in guides.

Lift-Fold screens are easily installed in jambs of most standard wood and metal double hung windows. In the wide open position the screen is securely retained allowing unlimited freedom for washing windows from exterior or interior. The screen may be opened to an intermediate position for operating shutters, awnings, etc. It is securely retained allowing full use of both hands without fear of screen closing. The screen cannot be pushed out of opening voluntarily or accidentally—unless by deliberate release of six distinct safety catches and raising it to full open position. Lift-Fold screens can be applied to both new and old buildings.

Finishes

Steel frame screens, both tubular and flanged types, are finished with a baked-on enamel or with nitro-cellulose enamels, considered the hardest and most durable metal finish known; a pleasing semi-gloss in such colors or grains as may be specified.

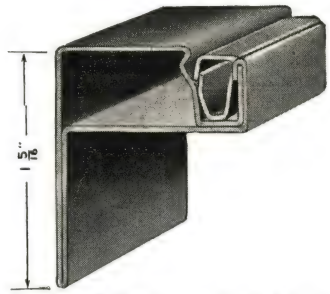
Bronze tubular frame and flanged screens are supplied in natural or statuary finish. Aluminum tubular frames and flanged screens are natural finish as standard; also supplied in satin or polished finish.

Screen Cloth

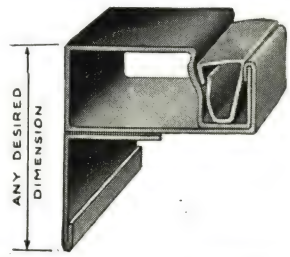
Unless otherwise specified, we use 16-mesh Anaconda bronze or aluminum screen cloth and recommend these materials as serviceable under all usual atmospheric and climatic conditions. They are non-corroding, rust resisting, strong and enduring.

"Kane Quality" Hardware

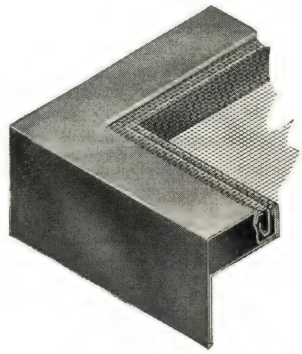
Hardware fixtures consist of the most practical devices for proper operation of the screens, in large variety of brass, bronze and aluminum in special finishes. Many are of our own design and manufacture.



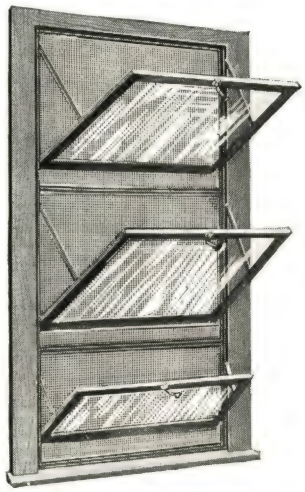
Section of One-piece, Cold Rolled, Galvanized Steel or Bronze Flanged Screen



Section of Built-up Two-piece, Cold Rolled Steel or Bronze Flanged Screen



Corner Section of Flanged Screen with Screen Fabric in Place



Type of Window and Screen Much Used in Offices, Hospitals and Institutions
Casement windows with all in-opening ventilators may have entire opening covered by one screen attached to exterior

"KANE QUALITY" ROLL SCREENS

Changes in architectural design during recent years have resulted in changes in screen design to conform to the latest architectural requirements. As a result of our enviable reputation with architects and builders during the past 40 years, we have had many requests for a practical roll screen which would at one time be simple, strong and troubleproof.

Several years of extensive experiment and research have been devoted to this problem, and the new, perfected "Kane Quality" Roll Screen is the result. We feel confident that we are now in a position to furnish a roll screen which will meet the exacting requirements of the architect, and which is of the same high quality as other "Kane Quality" Screens.

Advantages of "Kane Quality" Roll Screens

"Kane Quality" Roll Screens are readily installed in any type of window in old or new buildings. When planned for new buildings, the roller box can be completely concealed. The guides may be entirely concealed by special wood-trim pieces if desired.

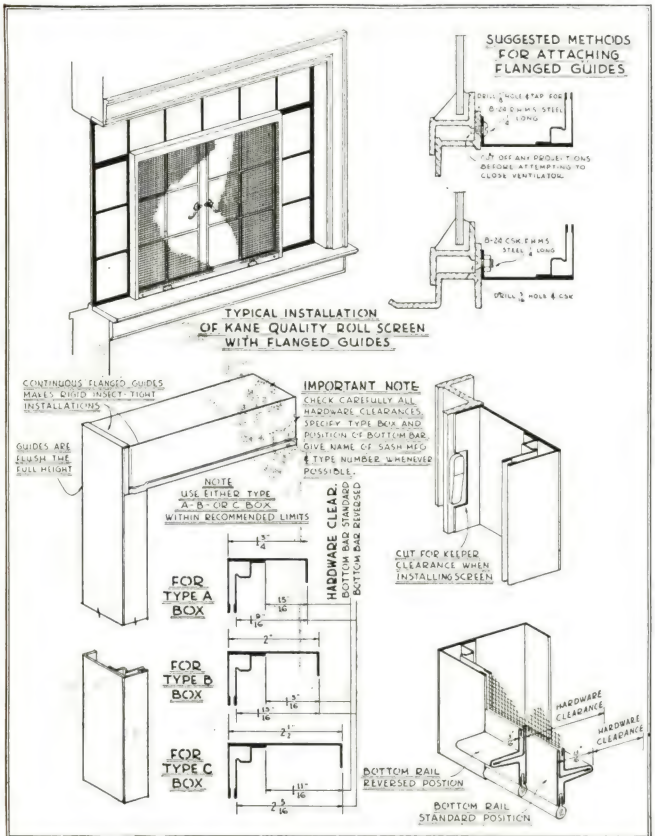
Roll Screens are raised and lowered like a window shade, giving convenience in cleaning windows, tending flower boxes, operating awnings, etc. There is no annual storage or removal of screens. There is no annual expense for painting, repairing or rescreening. No interference with drapes or shades.

Box and Roller

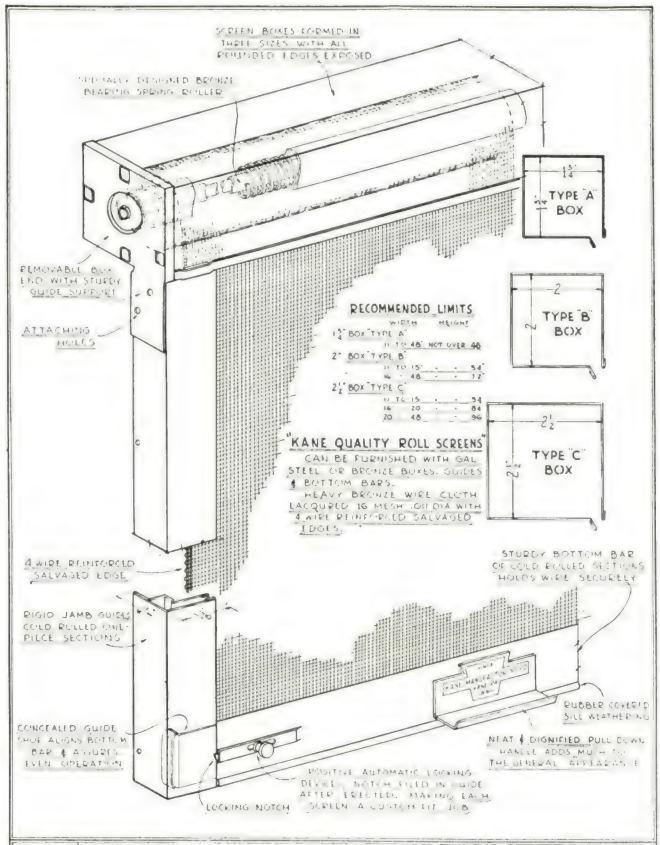
Three sizes of boxes are available—1¾, 2 and 2½ in. square, with rounded exposed edges. Box ends are removable for rewiring or repairs, adjustments for spring tension can be made from the exterior without removal of box end. Wire cloth is securely soldered to a tube roller, incasing a heavy duty, oil tempered spring operating in a special lubricant. Roller is supported by a continuous cold rolled steel shaft which rotates in two solid brass bearings in the ends of roller tube.

Screen Cloth

Heavy, standard 16-mesh Anaconda bronze wire screen cloth is used, with a preserving coat of lacquer, and has 4-strand reinforced selvage edges. No strain is placed on the soldered joint of cloth and tube roller as sufficient wire cloth is furnished to allow several additional turns, over the required length for enclosing the window.



SCALE	"KANE QUALITY" ... ROLL SCREENS APPLICATION TO STEEL CASEMENTS	PLATE NO.
6"-1'-0"		2005



SCALE	"KANE QUALITY" ... ROLL SCREENS GENERAL INFORMATION & ASSEMBLY	PLATE NO.
		2000

Guides

Side guides are 1⅛ in. deep, ⅞ in. wide, allowing sufficient netting to remain in the guides at all times. Guides may be installed on the trim or practically covered, if detailed, or by use of special wood-trim strips.

Raising Bar

The neat flat bottom rail has artistic handles and two inconspicuous, efficient lock-releasing knobs. A solid brass sliding shoe is mounted on each end of the bottom rail, which maintains the rail level and prevents it from sticking and raising too fast. A special weatherstrip assembled in the rail allows for sill variations and assures insect-tight seal, prevents marring of stool and prevents objectionable light lines.

Width and Height Dimensions

"Kane Quality" Roll Screens are stocked in 1-in. widths from 11 to 48 in., inclusive, and up to 96 in. in height. They can be made in fractional inch widths and heights, as required. It is not necessary to build the windows to fit the screens.

Finish

Standard metal boxes and guides are galvanized steel with oven baked enamel finish. A complete range of colors is available. Special metal boxes and guides are solid bronze in either bright or oxidized lacquer finish.

Range of Application

"Kane Quality" Roll Screens may be installed on wood double hung windows on the interior. On out-swinging casement windows roll screens are placed on the interior; on in-swinging casement windows roll screens are installed on the exterior with box position reversed. Special flanged guides can be provided for attaching to steel windows. Standard guides are used for fastening direct to jambs. Plaster jambs vary considerably in width and dimensions must be certain. Extra shimming strips are supplied if condition of jamb is given. Filler strips should be concealed by using stock trim. Complete details and specifications supplied on request, for all types of installations and constructions.

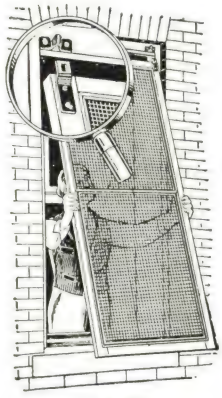
PHENIX MANUFACTURING COMPANY

Screens, Awnings, Storm Sash, Screen Hardware, Garage Door Bolts, Holders

1140 East Center Street, MILWAUKEE, WIS.

Phenix Window and Door Screens and Enclosures

Made to fit any opening.



No. 114 Hanger



A-4

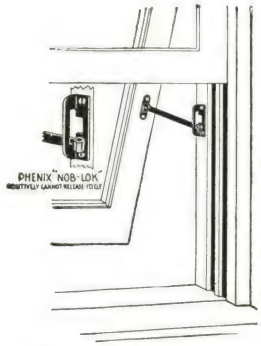


B-3

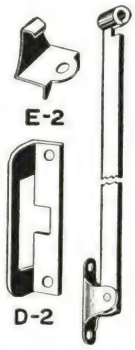
Material—Window and door screens and storm sash made from thoroughly seasoned white pine, wired with copper bronze wire cloth. Hardware finishes in steel, galvanized and solid brass.

Full Length Top Hung Screen—Fastening and locking device No. 102 for cleaning windows and for ventilation.

Top Hung, Swinging Half Screen—Fits in between outside casings, with shut-off at meeting rail; provided with No. 112 Hanger and inside locking device No. 30.



No. 102 Fastener



E-2

D-2

C-2

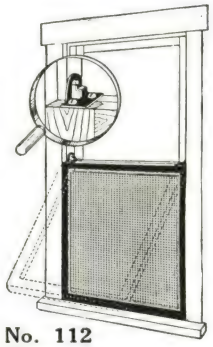


K-1



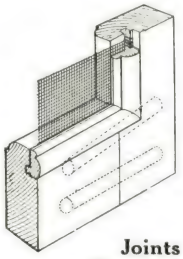
J-1

Half-set No. 30

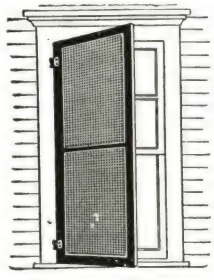


No. 112 Hanger

Side Hung, Half or Full Length Screen—Swings out like a door; hung by "Phenix" loose joint, self-locking hinges No. 130 and locked with No. 30 fastener, permitting hanging or removal from inside and the ready cleaning of windows.



Joints Doweled



No. 130 Hinges

Corner Joints—Joined by special dovetail hardwood dowel set in glue—superior to any mortise and tenon in carrying strength. Dowel pins form perfect wedge lock.

Method of Wiring—No tacks used. Wedge-grip wiring; every strand held perfectly taut and secure.

Screen Doors—Furnished complete with all necessary hardware, ornamental grilles and guards for special wire protection.

Veranda Enclosures—Made in convenient sized sections and held together with Phenix Nos. 60, 70 and 75 flush and corner locking devices.

Phenix Combined Screens and Awnings

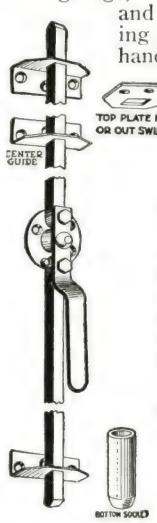
A two-in-one combination. Screen covers entire window with awning attached. Awning raised and lowered from inside without disturbing screen.



Combination Screen and Awning

Phenix Cremone Door Bolts

No. 50 for Inside Locking Only—For right or left hand, single or double garage, factory, warehouse, fire and other heavy doors, swinging in or out. One turn of handle locks or unlocks both top and bottom. Handle always retains its position because of counterweight.



No. 50 Bolt

Stock lengths 6 to 13 ft. increasing by 6-in. steps.

No. 51 for Outside Locking Only—Same construction and sizes as bolt No. 50, but with extra outside lever handle and strong malleable iron disc casting provided with loop arrangement for padlock. Used on garages without service doors. Steel, heavily galvanized. Specify whether for doors 1¾ or 2¼ in. thick.

No. 53 for Combination Inside and Outside Locking—Same construction and sizes as No. 50, but has locking attachment (screwed inside) which slips over end of bolt handle.

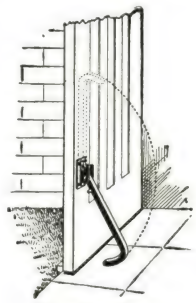
No. 57 for Inside Locking Only—Suitable for garages with service doors. Lengths 7 ft. 6 in., adjustable to 10 ft. 6 in.

No. 58 for Outside Locking Only—Same as No. 57 but with outside lever handle and strong malleable iron disc casting with loop arrangement for padlock. Used especially on garages without service doors. Specify whether for use on doors 1¾ or 2¼ in. thick.

No. 59 for Combination Inside and Outside Locking—Same as No. 57 but has locking attachment (screwed inside of door) which slips over end of bolt handle.



No. 57 Bolt

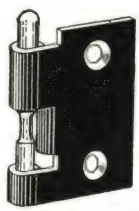


No. 52 Door Holder

Phenix Garage Door Holder No. 52

Simple, strong, inexpensive, practical. Easily turned down or up by hand or foot. Automatically locks itself. Holds doors of any size and weight, and is equally effective on any kind of floor.

All-steel construction, heavily galvanized. Made of ½x½-in. steel rod, 12 in. long.



M-1. LH

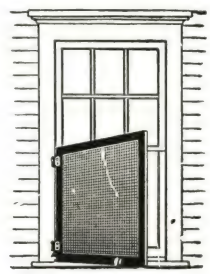
No. 130 L. H.



N-1. LH

Half Pair

Phenix Side Swinging Loose Joint Self-locking Hinge



MORRISON-SKINNER COMPANY

Manufacturers of Wood and Metal Frame Insect Screens

WAKEFIELD, MASS.

For Names and Addresses of Agents and Representatives See Fifth Following Page

Products

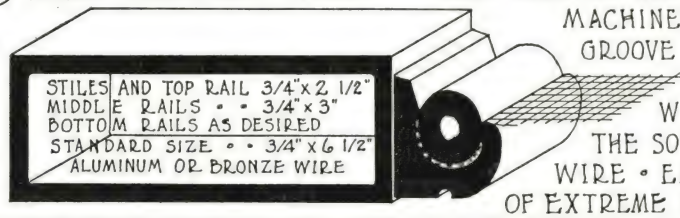
"Wakefield" Extruded, Tempered Aluminum Alloy Frame Window, Door and Porch Screens.

Also "Wakefield" Bronze, Steel and Wood Frame Window, Door and Porch Screens.

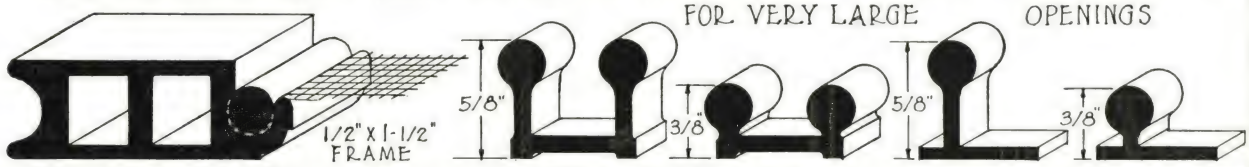
Screen Manufacturers for Over 40 Years

Forty years of continuous experience and a thoroughly modern plant assure production of the highest quality, and a promptness in manufacturing which is essential to congenial and profitable connections.

(1) THE **WAKEFIELD** SCREEN DOOR FRAME IS BASED ON A RECTANGULAR SEAMLESS TUBE OF ALCOA ALUMINUM ALLOY • • ALL CORNERS ARE ELECTRICALLY WELDED • RETEMPERED AND MACHINED OR GROUND SMOOTH AND CLEAN • • THE GROOVE IS KEYED AND FASTENED TO THE FRAME WITH HIDDEN MACHINE SCREWS • THE WIRE CLOTH IS ROLLED INTO THE GROOVE AND THE SOFT METAL SPLINE IS FORCED DOWN ON THE WIRE • EASY TO REMOVE AND REPAIR • • A DOOR OF EXTREME RIGIDITY • LIGHTNESS • AND DURABILITY •



(2) **WAKEFIELD** ALCOA ALUMINUM ALLOY HEAVY DUTY SCREEN FRAME WITH HEAVY EXTRUDED GUIDES OF THE SAME METAL • DOUBLE GUIDES OF VARYING SIZES FOR ALL CONDITIONS AND SINGLE GUIDES FOR HALF SLIDING SCREENS • THIS FRAME IS FOR VERY LARGE OPENINGS



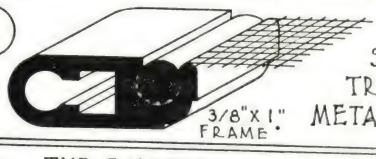
(3) THE **WAKEFIELD** EXTRUDED ALCOA ALUMINUM VERTICAL AND HORIZONTAL SLIDING SCREEN SECTION • THIS FRAME MEETS THE NEED FOR INCREASED FRAME SIZE FOR LARGE OPENINGS • VERTICAL SLIDING SCREENS ARE HELD IN BY CHROMIUM PLATED STEEL SPRINGS AND HORIZONTAL SCREENS OPERATE ON ROLLER BEARINGS



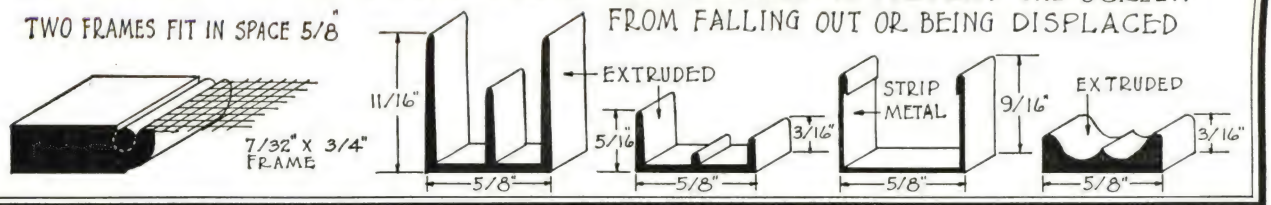
DOUBLE GUIDES FOR ALL CONDITIONS • SINGLE GUIDES FOR HALF SLIDING SCREENS

WAKEFIELD GUIDES ARE EXTRUDED OF THE SAME STRONG ALLOY AS USED IN SCREEN FRAMES • A STRONG AND RIGID GUIDE SO CONSTRUCTED THAT IT CAN BE SCREWED IN POSITION ASSURES ACCURATE AND PERMANENT ALIGNMENT • WE RECOGNIZE THAT THE GUIDE IS AS IMPORTANT AS THE FRAME FOR COMPLETE PROTECTION •

(4) ROUND EDGE **WAKEFIELD** ALUMINUM SHAPE FOR PIVOTED SCREENS AT CASEMENT SASH • IT IS EXTRUDED TO GIVE EXTREME STRENGTH • RIGIDITY AND DURABILITY • THE SOFT METAL SPLINE MAKES REPLACEMENT OF WIRE CLOTH VERY EASY •



(5) THE **WAKEFIELD** EXTRUDED ALCOA ALUMINUM FRAME SECTION OF GREAT STIFFNESS WITH LIGHT WEIGHT AND SMALL SIZE • IT CAN USUALLY BE INSTALLED IN ANY TYPE OF WINDOW • THE GUIDES AND SPRINGS ARE ARRANGED TO PREVENT THE SCREEN FROM FALLING OUT OR BEING DISPLACED

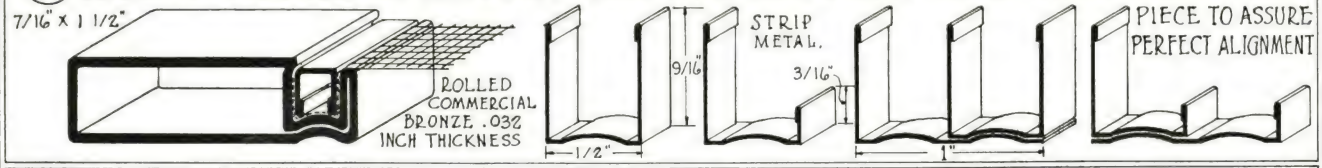


• • PLATE • A • •
• JULY • 1931 • •

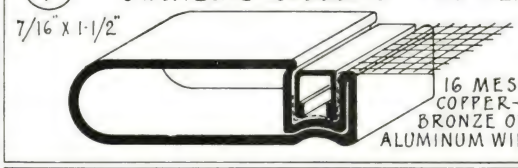
ACTUAL • SIZE • DETAILS • OF • SCREEN • FRAMES • AND • GUIDES
• • MORRISON • SKINNER • COMPANY • • • WAKEFIELD • MASS • •

WAKEFIELD
• • SCREENS • •

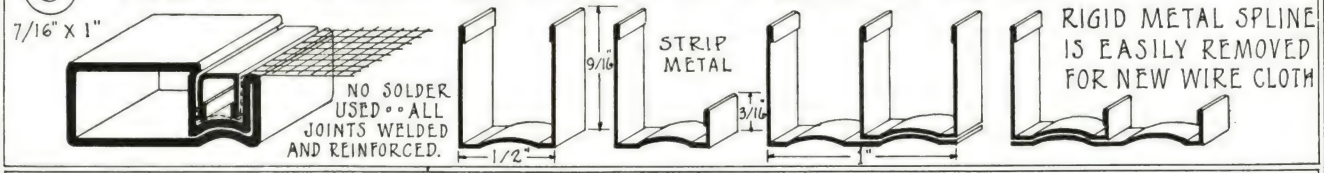
(6) **WAKEFIELD** BRONZE TUBULAR FRAME FOR LARGE VERTICAL SLIDING SCREENS • THE CORNERS OF ALL TUBULAR SCREENS ARE REENFORCED AND ELECTRICALLY WELDED GIVING GREAT RIGIDITY • DOUBLE GUIDES WELDED INTO ONE PIECE TO ASSURE PERFECT ALIGNMENT



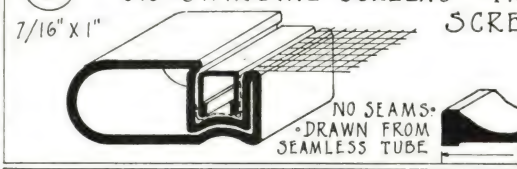
(7) THE **WAKEFIELD** BRONZE TUBULAR FRAME FOR LARGE HORIZONTAL SLIDING AND PIVOT SWINGING SCREENS •• NO SEAM JOINTS OF ANY KIND ARE USED •• THE FINAL SHAPE IS DRAWN FROM A SEAMLESS BRONZE TUBE • • THIS METHOD ELIMINATES CORROSION BY SOLDER AND ACIDS AND PREVENTS WEAVING TWISTING OR WABBLING SO COMMON IN TUBULAR OR, SO CALLED, TUBULAR SCREENS



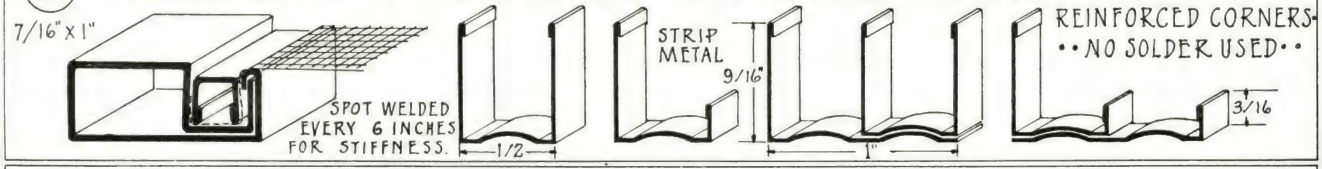
(8) **WAKEFIELD** BRONZE TUBULAR FRAME FOR SMALL VERTICAL SLIDING SCREENS • THESE SCREENS ARE HELD IN PLACE BY SPRINGS AND CHANNEL GUIDES •• THE RIGID METAL SPLINE IS EASILY REMOVED FOR NEW WIRE CLOTH



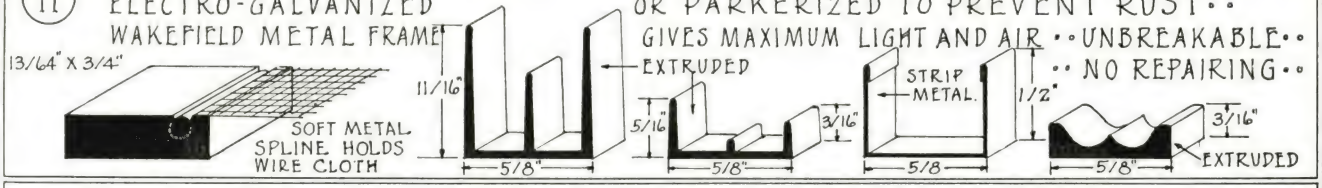
(9) THE **WAKEFIELD** BRONZE TUBULAR FRAME FOR SMALL, MULTIPLE HORIZONTAL-SLIDING OR SWINGING SCREENS •• THE BRONZE GUIDE IS OF EXTRUDED BRONZE •• THIS SCREEN, AS WELL AS ALL OTHER **WAKEFIELD** SCREENS, MAY BE WIRED WITH EITHER "ANACONDA ANTIQUE" COPPER BRONZE • 16 MESHES TO THE INCH OR "ALCOA" ALUMINUM WIRE-CLOTH • 16 MESHES TO THE INCH • • •



(10) **WAKEFIELD** TUBULAR STEEL FRAME SCREENS ARE CONSTRUCTED OF COLD-ROLLED COPPER-BEARING STEEL • ELECTRO-GALVANIZED OR PARKERIZED FOR RUSTPROOFING • WELDED, REINFORCED CORNERS •• NO SOLDER USED ••

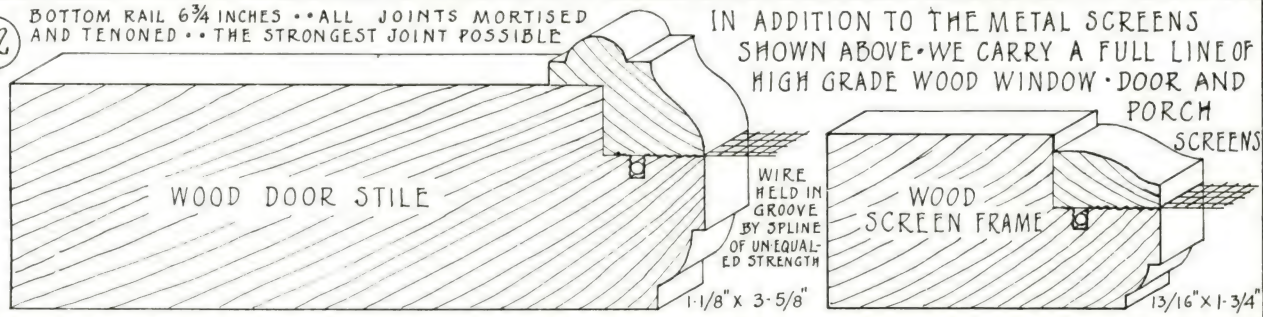


(11) THE **WAKEFIELD** SOLID STEEL FRAME SCREEN IS MADE OF COLD-ROLLED STEEL WHICH IS ELECTRO-GALVANIZED OR PARKERIZED TO PREVENT RUST •• WAKEFIELD METAL FRAME GIVES MAXIMUM LIGHT AND AIR •• UNBREAKABLE •• •• NO REPAIRING ••



(12) BOTTOM RAIL 6¾ INCHES •• ALL JOINTS MORTISED AND TENONED •• THE STRONGEST JOINT POSSIBLE

IN ADDITION TO THE METAL SCREENS SHOWN ABOVE • WE CARRY A FULL LINE OF HIGH GRADE WOOD WINDOW • DOOR AND PORCH SCREENS



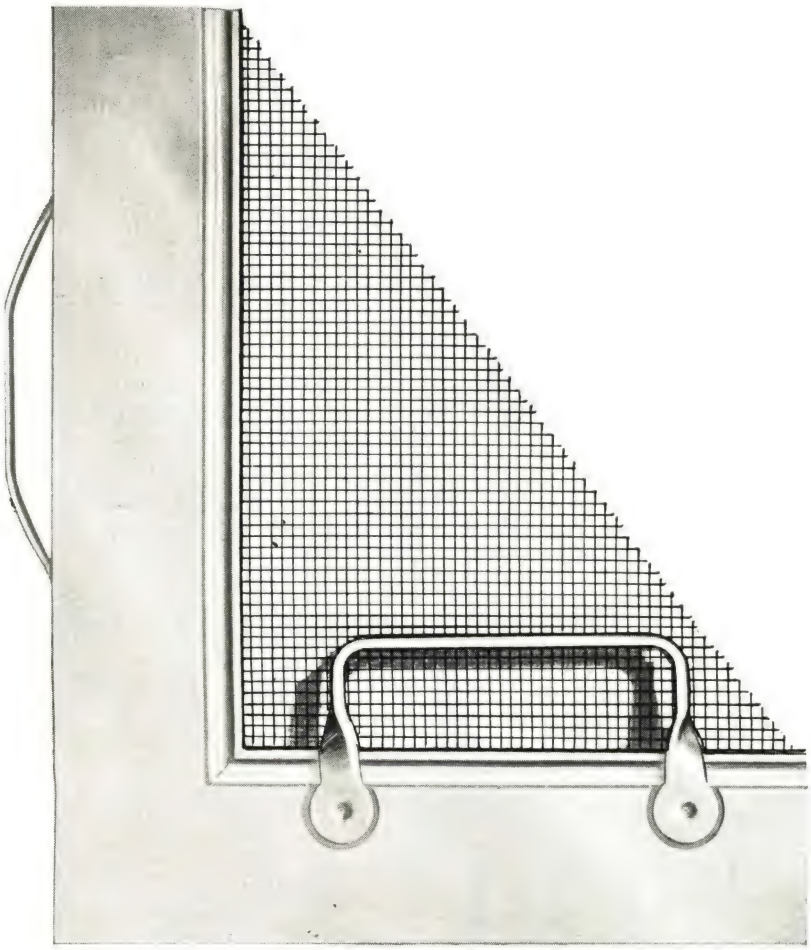
•• PLATE • B ••
•• JULY • 1931 ••

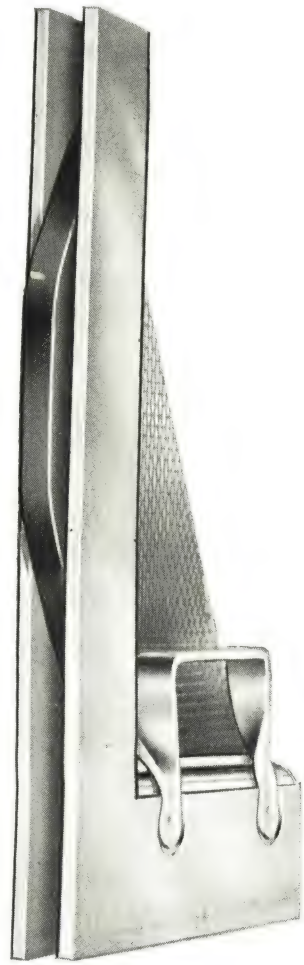
• ACTUAL • SIZE • DETAILS • OF • SCREEN • FRAMES • AND • GUIDES •
•• MORRISON • SKINNER • COMPANY • • • WAKEFIELD • MASS ••

WAKEFIELD
• • SCREENS • •

THE WAKEFIELD EXTRUDED ALCOA ALUMINUM SCREEN FRAME

An Aluminum Which Has the Ring and Strength of Mild Steel





Full Size Views ⅜x1-inch Aluminum Screens

Extruded patented process metal—similar to Duralumin.

The strength of mild steel.

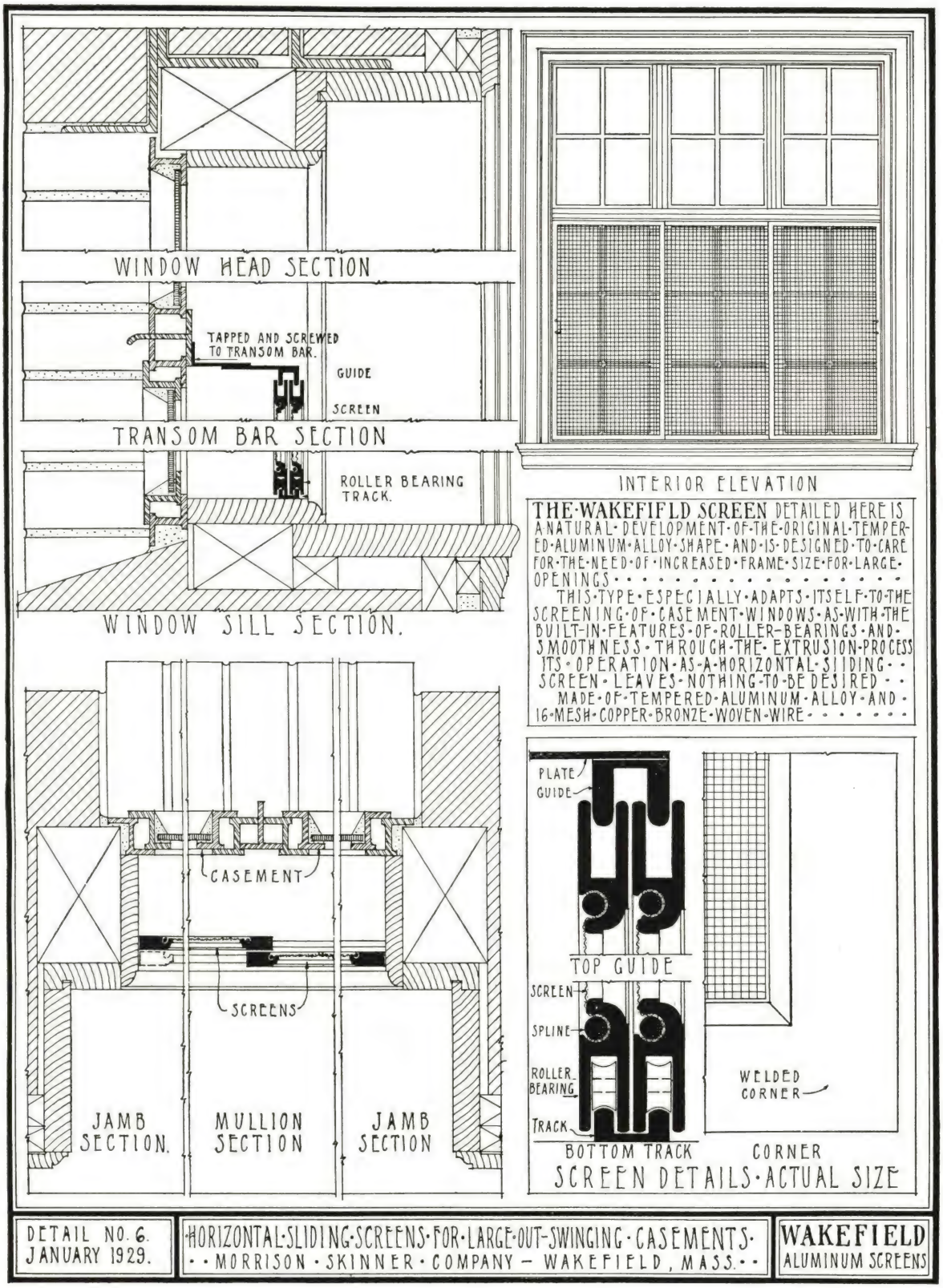
One-third the weight of steel or bronze allows triple strength at equal weight.

Welded corners—complete frame unit.

Aluminum wire cloth when desired—a harmonious resulting screen which will not cause any staining of draperies or white paint.

Specific Gravity of "Wakefield" 51st metal	2.69
Weight—Lbs. Per Cu. in.	0.098
Tensile Strength—in lbs. per sq. in.	45000 to 50000
Yield Point—lbs. per sq. in.	30000 to 40000
Elongation—% in 2 inches	10 to 18%
Brinell Hardness—500 Kg. Load 10 mm. ball	90 to 100

ONE OF THE MOST DURABLE, LIGHT WEIGHT, ATTRACTIVE LOOKING SCREENS EVER DEVELOPED

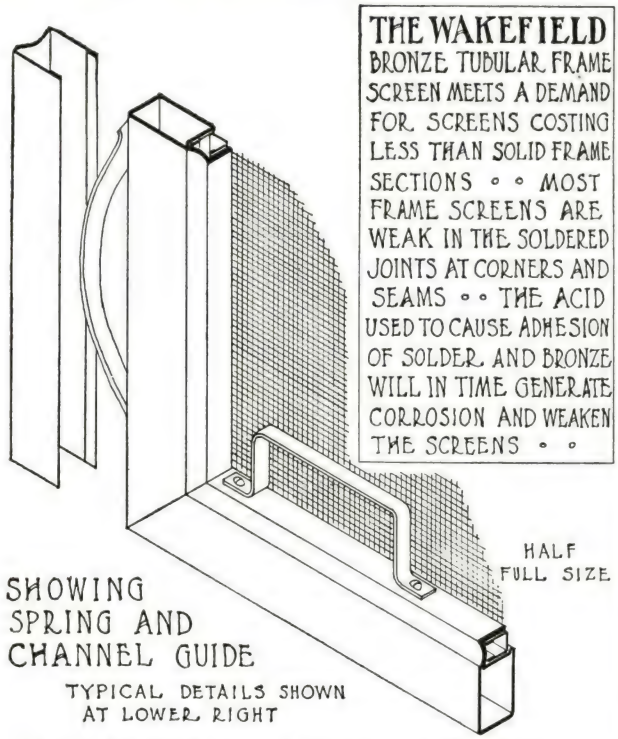

WINDOW HEAD SECTION
TAPPED AND SCREWED TO TRANSOM BAR.
GUIDE
SCREEN
TRANSOM BAR SECTION
ROLLER BEARING TRACK.
WINDOW SILL SECTION.
INTERIOR ELEVATION
THE WAKEFIELD SCREEN DETAILED HERE IS A NATURAL DEVELOPMENT OF THE ORIGINAL TEMPERED ALUMINUM ALLOY SHAPE AND IS DESIGNED TO CARE FOR THE NEED OF INCREASED FRAME SIZE FOR LARGE OPENINGS . . . . . THIS TYPE ESPECIALLY ADAPTS ITSELF TO THE SCREENING OF CASEMENT WINDOWS AS WITH THE BUILT-IN FEATURES OF ROLLER BEARINGS AND SMOOTHNESS THROUGH THE EXTRUSION PROCESS ITS OPERATION AS A HORIZONTAL SLIDING SCREEN LEAVES NOTHING TO BE DESIRED . . MADE OF TEMPERED ALUMINUM ALLOY AND 16 MESH COPPER BRONZE WOVEN WIRE . . . . . .
CASEMENT
SCREENS
JAMB SECTION.
MULLION SECTION
JAMB SECTION
PLATE
GUIDE
TOP GUIDE
SCREEN
SPLINE
ROLLER BEARING
TRACK
BOTTOM TRACK
WELDED CORNER
CORNER
SCREEN DETAILS · ACTUAL SIZE
DETAIL NO. 6. JANUARY 1929.
HORIZONTAL SLIDING SCREENS FOR LARGE OUT-SWINGING CASEMENTS
. . MORRISON · SKINNER · COMPANY — WAKEFIELD, MASS. . .
WAKEFIELD
ALUMINUM SCREENS



THE TUBE AT THE LEFT IS MADE INTO THE SHAPE AT THE RIGHT FORMING A JOINTLESS SECTION WHICH GIVES EXTREME RIGIDITY



THE WAKEFIELD BRONZE TUBULAR FRAME SCREEN MEETS A DEMAND FOR SCREENS COSTING LESS THAN SOLID FRAME SECTIONS ◦◦ MOST FRAME SCREENS ARE WEAK IN THE SOLDERED JOINTS AT CORNERS AND SEAMS ◦◦ THE ACID USED TO CAUSE ADHESION OF SOLDER AND BRONZE WILL IN TIME GENERATE CORROSION AND WEAKEN THE SCREENS ◦◦



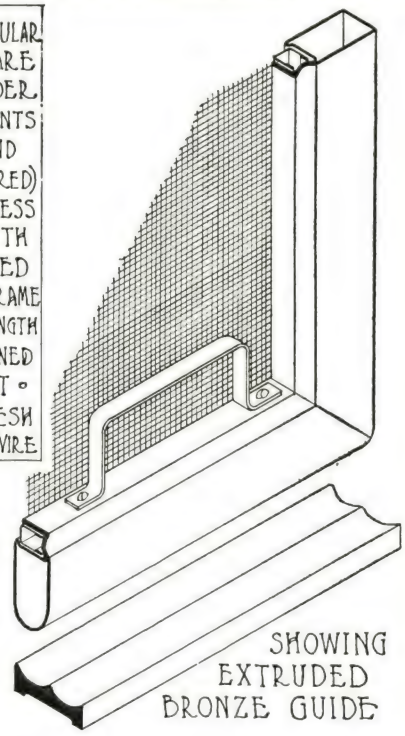
HALF FULL SIZE

SHOWING SPRING AND CHANNEL GUIDE

TYPICAL DETAILS SHOWN AT LOWER RIGHT

◦◦HALF◦VERTICAL◦ SLIDING ◦ SCREEN◦◦

WAKEFIELD TUBULAR FRAME SCREENS ARE MADE WITHOUT SOLDER ◦ THE CORNER JOINTS ARE REINFORCED AND BRAZED (NOT SOLDERED) ◦ THE NEW JOINTLESS FRAME SECTION WITH BRAZED REINFORCED CORNERS GIVES A FRAME OF EXCEPTIONAL STRENGTH AND RIGIDITY COMBINED WITH LIGHT WEIGHT ◦ SCREENED WITH 16 MESH COPPER BRONZE WOVEN WIRE

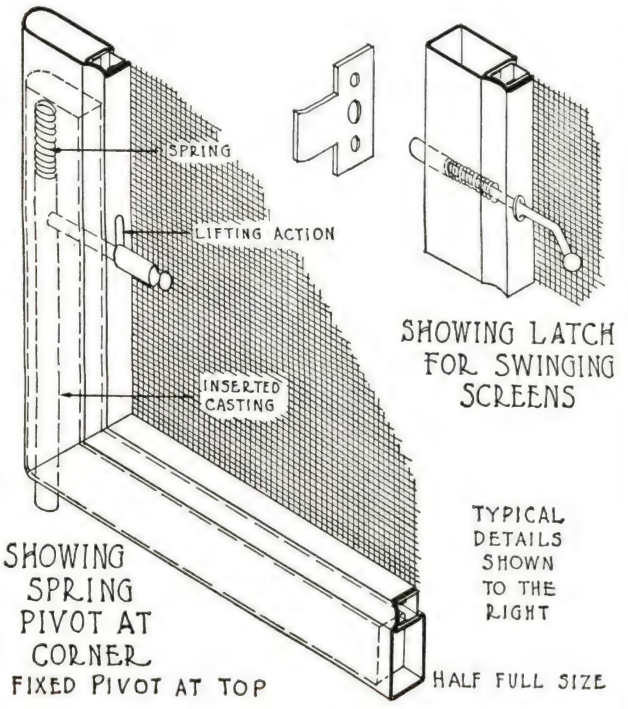


TYPICAL DETAILS SHOWN BELOW

HALF FULL SIZE

SHOWING EXTRUDED BRONZE GUIDE

◦◦MULTIPLE◦HORIZONTAL◦SLIDING◦SCREEN◦



SHOWING SPRING PIVOT AT CORNER

FIXED PIVOT AT TOP

SHOWING LATCH FOR SWINGING SCREENS

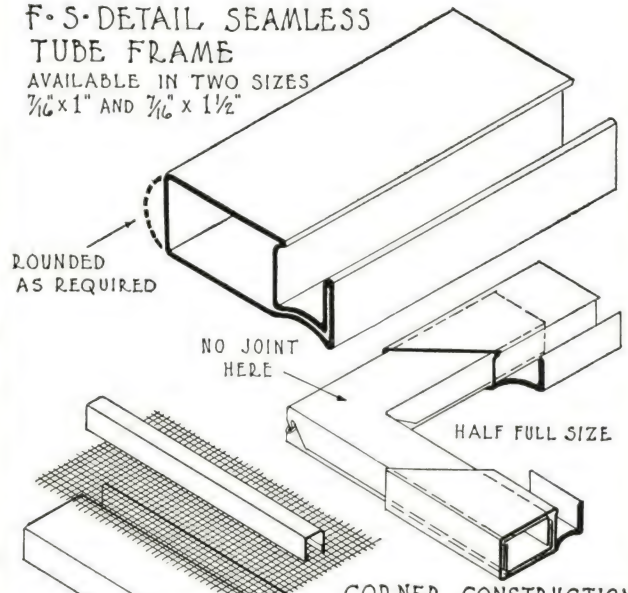
TYPICAL DETAILS SHOWN TO THE RIGHT

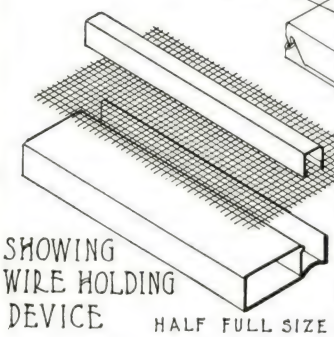
HALF FULL SIZE

◦◦SWINGING ◦ SCREEN◦◦

F◦S◦DETAIL SEAMLESS TUBE FRAME

AVAILABLE IN TWO SIZES 7/16" x 1" AND 7/16" x 1½"





SHOWING WIRE HOLDING DEVICE

HALF FULL SIZE

CORNER CONSTRUCTION SHOWING REINFORCEMENT GIVING EXCEPTIONAL STRENGTH AND RIGIDITY

◦◦TYPICAL◦DETAILS◦◦

◦DETAIL◦NO◦8◦ ◦JULY◦1931◦

◦SLIDING◦AND◦SWINGING◦TUBULAR◦BRONZE◦FRAME◦SCREENS◦ ◦◦MORRISON◦SKINNER◦COMPANY◦◦ WAKEFIELD◦MASS◦◦

WAKEFIELD ◦BRONZE◦SCREENS◦

"WAKEFIELD" SCREEN DEALERS AND MORRISON-SKINNER REPRESENTATIVES

The following representatives are prepared to estimate and carry to successful completion any screening problem that may arise. Our policy is to secure competent representatives—ability not numbers.

Home Office and Plant

WAKEFIELD, MASS.
Telephone Crystal 0161

Sales Manager

NEW YORK, N. Y.—Edwin A. Fox, 243 East 35th Street
Telephone, Caledonia 2588

Alabama

BIRMINGHAM—J. M. DeFoor, 218 Exchange Building
Telephone, Birmingham 3-7874

Connecticut

BRIDGEPORT—Allen Brothers, 239 Fairfield Avenue
Telephone, Bridgeport 4-5197

HARTFORD—Frank J. Davis, 30 Shultas Place
Telephone, Hartford 6-3038

NEW LONDON—John W. Moon, 154 Gardner Avenue

WESTPORT—John J. Walton & Son, P. O. Box 206
Telephone, Westport 229

Delaware

WILMINGTON—Fireproof Specialties Company, 214 W. 9th Street
Telephone, Wilmington 3-1523

Georgia

ATLANTA—R. M. Gallaway & Son Company, 1177 W. Peachtree Street, N. E.
Telephone, Hemlock 0047

Iowa

DES MOINES—H. A. Elliott, 212 Fourth Street
Telephone, Des Moines 3-9712

Kansas

HUTCHINSON—J. H. Esaw, 804 No. Monroe Street
Telephone, Hutchinson 3006

Kentucky

LOUISVILLE—J. A. Magruder, 1422 Christy Avenue
Telephone, Ashland 5044-4840

Louisiana

NEW ORLEANS—H. P. Agnew, 318 Carondelet Street

Maine

PORTLAND—Accurate Metal Weather Strip Co., 79 Codman Street
Telephone, Forest 5599

Maryland

CUMBERLAND—E. W. Armstrong Company, Commercial Savings Bank Building
Telephone, Cumberland 3326-W

Massachusetts

BOSTON—Morrison-Skinner Company, New Salem Street, Wakefield
Telephone, Crystal 0161

FAIRHAVEN—Cushing Weatherstrip Company, 54 Cottage Street
Telephone, Clifford 7757

PITTSFIELD—Pittsfield Screen Company, 342 Elm Street
Telephone, Pittsfield 2-4533

SPRINGFIELD—Fox & Cushing, 33 Lyman Street
Telephone, Springfield 4-0226

Michigan

DETROIT—The John Johnson Company, 4607 Woodward Avenue
Telephone, Columbia 3900

GRAND RAPIDS—American Metal Weather Strip Company, 144 No. Division Avenue
Telephone, Grand Rapids 41-916

New Hampshire and Vermont

NASHUA—New England Metal Weatherstrip Company, 174 Main Street
Telephone, Nashua 2214

New Jersey

NEWARK—Nelson H. Peppler, Military Park Building
Telephone, Mulberry 4-0125

TRENTON—Dockter Brothers, Liberty at Chambers Street
Telephone, Trenton 2-1015

New York

NEW YORK, N. Y.—Edwin A. Fox, Sales Manager, 243 E. 35th Street
Telephone, Caledonia 2588

ALBANY—H. A. Sheridan, 228 Bradley Street, Schenectady
Telephone, Schenectady 2-9750

NEW YORK, N. Y.—Anchor Weather Strip Company, Inc., 243 E. 35th Street
Telephone, Caledonia 2588

PEEKSKILL—Weschester Metal Weather Strip Company, 1136 Cortlandt Street
Telephone, Peekskill 232

POUGHKEEPSIE—Cusprinie Metal Weather Strip Company, 5 Lown Court
Telephone, Poughkeepsie 1696

SCHENECTADY—H. A. Sheridan, 228 Bradley Street
Telephone, Schenectady 2-9750

SYRACUSE—Charles E. Bamberg, 116 So. Salina Street
Telephone, Syracuse 2-1505

WATERTOWN—John T. Walsh, 103 So. Hamilton Street
Telephone, Watertown 1277-R

WHITE PLAINS—W. E. Dearing, 171 E. Post Road
Telephone, White Plains 6928

YONKERS—John D. Cunning, 217 Riverdale Avenue
Telephone, Yonkers 3655-8465

North Carolina

WILSON—J. L. Lawshe, Davis Building
Telephone, Wilson 632

WINSTON-SALEM—J. E. Van Horn, Walkertown Road

Ohio

CLEVELAND—Dan B. LeFever, 656 Erie Building
Telephone, Main 7761

Pennsylvania

HARRISBURG—Standard Metal Weatherstrip Company of Pennsylvania, 1337 Derry Street
Telephone, Harrisburg 3-0505

HAZLETON—Home Improvement Sales Company, 704 Markle Bank Building
Telephone, Hazleton 1089-R

HERSHEY—Standard Metal Weatherstrip Company of Pennsylvania, 224 Java Avenue
Telephone, Hershey 311

LANCASTER—Theo. F. Powl, 426 E. King Street
Telephone, Lancaster 2-3400

PHILADELPHIA—Tull & Torchio, 730 No. Harmony Street

PITTSBURGH—J. S. Guy, 1835 Westmont Street, Mt. Oliver P. O.
Telephone, Carrick 1913

South Carolina

GREENVILLE—N. A. Shouse, 329 Jones Avenue

Tennessee

MEMPHIS—W. R. Foxworthy, 2006 Madison Avenue
Telephone, Memphis 7-3287

NASHVILLE—M. T. Greenway, 613 No. Third Street
Telephone, Nashville 3-3430R

Vermont—See New Hampshire

Virginia

DANVILLE—J. W. Squire, 246 Jefferson Avenue
Telephone, Danville 536

RICHMOND—J. H. Holt & Son, 205 Builders Exchange Building
Telephone, Dial 22087

Should you find it difficult to reach any of our representatives, wire us at our expense—our organization is built on service.

ORANGE SCREEN COMPANY

Wood and Metal Frame Insect Screens

MAPLEWOOD, N. J.

Orange
EXTRUDED
ALUMINUM SCREENS



Fig. 1. Wire Locking Detail

Orange Extruded Aluminum Frame Screens are manufactured and sold on a guarantee basis by the ORANGE SCREEN COMPANY, for over twenty-two years one of the progressive leaders in the manufacture and installation of complete screen equipment.

These one-piece aluminum screens combine beauty, light weight and permanence. There are no unsightly ridges or corner braces to mar the graceful simplicity of the frame. It is as sturdy as steel or bronze with about one-third the weight, and the cost is no more than other metal screens of less substantial construction.

Details of Construction

These screens are made of extruded bars of aluminum, a special alloy developed for our use by the Aluminum Company of America, and is one of the strongest non-ferrous metals made. The screens have successfully met the most severe tests imposed and have been accepted for installation in projects demanding perfect manufacture and unusual performance. The aluminum positively will not rust, corrode or oxidize.

Frame Members—The frames are fabricated from special extruded aluminum sections as illustrated herewith. Each section is formed by extrusion and not rolled from sheet metal.

Corners—All corners are mitered, firmly welded to shape and finished perfectly smooth, to form a solid seamless frame of remarkable resistance and rigidity. Welded corners are more effective and far stronger than riveting or reinforcing at the corners.

Wiring—16-mesh dark aluminum wire screen cloth is generally supplied as standard. However any mesh or gauge may be had if specified. The aluminum wire positively prevents staining of adjacent trim as it will not rust or oxidize. The screens are easily rewired by the removal of the aluminum locking strip from the screen channel.

Finishes—They can be lacquered in a limitless range of colors to harmonize with any color scheme or they may be had in the natural platinum-like finish which gives a handsome effect and harmonizes well with any adjoining material.

Hardware — All Orange Extruded Aluminum Screens are fitted and furnished with solid aluminum hardware of such design as to insure faultless operation and installation.

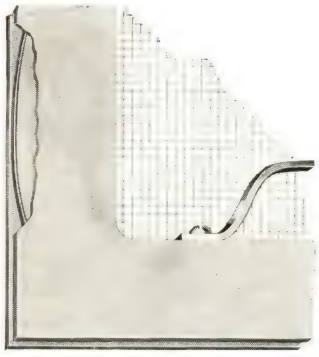


Fig. 2. Cut-away Showing Compression Spring

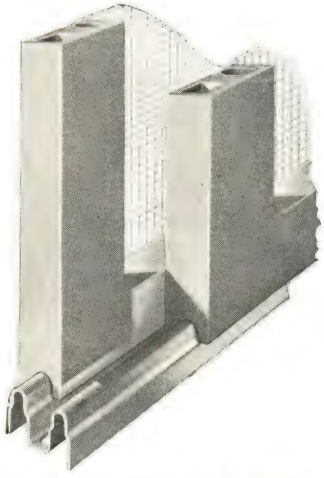


Fig. 3. Metal Track for Double Sliding Screens

Estimating Service

We invite inquiry from owners, architects and builders. We will gladly have our nearest representative give an estimate of cost from plans or actual building.

"Details and Data for Screen Installations"

There are twenty-one plates contained in our A.I.A. catalogue "Details and Data for Screen Installations." The plates and text matter cover most of the screening problems encountered in residential and commercial work. They are for the use of architects and are furnished on application without charge or obligation.



Fig. 4. Movable Pivot Detail

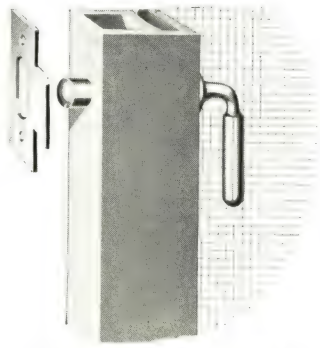


Fig. 5. Spring Bolt Detail

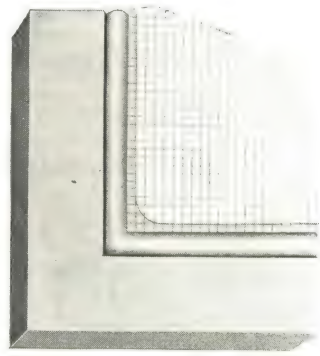


Fig. 6. Welded Corner Detail

Suggestions for Architects' Specifications

Scope of Work—Furnish window and door screens for all openings as called for in these specifications or shown on the drawings. Frames shall be of the rewireable type, constructed of extruded aluminum bars, manufactured by ORANGE SCREEN COMPANY, Maplewood, N. J.

Aluminum Alloy—Frames for window and door screens shall be made of Extruded Aluminum Alloy, No. 51 SW, having a tensile strength of 30,000 to 40,000 lbs. per sq. in.

Assembly—All corners shall be welded, eliminating all riveted joints or corner reinforcements. Exterior welded surface shall be finished perfectly smooth. Wirecloth shall be held in place with an aluminum moulding keyed into the channel. Hardware shall be of solid aluminum, built-in and operating within the frame, no surface hardware permitted.

Frame Members—

(1) Frames for screens not exceeding a width or height of 72 in. or not exceeding 13 sq. ft. in area shall be $\frac{7}{16}$x$\frac{5}{8}$ in., walls of which shall be $\frac{1}{16}$ in. in thickness. (Architect to omit either paragraph 1 or 2.)

(2) Frames for window screens 72 in. and less in height and not exceeding 24 sq. ft. shall be $\frac{7}{16}$x1 in., outer walls of which shall be $\frac{1}{16}$ in. and center wall $\frac{5}{32}$ in. (Architect to omit either paragraph 1 or 2.)

(3) Frames for window screens over 72 in. in height and exceeding 24 sq. ft. shall be $\frac{7}{16}$x1½ in., outer walls of which shall be $\frac{1}{16}$ in. and the center wall $\frac{5}{32}$ in.

(4) Frames for porch sections and French casement windows shall be not less than $\frac{7}{16}$x1½ in., center walls ¼ in. thick and outer walls $\frac{7}{16}$ in. thick.

(5) Frames for entrance door screens shall be ⅝x2 in., outer walls of which shall be $\frac{3}{32}$ in. and center walls ¼ in. Bottom rails shall be 6 in. wide.



Fig. A

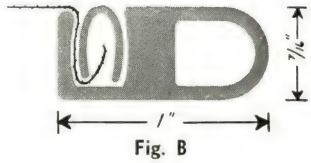


Fig. B



Fig. C

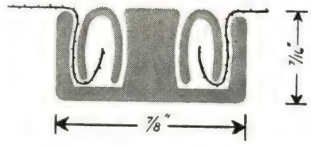


Fig. D

Detailed Specifications

Detailed specifications available on request for the following types of sash: Casements, Double Hung, Pivoted, Projected, Detention, Office Type, Austral, Basement, Doors, Porches.

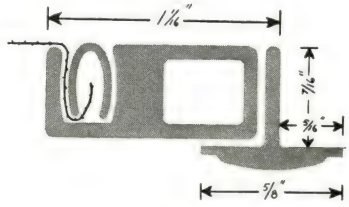


Fig. E

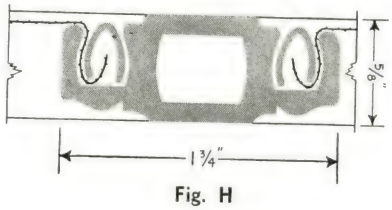


Fig. H

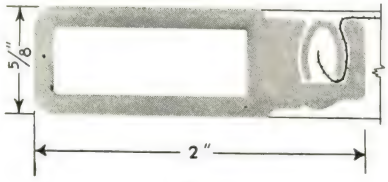
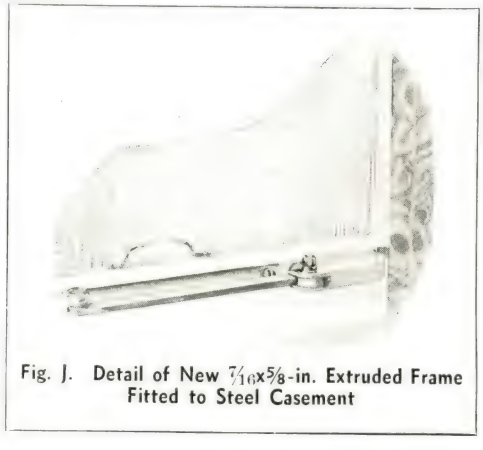


Fig. I


Fig. J. Detail of New 7/16x5/8-in. Extruded Frame Fitted to Steel Casement

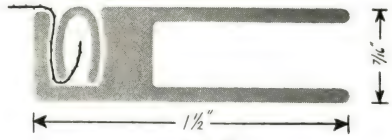


Fig. F

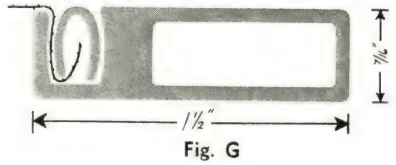


Fig. G

The New ⅝-in. Screen

The New ⅝-in. Screen is unbelievably strong, compact and light. Its frame is so slender that it does not cover the glass opening, yet it is so rigid and stout that it can withstand abuse far beyond that to which any screen is normally subjected. Many of the larger casement manufacturers are now in a position to supply this new ⅝-in. extruded aluminum screen with the casement units as standard equipment, at no additional cost over steel.



ROLLING SCREENS, INC.

MANUFACTURERS OF

MacCormack Rolling Window Screens and Anaconda Bronze Fly Screens

EXECUTIVE OFFICE AND FACTORY

Jay and Nassau Streets (at Manhattan Bridge Plaza)

BROOKLYN, N. Y.

Product

MacCormack Rolling Window Screens.

Also Anaconda Bronze Fly Screens, all types, for windows, doors, porches and special conditions.

MacCormack Rolling Window Screens

MacCormack Rolling Window Screens are manufactured from 24-gauge terne plate metal, thoroughly baked inside and outside with Hilo enamel, the final finish matching the window trim.

Pure bronze wire screen cloth 18-mesh, specially drawn, evenly woven, with strong selvage edges and great tensile strength, makes MacCormack Rolling Screens strong and durable.

Quality

In rolling window screens you will find a wide range of quality in materials and workmanship as well as experience and responsibility of manufacture.

If you are in doubt, insist on a demonstration of the actual screen itself. We are always ready and willing to install a sample MacCormack Rolling Window Screen in your client's house without obligation.

Installation and Service

MacCormack Rolling Window Screens are readily installed for either casement or double hung windows.

While these details show our screen exposed, the smallness of the case permits the complete concealment of our entire frame without weakening the window frame construction.

Our screens are completely assembled at the factory, with the baked enamel finish applied, so that the time required for installation on the average sized job rarely exceeds one or two days.

Having our factory and main office centrally located in the heart of New York City enables us to give very quick service and prompt delivery by our own trucks within a radius of one hundred miles.

During the past nineteen years we have made thousands of installations in exclusive residences from coast to coast, and each of these has come to us either through architects' specifications or present users' recommendations. We always prefer to work with and through the architect because, as a rule, he shows appreciation of quality and service.

Complete drawings, ready for filing in your A.I.A. file, under section 35-P-1, showing various methods of installing MacCormack Rolling Window Screens in various types of windows, will be sent upon request.

Explanation of Drawings

Drawing No. 1 shows casement window opening out, with rolling screen inside on flat jamb.

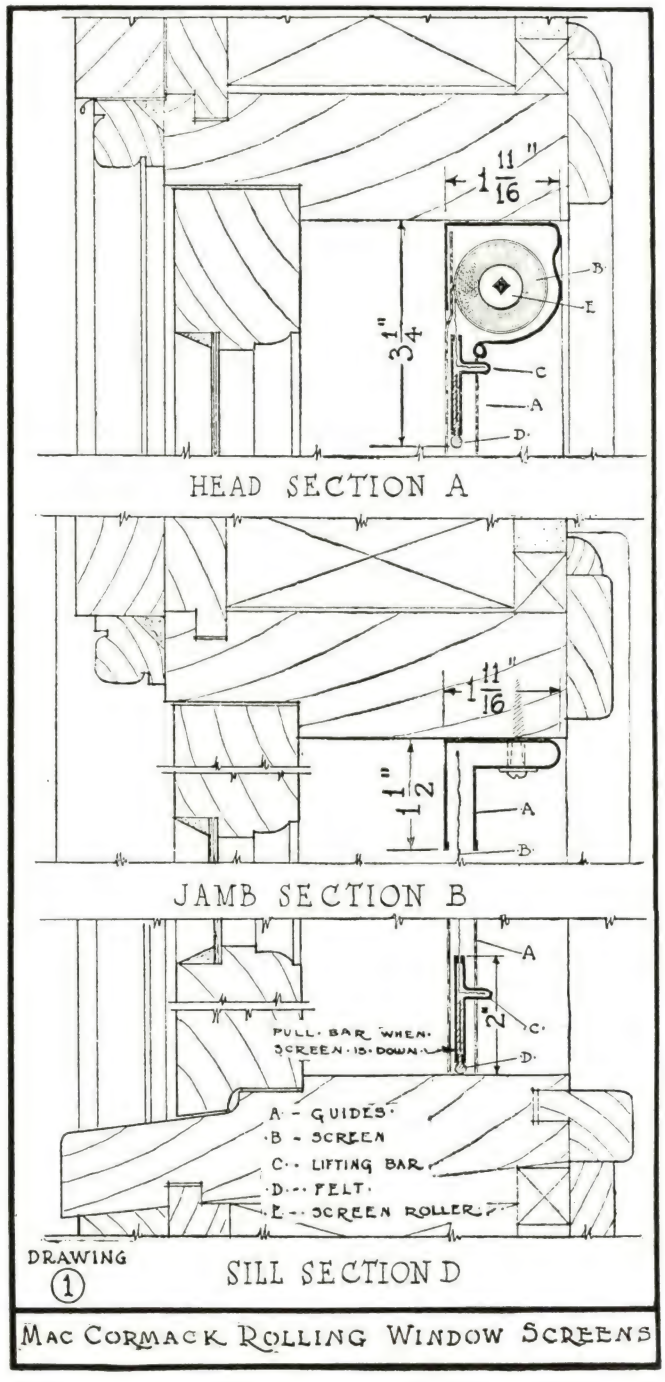
Drawing No. 2 is the same as No. 1 but with rolling screen in rabbeted jamb.

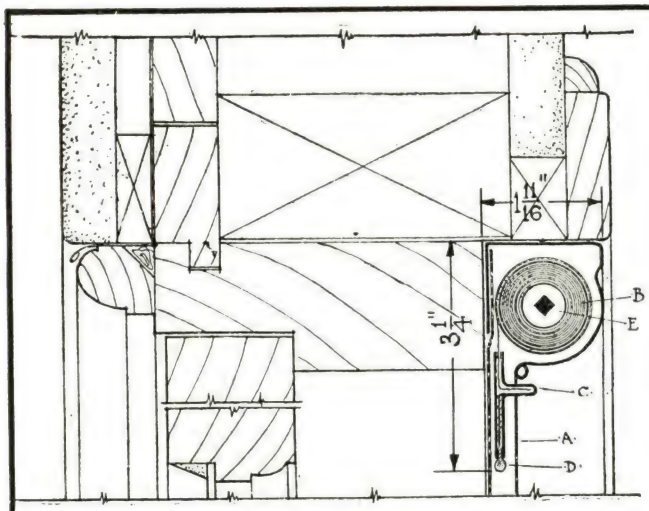
Drawing No. 3 shows a double hung window with rolling screens top and bottom—the top screen to cover the upper sash and the bottom screen to cover the lower sash. One rolling screen can also be used to roll from the top all the way down, as shown on drawings Nos. 1 and 2.

Our rolling screens are made in one piece up to 5 ft. in width and 7 ft. in height, without changing the frame dimensions, but we do not advise of a single rolling screen having an area of more than 20 sq. ft.

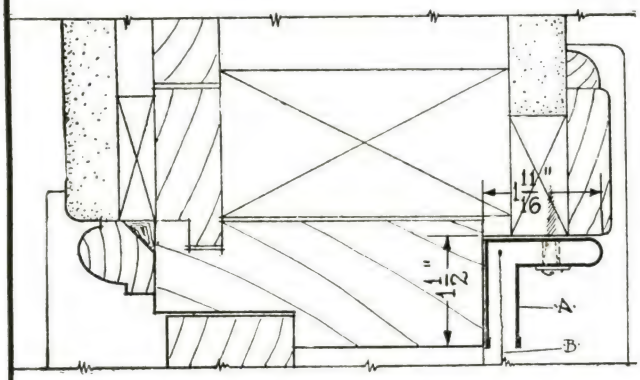
Permanent Exhibit

A permanent exhibit of our rolling window screen is located in the Architects' Samples Exhibit, Architects' Building, 101 Park Avenue, New York, N. Y.

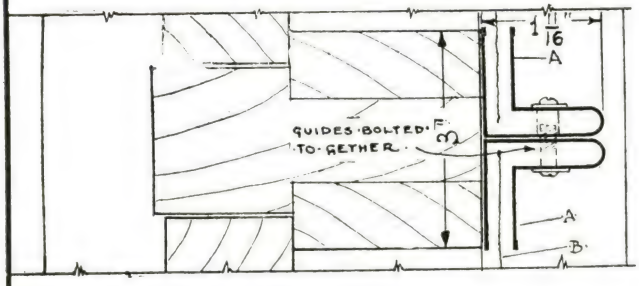




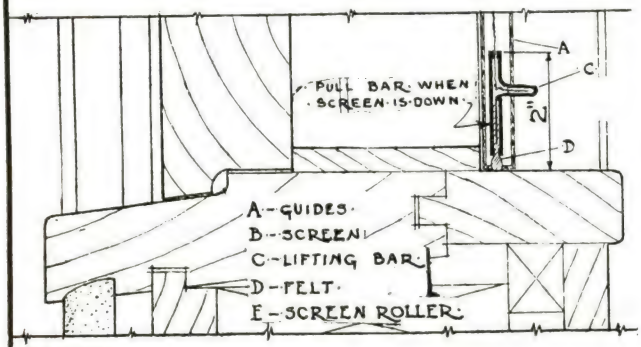
HEAD SECTION A



JAMB SECTION B

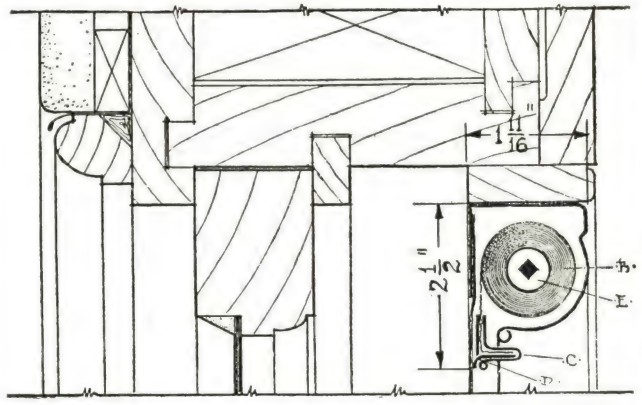


MULLION SECTION C

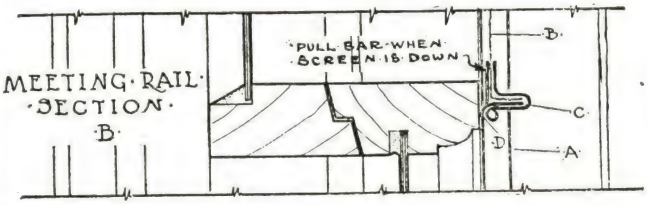


DRAWING ②

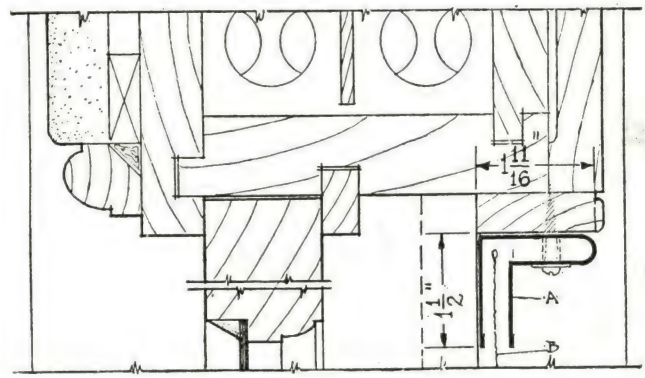
SILL SECTION D



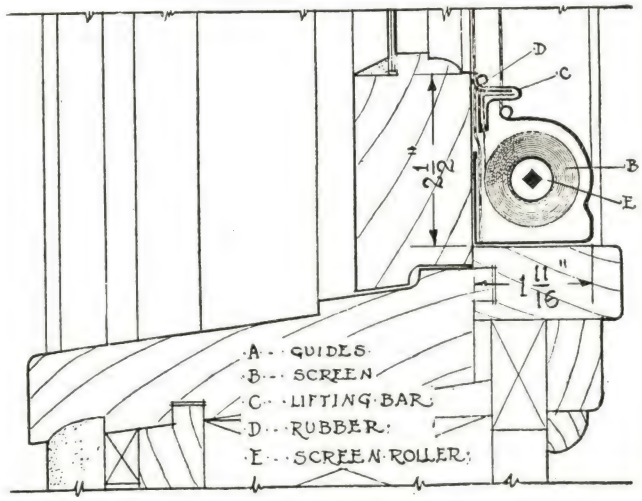
HEAD SECTION A



MEETING RAIL SECTION B



JAMB SECTION C



DRAWING ③

SILL SECTION D

MAC CORMACK ROLLING WINDOW · SCREENS

ZERO WEATHER STRIPPING CO., INC.

Manufacturers and Installers of Insect Screens and Metal Weatherstrips

1395-1397 Sedgwick Avenue
NEW YORK, N. Y.

Products

WOOD FRAME WINDOW SCREENS, DOOR SCREENS and PORCH PANELS.
METAL FRAME SCREENS.
UNIVERSAL ROLLER SCREENS.
MONARCH METAL WEATHERSTRIPS.

Foreword

Zero Screens are skillfully and carefully made. Each opening is considered and treated as an individual installation to provide the correct screen in keeping with the architectural attractiveness of the building. Special attention is given to finishes and color of screens.

Services and Estimates

Consultation and suggestions regarding standard or special installations will be furnished upon request. Estimates supplied without obligation.

Factory is located in New York City, assuring quick service for Metropolitan area.



Zero Screen Door Installation

Zero Screens

Construction — Zero screen frames are made of selected clear white pine thoroughly kiln dried. The 16-mesh bronze netting is rolled into a groove and held there by spline and countersunk moulding. All joints are mortised and tenoned, glued with waterproof glue, reinforced with special rivet. This type of joint is among the most desirable.

Finish — Painted frames receive 3 coats of pure linseed oil paint. Stained frames receive 1 coat of filler and 2 coats of varnish.

Window Screens

Double Hung Windows—These may be equipped with screens to cover whole opening and secured with metal hanger at top and hook and eye at bottom.

Half sliding screens used to cover lower or upper sash, sliding vertically on wooden tracks on blind stop. It is advisable to use this type where shutters are to be used.

Casement Windows—Casement Screens are made to meet the particular conditions in rooms. On single or double openings, screens are hinged on sides and fastened with casement fasteners. For larger openings, horizontal sliding screens are applied.

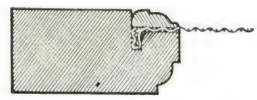
Door Screens and Porch Panels

Zero Screen Doors are designed to blend with the architecture of the house. Width of stiles, type and position of vertical and horizontal rails, design of head, etc., are carefully considered. We recommend and furnish when specified, ornamental grilles to protect lower panels of door screens.

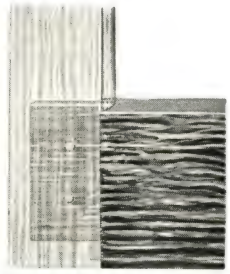
We also design porch screens to meet all conditions and with fastening arrangement for ease in installing or removing. Details upon request.



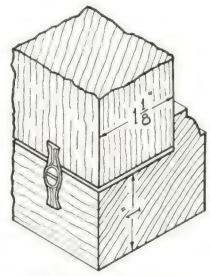
Half-size of Door Rail
Showing Wire Held with Spline and Raised Moulding



Half-size of Window Screen Rail
Showing Wire Held with Spline and Countersunk Moulding



Mortise and Tenon Joint



Special Fastening Arrangement for Porch Enclosure

Details of Zero Screen Construction

Roller Screens

We sell and install Universal roller screens. They are most durable and are unconditonally guaranteed as to material and workmanship.

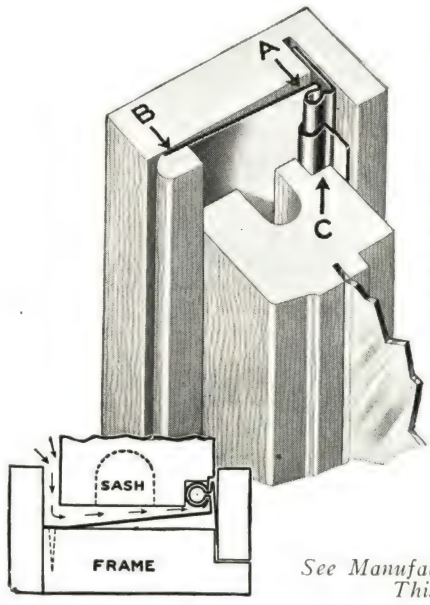
Metal Frame Screens

We are equipped to install bronze or steel, tubular framed screens. Easily rewireable. Strongly constructed.

Metal Weatherstrips

The ZERO WEATHER STRIPPING CO., INC., certified dealer of the Monarch Metal Weatherstrip Corp., acquired the Monarch because it is guaranteed to *maintain its efficiency* for the life of the building. This is because it is self-adjusting, everlastingly sealing the crack regardless of window shrinkage or swelling.

MONARCH
METAL WEATHERSTRIP
Controls the Air



Operation—One tube "A" on a floating seam, which is fastened at "B" on the frame, slides in a tube "C" which is fastened to the sash.

This exclusive patented *two-member—self-adjusting* principle adjusts the floating seam to keep crank closed when wood shrinks or swells.

See Manufacturer's Details in This Volume

ROLSCREENS

the

STANDARD OF COMPARISON

in

Modern Window Screens



ROLSCREEN COMPANY

PELLA *IOWA*

CABLE ADDRESS "ROLSCREEN"

NEW YORK
PITTSBURGH
DETROIT
SYRACUSE
DES MOINES

PHILADELPHIA
BALTIMORE
CLEVELAND
ROCHESTER
MILWAUKEE
SAN FRANCISCO

BOSTON
WASHINGTON
CINCINNATI
GRAND RAPIDS
OKLAHOMA CITY
LOS ANGELES

CHICAGO
HARTFORD
ATLANTA
INDIANAPOLIS
KANSAS CITY

Dealers Everywhere—Distributors in All Principal Foreign Countries

Rolscreens
TRADE MARK

ROLSCREEN COMPANY, PELLA, IOWA

The activities of the Rolscreen Company are concentrated on the work of assisting architects and builders in screening windows efficiently and conveniently without in any way detracting from exterior or interior window beauty. Too often has the appearance of beautiful windows been ruined by careless screening. To fulfill this policy it offers "Rolscreens," a product of proven excellence, engineered to meet the most exacting requirements for all types of windows, casements, double hung, institutional—whether wood or steel. Hundreds of special detailing suggestions are available. Rolscreens are sold with a ten-year guarantee and with a pledge of sincerity that each Rolscreen user must be satisfied.

COLONIAL WINDOWS » » » « « « SCREENS BY ROLSCREEN

Rolscreens are as necessary with Colonial windows as they are with casements. How engaging is the beauty of the clear, sparkling glass and the clearly defined muntins! These would be completely blotted out by old-fashioned outside screens.

Rolscreened Home of Leslie I. Nichols, Architect, Larchmont, N.Y.



The Old Way



ROLSCREENS WERE NECESSARY

The fine Early American home shown above was designed and built by Leslie I. Nichols, Architect, for his own use, and was completely Rolscreen equipped. Mr. Nichols makes an interesting comment. He says:

"The old type wooden screens set on the outside of the window entirely conceals the window, hiding the beauty of the paneled divisions. Wooden screens set on the outside couldn't be used for this house. Therefore, the screens must be set inside. Could a wooden screen be used satisfactorily inside? It is a known fact that it can't. The answer was a rolling type screen. The beauty of the windows, both inside and out, has been preserved in the only way possible consistent with the most improved method of screening. This house is just as charming and lovely as its prototype."

THE THREE STANDARDS OF ROLSCREEN COMPARISON

ONE—Compare Rolscreen Convenience and Maintenance Cost

1—No annual dragging out of dirty screens and matching them to windows.

2—No annual taking down and storing.

3—No annual expense of painting and repairing.

4—No storage space required.

5—Never taken down too soon or put up too late.

6—Screens do not have to be taken down when windows are washed.

7—Window washing is reduced 50% because rain does not beat dirt onto window panes as with outside screens.



8—Awnings can be used.

9—Offer easy access to flower boxes.

10—Make easy the housewife's task in cleaning, in shaking out rugs and dust cloths.

11—Installed on the inside of the window they stay clean and last long.

12—Easy to reach and easy to operate.

13—Do not soil drapes as do outside frame screens when drapes blow against them.

14—Easily removed in case of unforseen accident.

15—No special window or screen hardware required.

16—Delicate drapes are not torn in operating or removing screens.

17—Do not interfere with the easy operation of the window. Special operators which exert wracking and distorting pressure on the lower part of the window are not needed.

TWO—Compare Rolscreen Effect Upon Window Appearance

1—Do not blot out inside or outside window beauty.

2—No heavy frames to obstruct the view and mar the appearance.

3—Do not blur or distort the vision through fine glass for when the window is closed the screen is raised.

4—A closed window with the Rolscreen raised admits 20% more light than the same window with a stationary screen that is always over the glass.

5—Beautiful window sills are not encumbered with screen tracks or grooves.

6—Do not mar the beautiful slender lines of the finest windows.

7—Do not detract from charming draping effects or interfere with any draping scheme.

8—The small exposed parts are decorated to harmonize with the adjoining window trim.

9—Do not conceal exterior effect of inviting drapings.

THREE—Compare Rolscreen Exclusive Mechanical Features

1—Rolscreen wire cloth is locked in at the sides as well as at the top and bottom. This feature prevents sagging and bagging and insures insect tight screens, even in widths as wide as 61 inches.

2—Enlarged ends of locking bar (friction blocks) fit snugly in guides at sides insuring even and easy flowing operation, and eliminating rack.

3—The floating roller moves forward as the screen is lowered eliminating dragging and wearing of the screen wire on the screen housing. The cloth always drops straight off the roller into the guides.

4—Slotted holes in flanges of the guides permit the screens to adjust themselves to expansion or contraction of woodwork and the screens never bind or stick.

5—The guides frictionally engage the ends of the Rolscreen cross-bar and control the action of the screen so it does not fly to the top. The screen is always within easy reach.

6—Rolscreens are practically indestructible. A blow that would tear the cloth in an ordinary frame screen merely disengages the Rolscreen cloth from the guides and is automatically re-entered by raising and again lowering the screen.

7—Rolscreen catch operates automatically. It is simple and positive.

8—Plaster Channels make possible the installation of Rolscreens directly in plaster jambs without the use of wood trim or screws to hold them in place, yet easily removable.

9—Friction Angles—A simple mounting for Rolscreens in existing windows. Require no fitting or cutting.

10—Rolscreen "AluminA" wire cloth is especially processed to make it rigid. Racking and sleaziness is eliminated—a very important feature in rolling screen construction.

11—Rolscreens are guaranteed to give ten years of satisfactory service.

ROLSCREEN CONSTRUCTION

The first considerations in the designing of Rolscreens have always been that they must be of rigid and durable construction, they must be simple to install and easy to operate. Mammoth presses, intricate rolling machines, and the most modern tool equipment have contributed their part to this, and at the same time they assure accuracy and precision in the manufacturing processes.

Rolscreen's Features Are Patented

Those features which have made Rolscreens practical and have led to their adoption and use by thousands of Owners, Builders and Architects each year, are exclusive and patented.

General Information

Rolscreens are built in standard sizes, to fit all openings from 11 to 61 in. wide and up to 120 in. high, and are carried in stock ready for immediate shipment. The metal parts are constructed of lead coated terne-plate, which offers a perfect bond for paint. The illustration shows the Rolscreen structure and method of installation. The same general idea is followed in both old and new construction.

Where openings are over 61 in. wide, mullions must be used. These can be of simple wood construction or metal mullions can be furnished as shown.

Rolscreen Features

The Rolscreen guides (1) grip lugs (2) fastened in the selvage of the screen wire and prevent its sagging and bagging. Slotted holes in the attaching flanges allow the guides to adjust themselves in case of swelling or shrinking of the woodwork. Blocks on the ends of the cross bar (8) are frictionally engaged in the guides. This frictional engagement prevents the cross bar tilting and regulates the action of the screen, preventing its flying to the top when released. When installing Rolscreens, the cross bar, as it is drawn through the guides, acts as a template and automatically adjusts the guides to the opening. Lips at the upper ends of the guides, co-acting with the housing, assure accurate installation. The guides are very inconspicuous—the only part exposed being a bead the size of a pencil. A specially designed groove along the jaws of the guides prevents paint entering and binding the screens when redecorating them.

Rolscreens Are Indestructible

Rolscreens are built to stand up under hard service. If the screen wire receives a blow hard enough to tear or bag the ordinary screen, the lugs (2) in the selvages of the cloth are released from the guides (1) without injuring the wire. Upon pushing the entire released edge to the outside and raising the screen, it will re-align itself by riding over the cut-away back side of the guide (3) and will be automatically re-entered and re-stretched when the screen is lowered.



The Housing

The Rolscreen housing is electrically welded and of very sturdy construction. Recessed ends (6) reinforce it and make it rigid. The standard housing is 2⅝ in. square. For openings less than 52 in. high, a 2⅛ in. housing may be used. For openings over 84 in. high, a 2⅞ in. housing must be used.

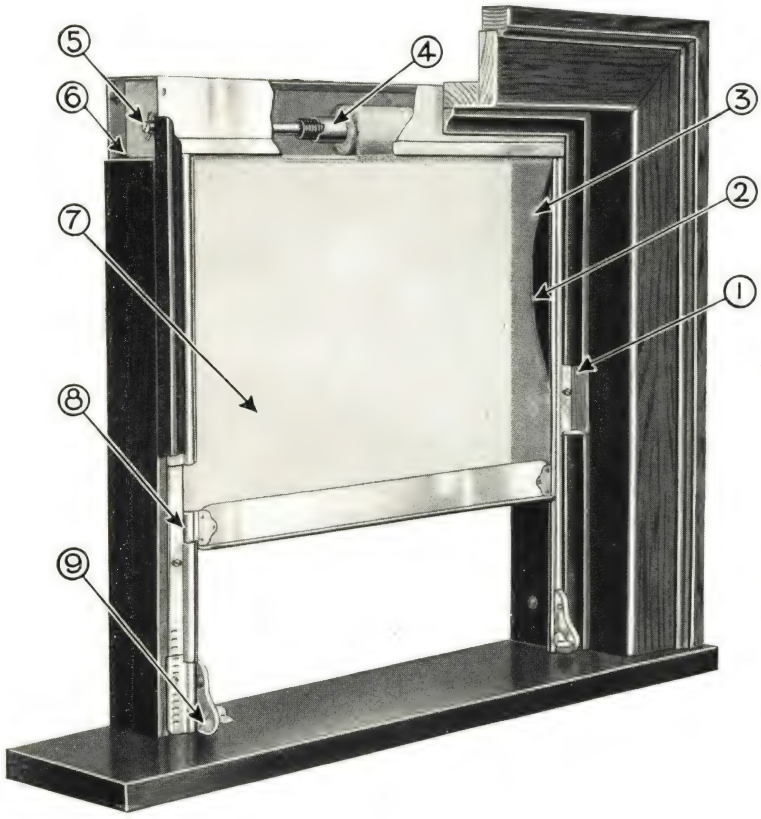
The Roller Assembly

The roller (4), onto which the screen wire is soldered, together with the spring inside, is built in the Rolscreen factory. The springs are coiled out of extra heavy oil-tempered wire on automatic machines. The entire assembly is very simple and durable and cannot give trouble.

The Floating Roller

A special feature of Rolscreens is the patented "floating" roller (5). As the screen lowers and the roll of screen cloth grows smaller, the entire roller assembly automatically moves forward. The screen wire cannot drag on the lower edge of the housing and cannot wear out.





Screen Cloth

The screen cloth (7) is double-lifed, rust-proofed, triple-selvaged AluminA, especially woven and processed for Rolscreens. It is a clean gray color and almost invisible. It has great tensile strength, it is rigid and is built up of materials that are guaranteed not to break or crack under continuous flexing. The mesh is perfect, sixteen strands to the inch. This is an ideal weave. It keeps out the smallest insects, yet allows maximum visibility and ventilation.

Latches

When lowered, Rolscreens are automatically locked on the window sill by positive latches (9) which are perfectly adjustable and can be unlocked only from the inside. No attachments to mar beautiful sills.

Rolscreen Features

1. Rolscreen Guide
2. Rolscreen Lug
3. Rolscreen Re-enter Feature
4. Rolscreen Roller Assembly
5. Rolscreen Floating Roller
6. Rolscreen Recessed End and Welded Construction
7. Rolscreen Invisible Cloth
8. Friction Block
9. Automatic Latch

ROLSCREEN MOUNTINGS

Plaster Channels

Special channels, which are embedded in the plaster, may be used. The Rolscreens are installed quickly without using any wood trim or screws to hold them in place. The removable filler cap set directly under the housing provides means for installing or removing the screen.

Friction Angles

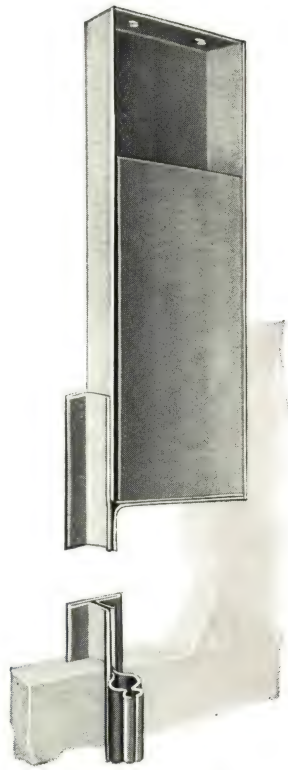
When screens are to be built into old work or are to be used with metal double hung windows, they can be mounted by means of the friction angles. These angles are attached to each jamb and support the screen box and frictionally hold the screen guides.

Reversed "U" Angles

Rolscreens may be mounted directly onto steel casements if desired and ventilating sections only screened by using Reversed "U" Angles as detailed on page 8.

Rolscreen Guarantee

Rolscreens are guaranteed against defects in workmanship or material for a ten-year period. A new screen will be furnished free of charge for any failing under this guarantee. This does not cover damage or abuse to the screen or any other condition beyond the control of the manufacturer.



Plaster Channel



Friction Angle

ROLSCREEN SPECIFICATIONS

(A) SCREENS

Screens shall be Rolscreens as manufactured by the Rolscreen Company, Pella, Iowa.

(B) WORK INCLUDED

Note:—List and locate either in schedules on plans or in specifications under this heading. If both double hung and casement windows are included list or schedule each under separate subheading.

(C) MATERIALS AND CONSTRUCTION

(C-1) Metal—Housing, guides and locking bar shall be constructed of heavy lead-coated terne plate.

(C-2) Wire Cloth—Screen wire shall be 16 mesh rust-proofed "AluminA" with triple selvage. The screen cloth shall have lugs spaced at regular intervals along the two edges which shall be engaged by the tubular guides.

(C-3) Metal Housing and Roller Assembly—The screen cloth shall be attached to a steel roller encasing a heavy, thoroughly lubricated, oil-tempered spring. The roller shall be contained in a metal housing 2⅝ in. square. (2⅞ in. if opening is over 84 in.) Roller mounting shall be of floating type which allows roller to automatically move forward as size of screen roll reduces, eliminating "drag" of screen wire on lower edge of roller housing.

(C-4) Guides—The jamb guides shall be so mounted that they are slidably adjustable when the screen is raised or lowered to compensate for any expansion or contraction in the window frame. The guides shall be provided with lips at their upper ends inserted into slots in the roller housing (to assure proper alignment) with the beaded portion cut away adjoining the housing to allow the screen wire to re-enter the housing when accidentally knocked out of the guides.

(C-5) Spring Catches—Spring catches shall be attached to the lower end of the guides carefully adjusted to automatically lock the cross bar of the screen close to the sill.

(D) WOOD JAMB STOPS

The wood stops, to which the screen guides are fastened and which support the roller housing, shall be furnished and installed with stop screws and washers by others ready for the screen installation.

Note:—Omit if plaster jamb channels or friction angles are included.

(E) PLASTER JAMB CHANNELS

Rolscreen guides and housing shall be mounted on plaster jambs in Rolscreen Plaster Channels set in position before plastering. Channels shall be set absolutely plumb and true on each jamb and accurately on some "full inch" dimension back to back.

Note:—Omit if wood jamb stops or friction angles are included.

(F) FRICTION ANGLES

Friction angles shall be mounted on the jambs or window as detailed and shall be set true and plumb. They shall receive and hold in position the Rolscreen housing and guides.

Note:—Omit if wood jamb stops or plaster channels are included.

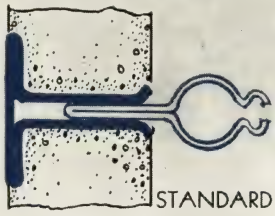
(G) INSTALLATION

Rolscreens shall be accurately installed in strict accordance with the manufacturer's erection instructions. Guides shall be so mounted that the beaded portions and outside edges of guides shall not be in contact with window jambs. Entire installation shall be made so screen operates freely and easily.

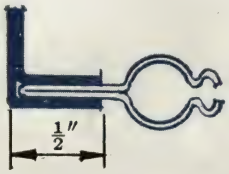
FULL SIZE SECTIONS

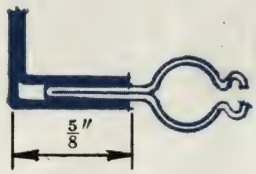
WIDTHS

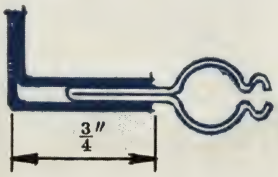


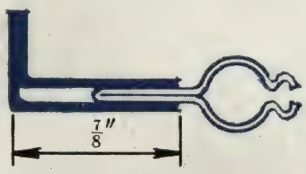


PLASTER CHANNEL





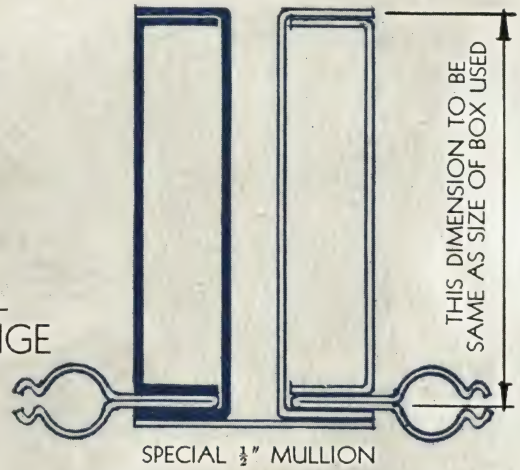




STANDARD
FRICTION ANGLES



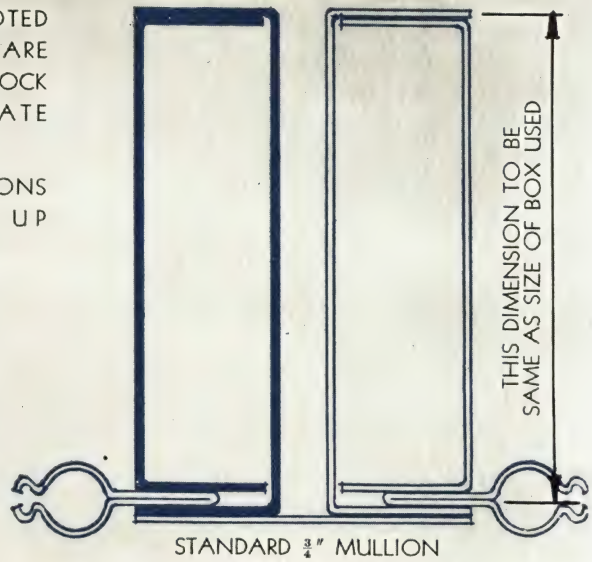
SPECIAL
WIDE FLANGE
GUIDE



SPECIAL ½" MULLION

SECTIONS NOTED "STANDARD" ARE CARRIED IN STOCK FOR IMMEDIATE SHIPMENT.

SPECIAL SECTIONS ARE MADE UP PROMPTLY.



STANDARD ¾" MULLION

MULLION

FULL SIZE SECTIONS

DETAILING INFORMATION

Widths—

Rolscreens are built in standard stock sizes in each "given" full inch width from 11″ wide to 61″ wide. This full inch width is arrived at by using stops ¾″ thick. The standard stock sizes can be adjusted to all fractional inch openings by increasing or decreasing the thickness of these stops. (Refer to size control on opposite page.)

Heights—

Heights are taken from the top of the Rolscreen housing to what will be the top of the finished sill.

For openings not over 84″ high,—
The standard 2⅝″ housing is recommended.

For openings over 84″ high,—
The special 2⅞″ housing **must** be used.

For openings not over 52″ high,—
The special 2⅛″ housing **may** be used.

For openings not over 36″ high,—
The special 1⅞″ housing **may** be used.

Note:—Due to limitation of spring length, screens from 14″ wide to 18″ wide cannot be furnished over 75″ high. Widths from 11″ to 13″ cannot be over 52″ high.

Plaster Channels—

Plaster Channels are used in openings where only plaster and no wood trim is desired. They **must** be set and plumbed to a Rolscreen "full-inch" dimension. They will serve as grounds for plaster.

Friction Angles—

Friction Angles are used in new or old construction and also in metal jamb windows. They are attached directly to the face of the jambs. They are made in varying depths as shown, so as to adapt Rolscreens of standard size to fractional inch widths. In ordering give exact opening width and proper sizes of angles will be furnished.

Metal Mullions—

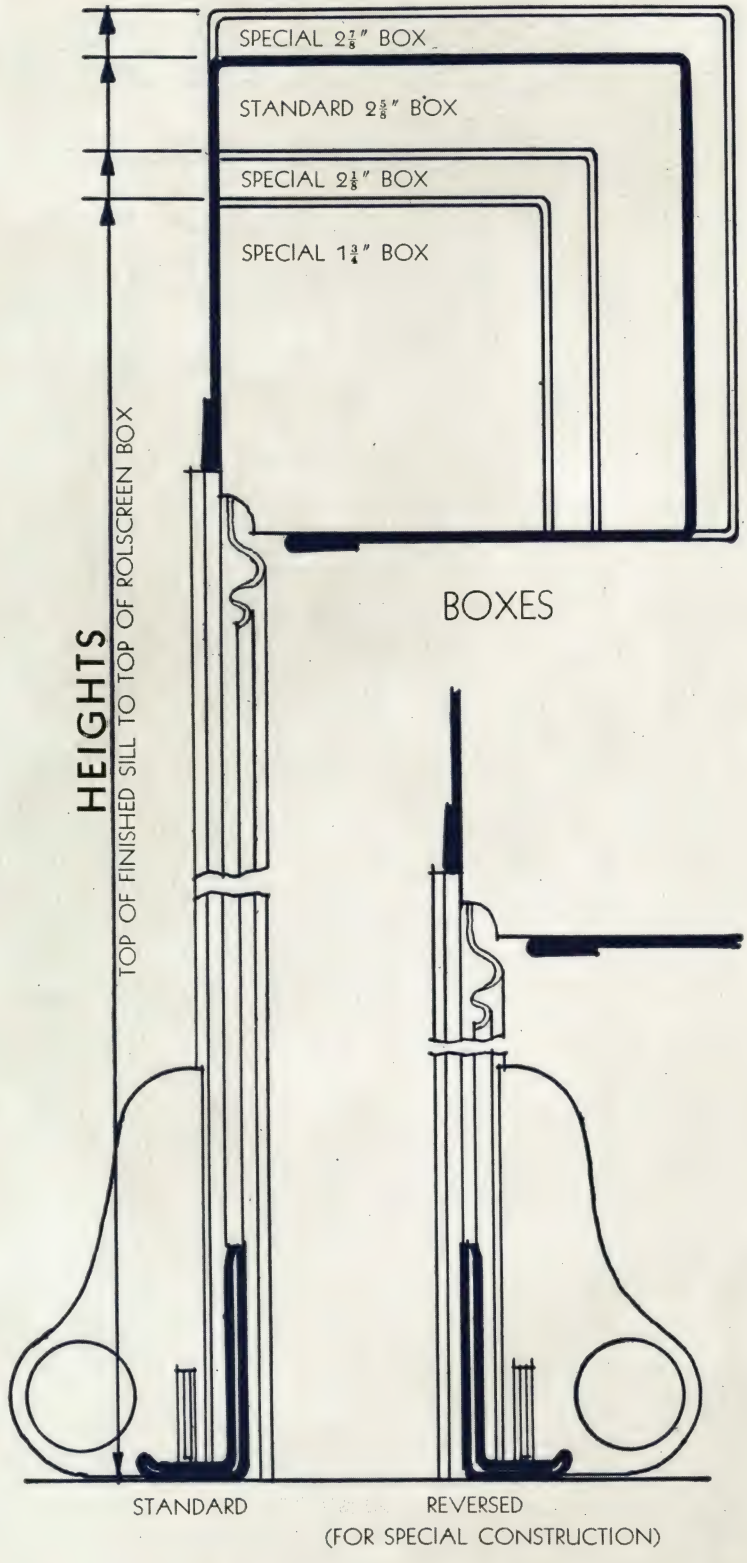
Metal Mullions can be furnished by the Rolscreen Company for all sizes of Rolscreen housings. Double mullions are used when a screen is to be installed on each side, and are built to any specified width to take up fractions in opening dimensions. Single mullions are used when a screen is to be installed on one side only.

Wood Mullions—

Wood Mullions of simple design can be used when openings require.

Wide Flanged Guides—

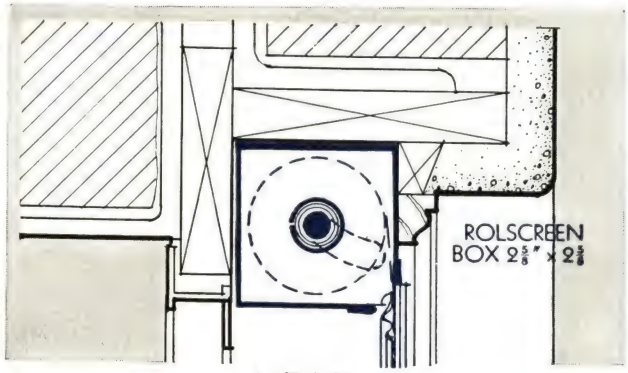
Special wide flanged guides can be furnished to meet unusual conditions.



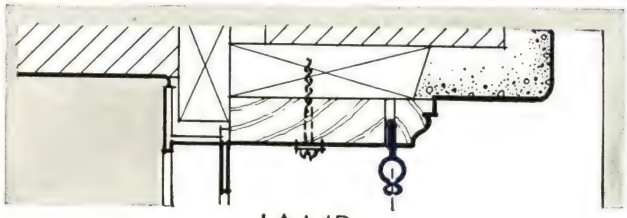
Rolscreens TRADE MARK

STEEL CASEMENTS

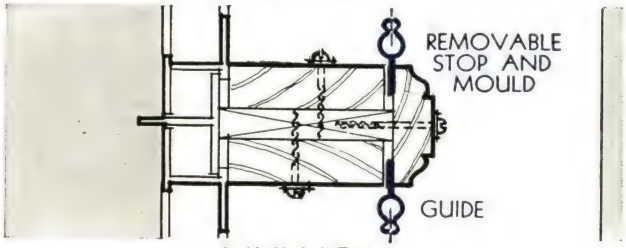
SEMI-WOOD TRIM



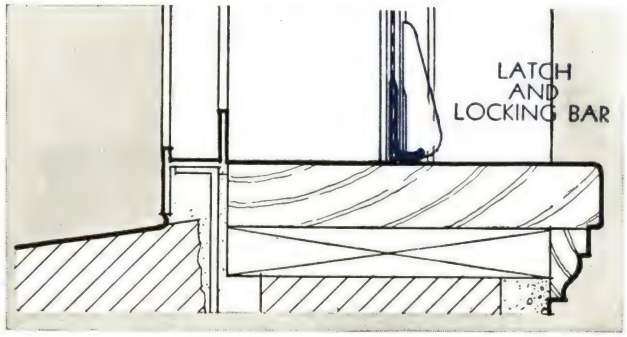
HEAD



JAMB



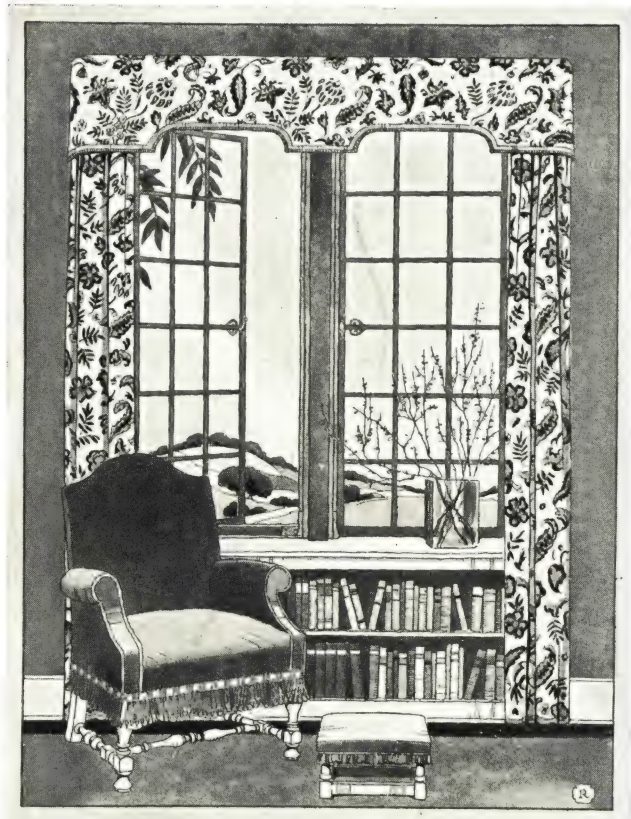
MULLION



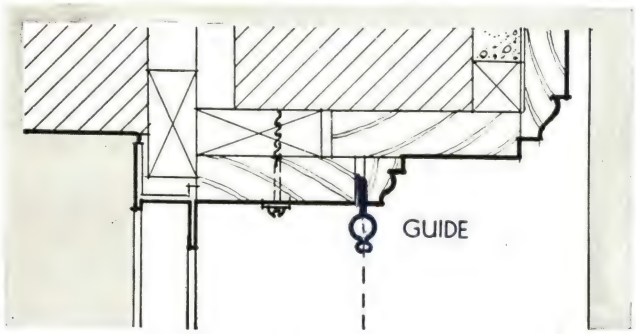
SILL

Rolscreen can be instantly removed in case of damage by taking out removable stops and moulds at jambs

WOOD TRIM



Rolscreens allow a new freedom to window opening and a new beauty in complete screen protection.



JAMB

Thickness of removable stops and moulds may vary. Read instructions carefully on page No. 5 for width dimensions.

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

Rolscreens TRADE MARK

ATTACHMENT UNIT

REVERSED "U" ANGLE INSTALLATION

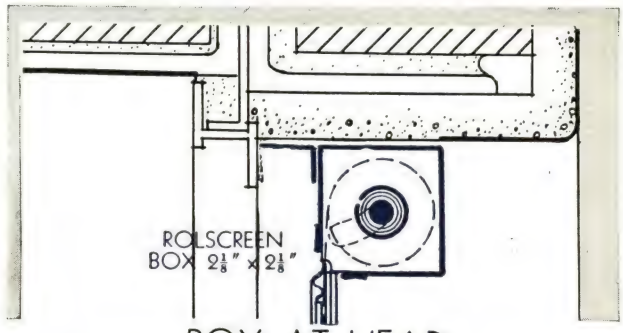


Rolscreens are adaptable to all types of installations They combine permanence and convenience. » »

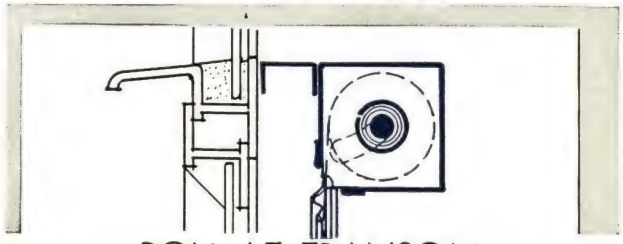
Where it is not necessary to preserve the smart slender lines of steel casement windows, Rolscreens may be attached directly to the casement sections by means of the special mountings as shown in these details. The reversed "U" angle here shown does not clear the casement operating handle. If this is desired the $2\frac{1}{8}$" special mullions as shown on control page 14 can be used.

The Rolscreen housing is only 2" square and is made as inconspicuous as possible.

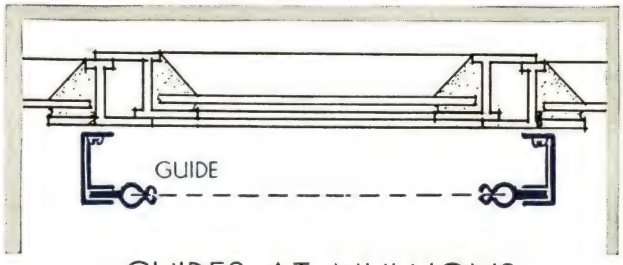
Self tapping screws for attaching are furnished.



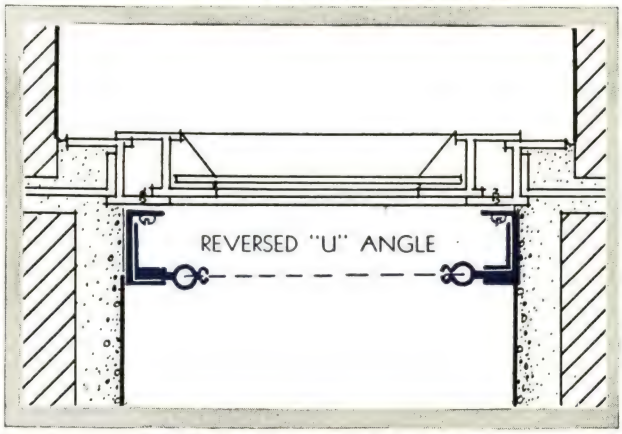
BOX AT HEAD



BOX AT TRANSOM



GUIDES AT MULLIONS



GUIDES AT JAMBS

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

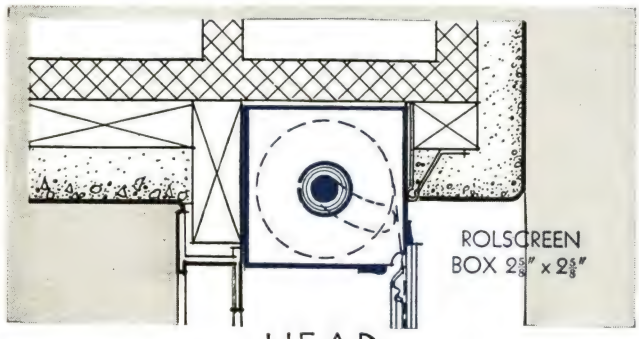
Rolscreens
TRADE MARK

STEEL CASEMENTS

BLOCK CONSTRUCTION



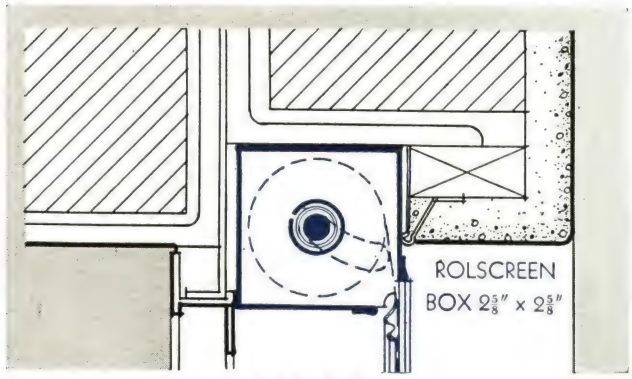
The Rolscreens do not mar the beauty or hinder the operation of casement sash. » » » »



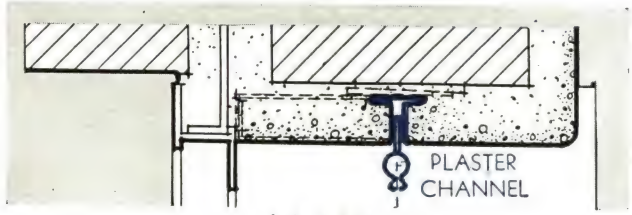
HEAD

A metal recess 2½"x5½"x¾" with removable cover is attached to upper part of plaster channel to permit Rolscreen box to be inserted. » » » » »

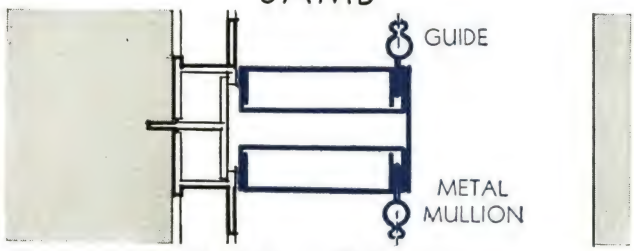
MASONRY CONSTRUCTION



HEAD



JAMB



MULLION



SILL

Plaster channels should be set to some exact full inch Rolscreen dimension "back to back" and plumbed. They serve as plaster grounds. » » » » »

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

RECOMMENDED ROLSCREEN SIZES

For Standard Steel Casements of Various Manufacturers

"Z" BAR TYPES		Rolscreen Widths				Rolscreen Heights				
		1 Lt. Wide	Single Units	Double Units	Triple Units	2 Lts. High	3 Lts. High	4 Lts. High	5 Lts. High	6 Lts. High
ARISTON Standardized	a	13″	19″	37″	55″	28″	40¼″	52½″	64¾″	77″
BAYLEY-SPRINGFIELD	b	11″	20″	39″	55″	29⅜″	41⅝″	53⅛″	66⅛″	78⅜″
CAMPBELL 100 Series	c	11″	20″	39″	58″	25⅞″	37⅝″	49⅛″	62⅝″	74⅛″
CRITTALL STANWIN	d	11″	20″	39″	58″	26⅛″	37⅝″	51¼″	62¾″	74¼″
FENESTRA FENWROUGHT	e	13″	19″	37″	55″	27¾″	40″	52¼″	64½″	74″
GENFIRE Model No. 5	f	13″	19″	37″	55″	27¾″	40″	52¼″	64½″	76¾″
HOPE Standard	g	11″	20″	39″	58″	26½″	37⅞″	49⅜″	62¼″	
LEMCO Standard No. 100	h	11″	20″	40″	61″	25⅞″	37½″	49″	62¾″	74¼″
LUPTON Residence	i	11″	20″	39″	58″	25¾″	37⅜″	48¾″	62½″	73⅞″
SOULÉ Residence	j	14″	20″	38″	56″	28⅝″	41″	53¼″	65⅝″	77⅞″
THORN Residence	k	11″	20″	39″	58″	26⅜″	37¾″	49″	60⅜″	71⅝″
TRUSCON Model No. 5	n	13″	19″	37″	55″	27¾″	40″	52¼″	64½″	76¾″
EQUAL LEG CHANNEL TYPE										
CAMPBELL 400 Series	c	11″	20″	39″		26¾″	38″	49¼″	60½″	
CRITTALL NORMAN	d	11″	19″	38″	58″	26⅛″	37½″	48⅞″	60¼″	
FENESTRA FENCRAFT	e	13″	19″	38″		27⅜″	38⅝″	49⅞″	61⅛″	72⅜″
INTERNATIONAL COTSWOLD	o	11″	20″	39″		26¼″	37⅞″	49⅜″	60⅞″	
LEMCO Standard No. 700	h	11″	20″	40″	61″	25⅞″	37½″	49″	62¾″	74¼″
THORN MANOR	k		20″	40″	60″	26⅝″	37⅞″	49¼″	60½″	

Product of: a. Michel & Pfeffer Iron Works. b. The William Bayley Co. c. Campbell Casement Window Corp. d. Crittall Casement Window Co. e. Detroit Steel Products Co. f. Genfire Steel Co. g. Henry Hope & Sons Inc. h. Lundell-Eckberg Mfg. Co. Inc. i. David Lupton's Sons Co. j. Soulé Steel Co., United States Metal Products Division k. J. S. Thorn Co. n. Truscon Steel Co. o. International Casement Co. Inc.

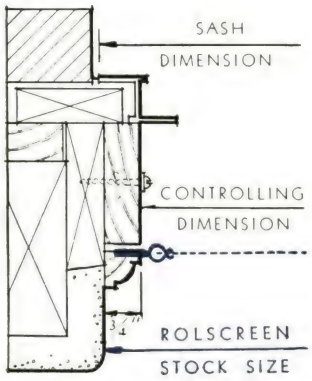


FIG. I

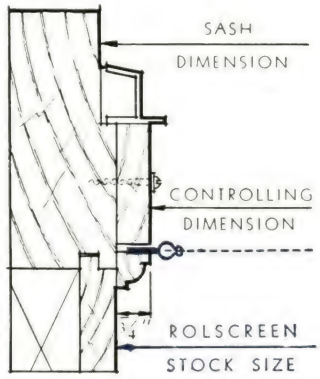


FIG II

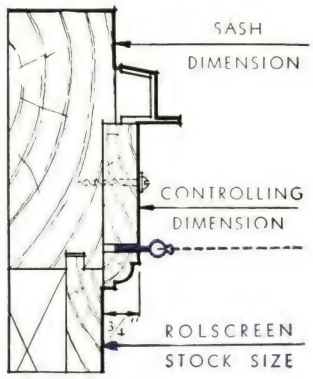


FIG III

Schedule Sizes — **"Z Bar"** Type—Recommended Rolscreen sizes in the above schedule are based on installation as shown in Fig. **I.**
"Equal Leg" Channel Type—Recommended Rolscreen sizes are based on Fig. II. Where it is desired to set removable stop in rebate in frame, as shown in Fig. III, Rolscreens 1" wider than widths given in schedule must be used.

Controlling Dimension — The Controlling Dimension should in all cases measure on the "HALF INCH," **i. e., 18½", 19½", 20½", etc.**

Rolscreen Stock Size — The Rolscreen Stock Sizes measure on the "FULL INCH," i. e., 20", 21", 22", etc. This stock size dimension is just 1½" greater than the controlling dimension and is arrived at by adding a standard ¾" stop on each jamb, or the depth of a pair of plaster channels to this controlling dimension.

Thickness of Stops — Thickness of Stops and depth of rebates for sash, (Fig. II) or depth of rebates for stops, (Fig. III) may vary to suit conditions so long as stops are not less than ½" thick and control measurement (face to face of stops) is on any "Half Inch."

Plaster Channels — Plaster Channels must be set on exact "FULL INCH" back to back, to conform to size control and standard stock sizes.

Heights — Height dimensions given in schedule are taken from what will be the top of box to top of finished sill.

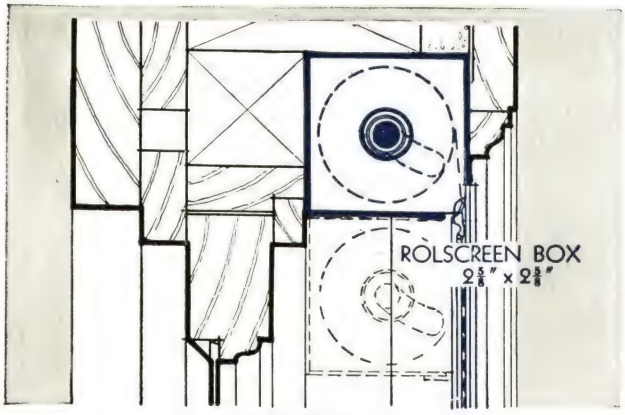
Widths of Stops — Width of stops set under box and onto which guides are fastened must be just ⅛" less than box size used, i. e., 2¾" stops for 2⅞" box, 2½" stops for 2⅝" box and 2" stops for 2⅛" box.

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

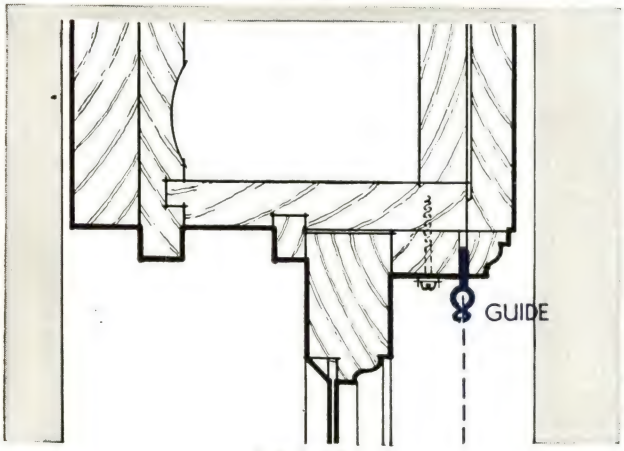
Rolscreens
TRADE MARK

DOUBLE HUNG WINDOWS

FRAME CONSTRUCTION



HEAD



JAMB



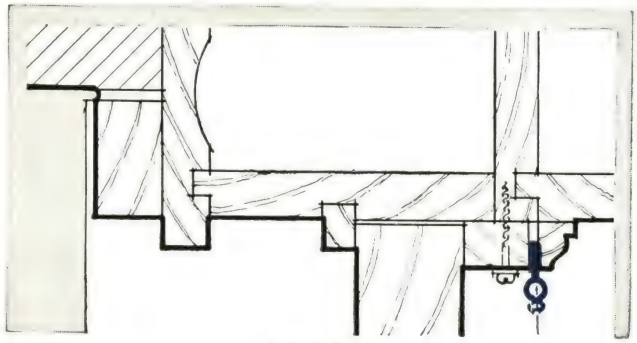
SILL

Rolscreen box may be set directly under head jamb as dotted in and a standard double hung frame used. »

MASONRY CONSTRUCTION



The rich sparkling lustre of fine glass and the exterior window beauty is not dimmed by screens. » » »



JAMB

Lift hardware on bottom rail of sash should be held to a minimum projection to clear locking bar on screen.

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

Rolscreens TRADE MARK

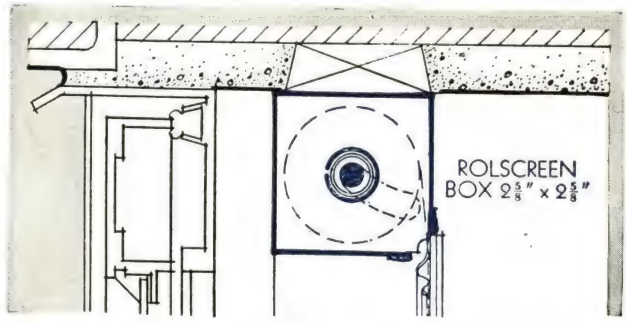
METAL WINDOWS

DOUBLE HUNG

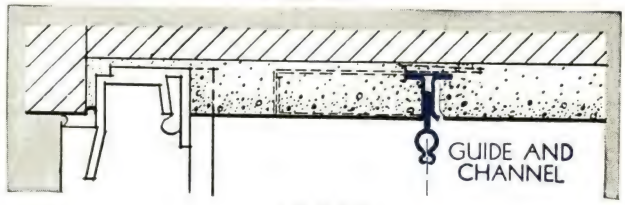
BROWNE WINDOWS



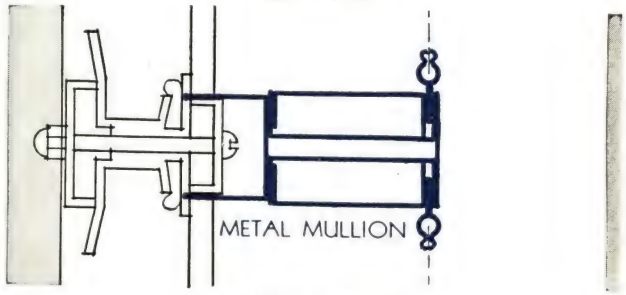
No lovelier example of dignity and charm. All homes can boast such windows unmarred by screens. » »



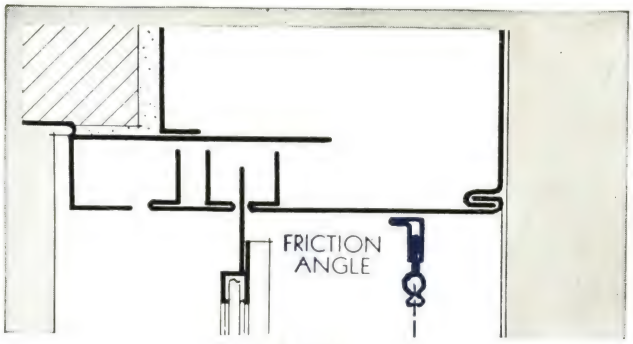
HEAD



JAMB

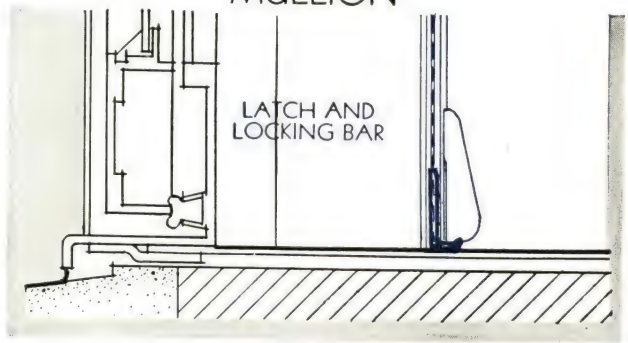


MULLION



JAMB

For metal double hung windows we recommend friction angles as shown in full size on page 5. » » »



SILL

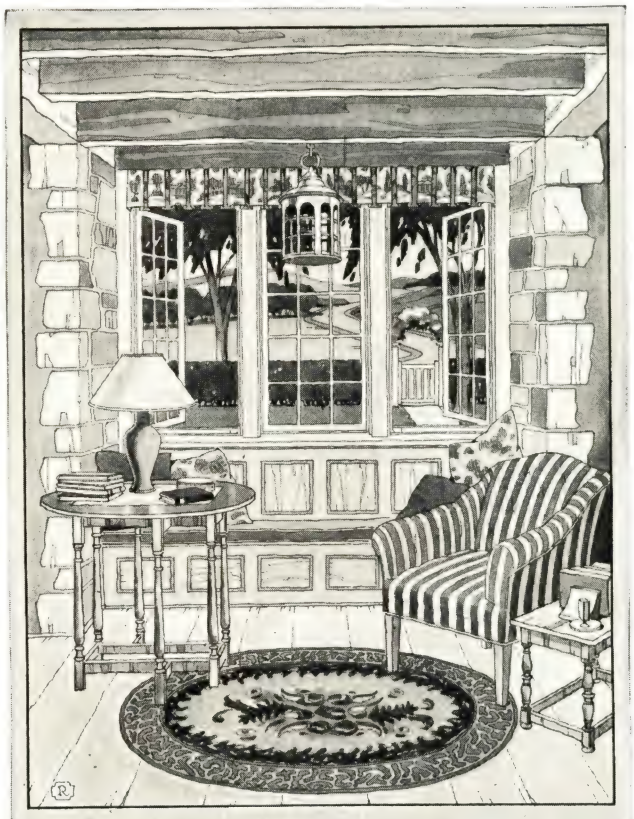
Special details showing wood trim installation for Browne Windows can be furnished by Rolscreen Company. » » » » » » » » »

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

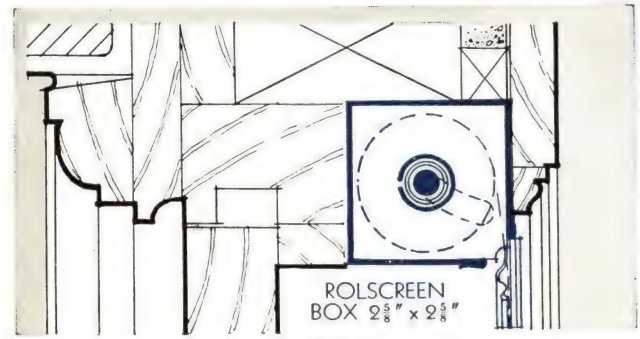
Rolscreens
TRADE MARK

WOOD CASEMENTS

HOFFMAN TYPE SASH



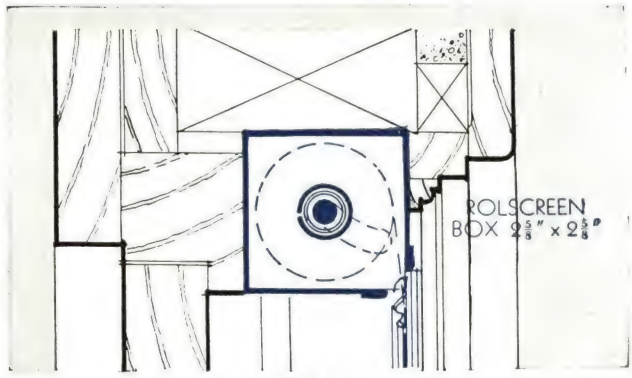
The absence of the screen when the window is closed completes the quiet, architectural dignity.



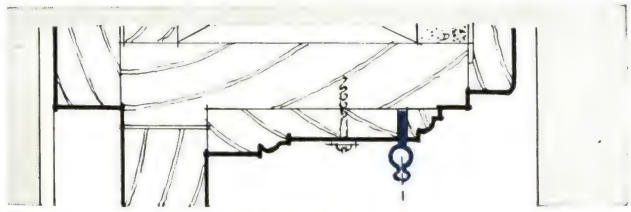
HEAD

If Rolscreen box is set against sash, the casement hardware at head can be attached to Rolscreen Box.

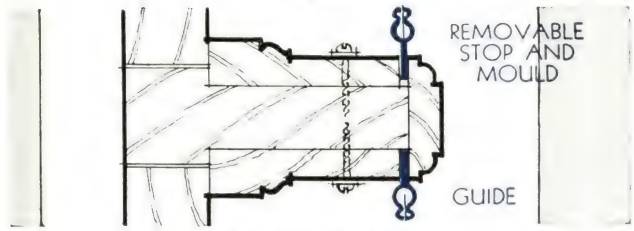
HINGED SASH



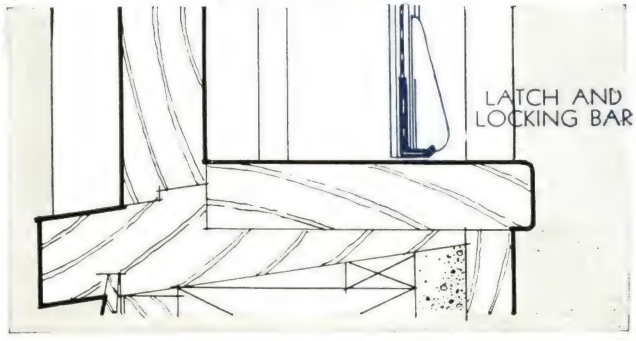
HEAD



JAMB



MULLION



SILL

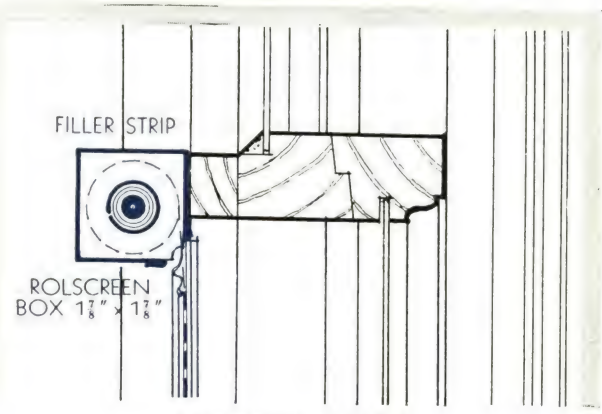
1⅜" thick sash are shown on the detail. If 1¾" thick sash are used the Rolscreen box serves as stop at the head.

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

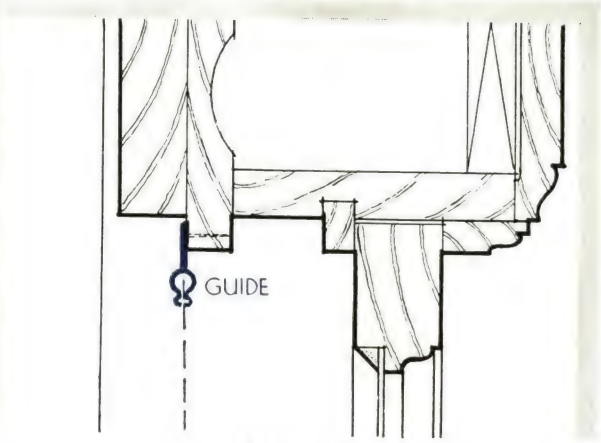
Junior Rolscreens TRADE MARK Junior

DOUBLE HUNG WINDOWS

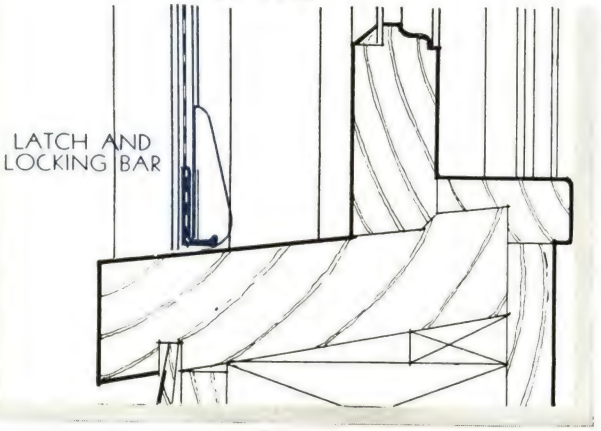
SCREENS LOWER HALF OF WINDOW ONLY



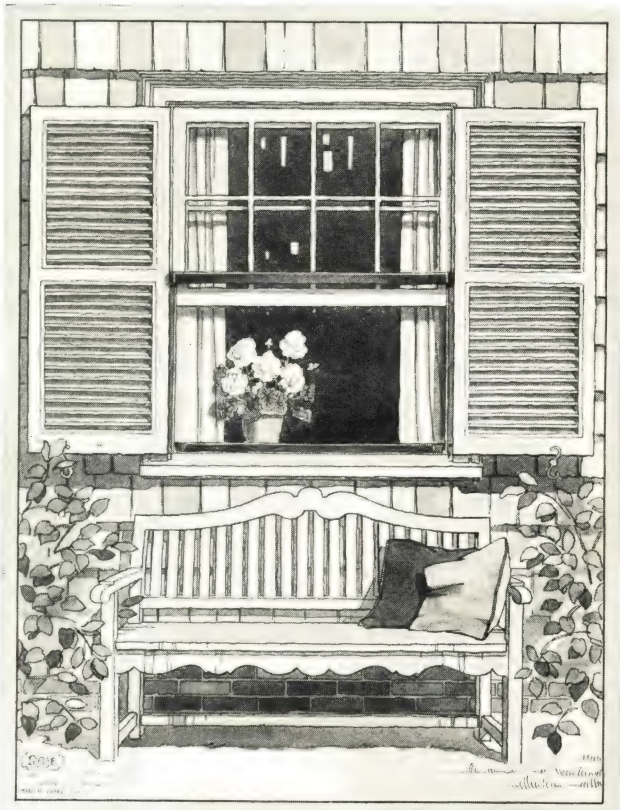
MEETING RAIL



JAMB



SILL



Neatness and simplicity predominate in all types of Rolscreen installations.

JUNIOR-ROLSCREENS meet the demand for a rolling screen of moderate cost that can be easily and quickly installed on the outside of double hung windows. The JUNIOR Screen is similar in construction to the SENIOR Screen except that it covers only the lower half of the window. No alteration of the standard window frame is necessary. The same patented exclusive features in ROLSCREENS that have led to their adoption by thousands of owners, builders and architects everywhere are incorporated in the JUNIOR-ROLSCREEN.

REFER TO PAGES 5 AND 6 FOR SIZE CONTROL OF STANDARD STOCK SIZES

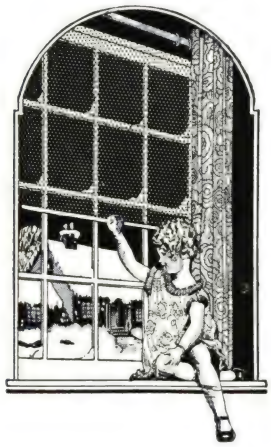
ROLSCREENS

the

STANDARD OF COMPARISON

in

Modern Window Screens



ROLSCREEN COMPANY

PELLA ***IOWA***

CABLE ADDRESS "ROLSCREEN"

NEW YORK	PHILADELPHIA	BOSTON	CHICAGO
PITTSBURGH	BALTIMORE	WASHINGTON	HARTFORD
DETROIT	CLEVELAND	CINCINNATI	ATLANTA
SYRACUSE	ROCHESTER	GRAND RAPIDS	INDIANAPOLIS
DES MOINES	MILWAUKEE	OKLAHOMA CITY	KANSAS CITY
	SAN FRANCISCO	LOS ANGELES	

Dealers Everywhere—Distributors in All Principal Foreign Countries

WATSON MANUFACTURING COMPANY

Manufacturers of Metal and Wood Frame Window, Door and Porch Screens

EXECUTIVE OFFICE AND FACTORY
630 Taylor Street
JAMESTOWN, N. Y.

For Watson Venetian Blinds and Metal Office Furniture, see Manufacturers' Index

Products

SCREEN DOORS, in Metal and Wood.
WINDOW SCREENS, in Metal and Wood.
ROLL SCREENS, Twentieth Century and Efficiency.
SCREENS for special conditions, porches, courts, etc.
Access Panels.

A Complete Screening and Installation Service for All Types of Buildings

Our representatives in various parts of the country are experts. They will confer with and advise architects as to the most satisfactory method of screening any condition.

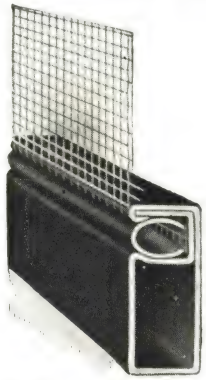
They take all measurements, carefully observe all details and conditions and properly install the screens.

A Separate Screen Contract Advisable

Because of the highly specialized nature of screen work and installation we advise that a contract, separate from the general contract, be made for screens.

Insect screening should be ordered in time to be completed before the building is occupied.

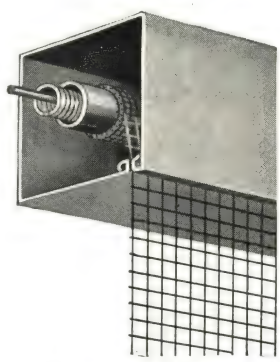
Screens purchased on the basis of price only usually fail in quality, adaptability and efficiency to meet the standard contemplated by the architect. This results in dissatisfaction to all concerned.



Watson Metal Frame Screen

The Fly Outside
TRADE MARK

TRADE-MARK



Watson Roll Screen



Executive Office and Factory, Jamestown, N. Y.

Sceens Should Be Decided Upon During Preparation of Working Drawings

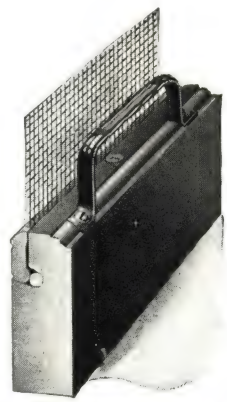
Insect screening is a recognized necessity of the greatest importance, which unfortunately often receives little or no consideration in the preparing of plans and details. It is safe to assume, whether or not the insect screens are included in the specifications or general contract, that they will eventually be required. We therefore urge that design and construction should be arranged to allow for future use of screens in an economical and satisfactory way.

Watson Makes All Types of Frame and Roll Screens, and Offers Unprejudiced Advice Regarding Type to Use

We manufacture all types of roll, flat, cage or irregular metal or wood frame screens and metal doors. We are therefore not influenced by factory limitations or business interests in our recommendations as to the most practical methods of screening each condition.

Watson Facilities

The factory is equipped with the most modern machinery, much of it specially designed for the satisfactory production of our work. Our central location provides the best of shipping facilities. Our large force of engineers will assist with the solution of all kinds of screen problems.



Section Through Wood Frame

The Proper Method of Screening Any Opening

There are usually several methods of screening any opening. The best method depends on the type of sash or door and the surrounding conditions affecting the installation.

There are so many different makes and types of windows and such a wide variety of operating conditions, size and location of hardware, shade and other accessories and so many possible surrounding wall conditions, all of which affect the application of screens, that it is highly desirable that all details of a particular installation be carefully studied and the screens be designed to fit the particular installation.

WATSON SCREEN DOORS

Screen Doors in All Shapes, Sizes and Finishes, and of Bronze, Steel or Other Metals and Wood

A Complete Line of Screen Doors

We manufacture screen doors of all kinds and sizes and of any metal or wood. All are of the best quality and workmanship, differing in kind, weight and finish of metal, kind and finish of wood, width of stiles and rails, thickness and kind of hardware, guards and other accessories but all made from measurements taken on the job.

Solid Bronze Hardware—All hardware is solid bronze of the highest quality, much of it designed especially for these doors.

WATSON ALL-METAL SCREEN DOORS

These doors are not large window screens but in all details they are carefully designed door construction having maximum strength, stiffness and durability. The construction is solid tubular with all joints reinforced. The rounded inner edge of the frame prevents cutting the wire cloth.

Bronze Frame Doors—Are manufactured of commercial bronze containing not less than 90% copper.

Steel Frame Doors—Are made of copper bearing open hearth, alloy coated steel electro galvanized after fabrication.

Weights—Furnished in four weights as described on this and following page.

Method of Attaching Wire Cloth—The wire cloth is securely held in a groove adjacent to the inner edge of the frame by a resilient slotted tubular spline which locks every strand of the cloth in place. The spline is easily removed and replaced in case it is necessary to renew the wire cloth. 16-mesh oxidized commercial bronze wire cloth is used on all doors.

Extra Heavy Metal Door (in Steel and Bronze)

The highest grade metal door for use in banks, public buildings, residences, etc., where the finest type of door is required for appearance and where there is hard, continual service. They are very stiff and strong, being 1⅛ in. thick, with 3¾-in. stiles, top and cross rails and with 5¾-in. bottom rails. Wider rails can be furnished. The frame is .050 in. thick—nearly $\frac{1}{16}$ in.

Inside reinforcements are .065 in. thick, of the same material as the frame, are provided for checks, hinges, bolts and locks, and the full width of top, bottom, cross rails and all joints.

Extra heavy 16-mesh No. 29 O.E. gauge (.0155) oxidized commercial bronze wire cloth is used.

All hardware is of solid bronze for both steel and bronze doors (except that door checks are cast iron, gold bronze finished).

Hinges are 3½x3½-in. ball bearing. Mortised lock is cylinder type and can be master keyed, with lever inside, knob outside or may have two levers.

Various kinds of grilles, kick plates, arm guards, etc., are furnished as required

Heavy Metal Door (in Steel and Bronze)

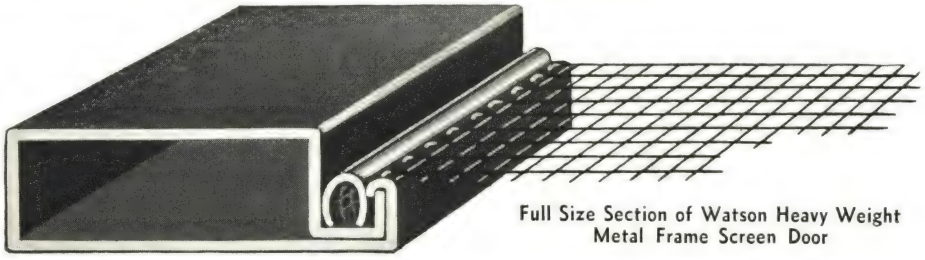
This door has ample strength for all ordinary requirements for the finer residence. The framework is ⅝ in. thick with 2-in. stiles and cross rail, 3-in. top rail and 5¾-in. bottom rail, wider rails can be furnished. The metal is .050 in. thick—nearly $\frac{1}{16}$ in.

Inside reinforcements, .050 in. thick, of same material as door, are provided for checks, hinges, bolts and locks, and the full width of top and bottom rails and at intersection of cross rails and all corner joints.

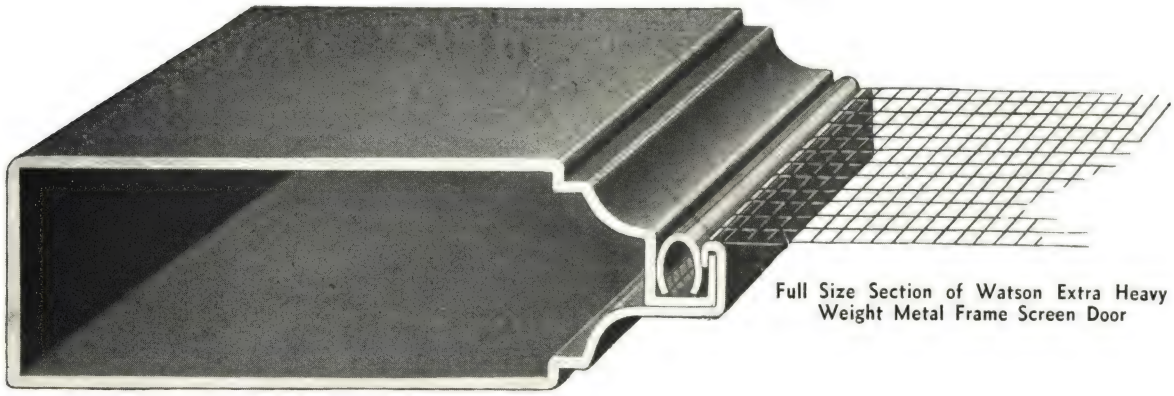
Standard weight 16-mesh oxidized bronze wire cloth is used. Various kinds of grilles, kick plates, arm guards, etc., are furnished as required.

All hardware supplied with this door is of solid bronze (except that door checks are cast iron, gold bronze finished). Hinges are 3x3-in. ball bearing.

Mortised latch. Latch bolt is set from the inside by slide stop, lever handle inside, knob outside.



Full Size Section of Watson Heavy Weight Metal Frame Screen Door



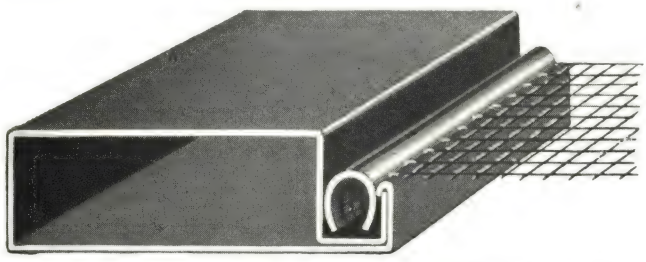
Full Size Section of Watson Extra Heavy Weight Metal Frame Screen Door

Medium Weight Metal Door (in Steel or Bronze)

Has same appearance as the heavy metal door, but is made of lighter material and with less expensive hardware. The quality of material and workmanship is as good in all respects. Well suited for ordinary residential use or where not subjected to continued, severe usage. They are stiff and strong. Frame is $\frac{5}{8}$ in. thick with 2-in. stiles, cross rails and 3-in. top rails and $5\frac{3}{4}$-in. bottom rails. Wider rails can be furnished if required. The metal is .032 in. thick. Reinforcements are the same as for heavy metal door.

Standard weight 16-mesh oxidized commercial bronze wire cloth is used.

All hardware supplied with this door is of solid bronze, for both steel and bronze doors. Hinges are 3x3-in. solid bronze, steel bushed, loose pin. Mortised latch with levers inside and out. Latch bolt is set from inside by slide stop. Door checks not regularly furnished, but when specially ordered, top rail will be reinforced.



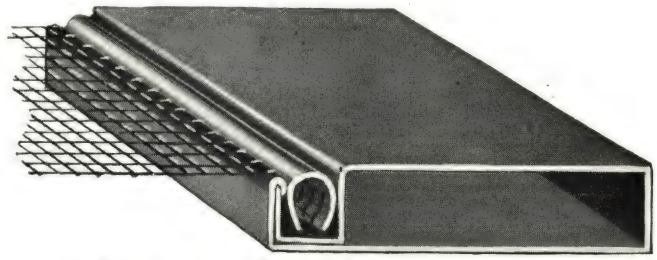
Full Size Section of Watson Medium Weight Metal Frame Screen Door

Light Weight Metal Door (in Steel or Bronze)

This is the lightest and least expensive metal door we manufacture. It will be found serviceable for French doors or other residential doors not subjected to hard usage. It is not a heavy window screen as it is differently constructed and reinforced, and under reasonable conditions of usage and care gives satisfactory service. Frames are $\frac{7}{16}$ in. thick with 2-in. wide stiles and cross rail, 3-in. top rail and $5\frac{3}{4}$-in. bottom rail. Wider bottom rails can be furnished if required. The metal is .032 in. thick, reinforced for hinges, bolts and latches, also at all intersections of stiles and rails. Reinforcements are of same material as door.

Standard weight 16-mesh oxidized commercial bronze wire cloth is used.

All hardware supplied with door is of solid bronze for both bronze and steel doors. Hinges are 3x3 in. bronze, steel bushed, loose pin. The mortised latch is solid bronze with levers both sides, set from the inside with slide stop.



Full Size Section of Watson Light Weight Metal Frame Screen Door

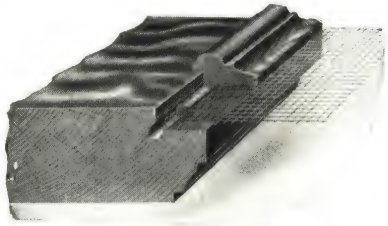
WATSON WOOD DOORS

General—Wood frame screen doors are usually constructed of soft pine finished with best paints, enamels, varnishes or pyroxylin lacquer as desired, in any selected color. Also made of any fine cabinet wood, finished to correspond with adjacent woodwork. Doors are symmetrical in appearance and have as large an area of wire cloth as is consistent with strength of frame.

Materials and Construction—The frame is made of selected woods carefully seasoned and kiln dried. We have secured by our dowel corner construction and the use of waterproof glue great strength and rigidity. Hardware dowels are used and, being fully enclosed, can neither shrink, swell nor loosen, as no moisture can come in contact with dowels or glue.

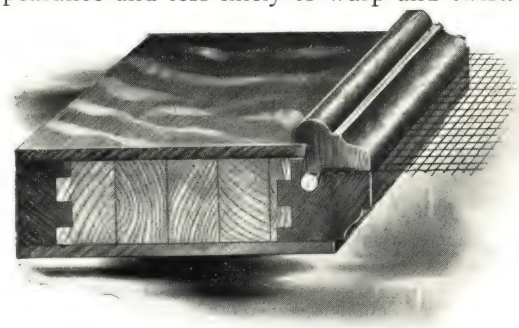
The rail is cope cut to fit the mouldings of the stile, providing additional gluing surface. Broken door corners of this construction are unknown.

Wire Cloth and Fastening—Standard weight 16-mesh oxidized commercial bronze wire cloth. The wire cloth is fastened in a groove in the rabbet so located as to retain the greatest amount of strength at edge of frame. The cloth is held in the groove by a rattan spline and is further secured by a neat wood moulding mitered at the corners, fastened with brass brads and shaped to hold the rattan in position.



Method of Securing Wire Cloth in Doors Showing Groove Spline and Wood Cover Mould

Hardwood Doors—We can furnish doors in the various hardwoods, finished to match the adjacent doors or woodwork. Watson standard construction is a veneer over a soft pine core all glued with waterproof glue. We recommend veneered doors in preference to solid doors as being better in construction, lighter, better in appearance and less likely to warp and twist.



Method of Veneering Hardwood Doors
Waterproof glue used throughout

Hardware—Doors are regularly equipped with solid bronze hardware. Guards are provided, as required, for bottom panels.

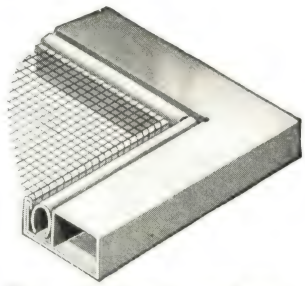
Styles of Doors—Made in any form of paneling, usually to correspond to the house door. Solid panels instead of guards are sometimes used at bottom but, as they cut off ventilation, are not recommended.

WATSON FRAME SCREENS

Metal screens have many advantages over wood: They are stronger and more durable, have narrower stiles and rails, offer less obstruction to the vision and require less storage space.

WATSON METAL FRAME SCREENS

The special feature of our metal frame screens is the solid tubular construction, having great strength, stiffness and rigidity which can not be obtained in a section which is simply bent up. The metal is so distributed that it gives the greatest strength where needed. The bottom and inside edge of the wiring groove have double thickness of metal and the thickness at the wiring edge is rounded, preventing cutting of the wire cloth. The double walls of the groove are brazed or welded together which gives extra strength to take up the strain of the wiring and prevents twisting of the frame.



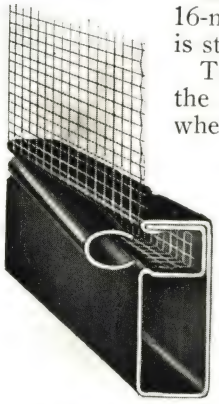
Corner of Metal Frame Screen

Twentieth Century Screens—Made in bronze, steel or other metals. The corner is so constructed that it is actually stronger than the frame itself. It is reinforced by a patented solid-web channel corner reinforcement which can not split. This channel reinforcement is sweated to the tubular frame in assembling.

Efficiency Screens—(In steel only.) Have the same section as the Twentieth Century but are a welded construction. These are high grade, sturdy screens.

Methon of Attaching Wire Cloth—16-mesh commercial bronze wire cloth is standard.

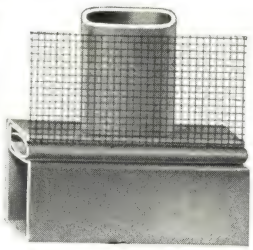
The wire cloth is stretched over the rounded edge of the groove and when the resilient slotted tube is forced into the groove, every strand of wire is securely locked in place.



Full Size Section of Metal Frame

Showing method of wiring, resilient split tube and rounded edge and double strength wiring groove

Identification—Identification is provided whereby the screens may be readily placed in the proper openings Each screen has a permanent number stamped in the frame and a corresponding number is attached to the window frame.



Round Edge Brace for Large Screens

Materials Used in Metal Frame Screens

Bronze Frame Screens (Rustproof)—The frame, hardware, and wire cloth are of commercial bronze which contain no steel or iron and can not rust. Bronze screens cost slightly more than steel but the difference is more than made up in durability and that no painting or refinishing is required. They can be finished in any of the bronze, brass or copper finishes or if left unfinished will eventually take a statuary bronze color.

Steel Frame Screens—Manufactured from a special quality, copper bearing, open hearth steel, coated with a mixture of lead and tin.

After fabrication the entire frame is electro-galvanized by the hot cyanide process, to give further protection against rust.

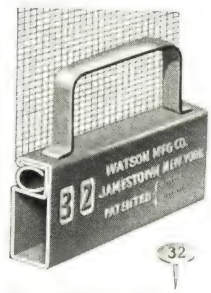
The frames are then finished with pyroxylin lacquer (duco or equal) baked on enamels in any color, or grained to match selected woods.

Nickel and Its Alloys—Alloys of nickel and copper of which monel metal and ambrac are examples, are considered of greater durability than bronze or steel.

These metals are recommended where screens are exposed to salt spray or other unusual atmospheric conditions which tend to corrode bronze.

Aluminum Screens—While we furnish aluminum frame screens and recognize the qualities of aluminum under proper condition of usage, we recommend bronze screens.

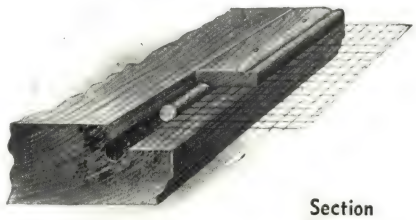
Wire Cloth—We use 16-mesh commercial bronze wire cloth (specification of the American Society for Testing Materials) which is generally accepted as standard and cepted as standard and is giving general satisfaction.



Identification Number on Each Screen

WATSON WOOD FRAME SCREENS

We manufacture a complete line of wood frame insect screens of all styles, sizes and shapes. The material is invariably the best and is thoroughly seasoned and kiln dried. All framework is properly proportioned in thickness and width to insure the best appearance and necessary strength for service. Wood frame screens are usually soft pine finished with the best paints, enamels, varnishes or pyroxylin lacquer, as desired, in any selected color. We also make them of any fine wood finished in natural or stained colors to match woodwork.



Section Through Wood Frame

Showing method of attaching wire cloth

WATSON ROLL SCREENS

Three Different Roll Screens Made in Two Different Types

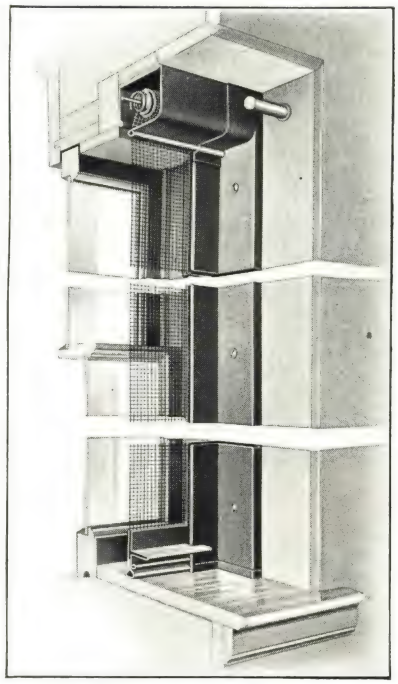
Experience of Over a Quarter Century

We believe we are the oldest manufacturers of roll screens. All of our long experience has been embodied in our present roll screen construction, many features of which are patented and used only by us. We invite comparison of construction and mechanical features with any other roll screen.

The Twentieth Century Roll Screen

The Twentieth Century Roll Screen has been well known to architects for many years. It is our best grade of roll screen and well deserves the reputation gained by years of satisfactory service.

The operating bar will stay at a desired height when released without the use of catches, bolts, etc.; is noiseless in operation and cannot tilt or jamb.



Construction—They are constructed on an entirely different principle. A bronze tape is fastened to and operates around a drum connected to the screen roller. It is carried down inside side guide around a pulley and fastened to the operating bar. As the screen is lowered the tape is wound on the drum. As the screen is raised the tape is drawn off the drum which rotates the roller and winds up the screen. The tape prevents tilting the operating bar. The wire is held tight and smooth by a spring, which, however, has nothing to do with raising or lowering the screen. Hence this is very easy as there is no resistance of a spring to be overcome.

The wire cloth runs in deep metal guides, and if forced out of the guide at any point, is easily returned without raising the screen and without injuring the wire cloth.

These screens are complete, the side guides, roll case and operating bar being shipped completely assembled.

The roll case is made in two sizes, one for moderate sized windows and another for large windows. They are also adjustable for unequal or unsymmetrical openings.

Twentieth Century Roll Screens are usually made in bronze or steel, but may be had in other metals.

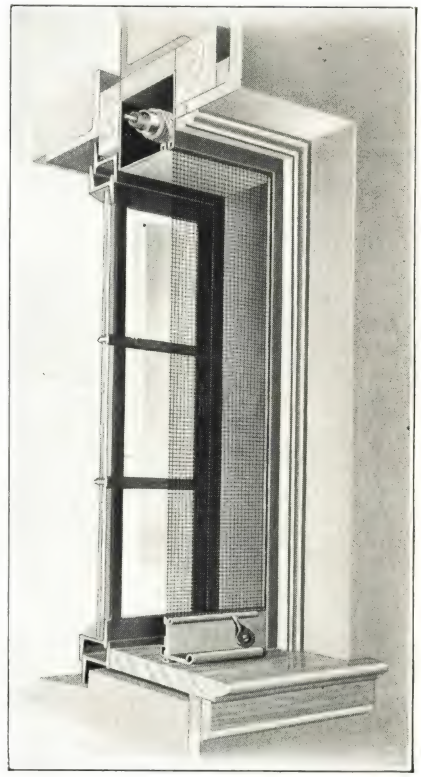
The steel screens are made of copper bearing, alloy coated, open hearth steel, electro galvanized after fabrication and finished in any color of pyroxylin lacquer, or grained or plain enamel finishes.

Wire cloth is 16-mesh special weight anaconda bronze which rolls easily and smoothly.

Efficiency Roll Screen

A medium priced, spring roller type of screen of the highest grade, made of the best quality materials and workmanship. These screens are guaranteed indefinitely against any defects of materials or workmanship.

Type "AB"—Has a standard roll case $2\frac{9}{16}$ in. square, which contains a stationary axle of round cold rolled steel extending the full width of the roll case, and is supported at each end by ball bearings. A solid tubular roller forms the housing for the non-binding spring. Each strand of the wire cloth is attached to the tubular roll. Bronze end bearings at both ends prevent end play and eliminate wear on the ends of the roll case.



The operating bar is constructed of heavy material having a substantial angle turned in at the bottom, forming a pull to receive the fingers in the operation of the screen.

An automatic spring catch is provided at each end of the operating bar engaging the guide shoe securely holding the operating bar in its lowered position.

Metal guides are formed straight and symmetrical with edges rolled, providing necessary stiffness and preventing damage to the wire cloth should it be accidentally forced out of the guide.

A bronze bound fabric cushion strip is inserted in the bottom of the operating bar to protect the window stool and to close out any possible light line.

Type "AC" Screens—These have the same details of construction and operation as Type "AB" except that they have plain bearings and "galvanoid" wire cloth.

Roll case is not galvanized and fabric cushion strip is omitted.

Installation Details—We have on hand many detailed drawings showing the various methods of installing Efficiency Roll Screens under almost any conditions. These will be sent upon request.

METHODS OF SCREENING

We are prepared to screen any new or existing conditions and offer our advice and suggestions based upon many years of successful screening experience.

Our Engineering Department will gladly assist in working out appropriate details for any kind of frame or roll screens to fit your particular problem.

Casement Windows

We can successfully screen all the different makes of casement windows. There are so many kinds, set in frames of various materials and in different ways, with exposed and concealed operating hardware, interior decoration, awnings, etc., to be considered, that it is impossible to discuss all the types and requirements but special details to meet particular conditions will be gladly sent on request.

Out-opening Casements—Several kinds of frame screens are used in various ways for this type of window. They may be hung at the top, at the side, either single or double or may be stationary. They may be vertical or horizontal, twin or multiple sliding screens, the best method being determined by the particular conditions and the preference of the purchaser. Roll screens are used for some conditions.

In-opening Casements—Are usually best screened with frame screens attached outside the window by various methods and may be stationary, side hinged (double or single), top hung, etc.

Windows with Projected (In and Out) Ventilators

Projected ventilators are generally screened with frame screens secured to the sash frame on the side opposite to the projection. These are attached to provide ready access for the operation of the ventilator and not to interfere with the sash hardware. Details vary to meet different ventilator conditions.

Windows with Center Pivoted Ventilators

Screens for windows with center pivoted ventilators are in two parts—one applied to the top on the outside, the other to the bottom on the inside. The outside screen is stationary with a drum connected between the center of the ventilator and the lower edge of the screen. The inside screen is stationary, contacting the ventilator at the center by appropriate fixtures. These screens afford complete screen protection for the ventilator yet in no way interfere with its operation.

Underwriters' Labeled Sash—Center pivoted ventilators made to meet Underwriters' specifications are successfully screened by the use of accessories designed to comply with the special requirements.

Double Hung Windows

Double hung windows may be screened with single or twin vertical sliding screens, flat, stationary screens, top hung, or top pivoted screens or roll screens.

Wherever possible, we suggest that screens should cover the entire opening. This applies especially where it is desired to obtain as much ventilation as possible as in bedrooms, kitchens, etc. It allows the sash to be opened from either the top or bottom or both. For many cases the regular plain full height frame screen can be used. This may be stationary, top or side hung. The mistake is sometimes made of ordering full height frame screen when awnings, shutters or window boxes are to be used. These conditions require the use of either single or twin sliding screens.

Half Height Screens—May be used when it is not necessary to screen the entire opening. They operate on slides which run from the sill to the window head, allowing the screens to cover either the upper or lower half of the opening. They are also used when the cost of screening is an important factor.

Roll Screens—Should preferably be installed on the inside. They may be used on the outside but are not recommended.

Basement Windows

Basement windows can generally be screened with our flat frame screens applied on the outside. They are usually secured in place with hooks or spring bolts. For basement windows, without iron grilles, screens should have ½-in. mesh heavy bronze wire outside for protection from vermin.

Special Shapes

Watson Metal Frame Screens are particularly well suited for curved, bent or unusual shapes. They retain a perfectly smooth surface without crimping or distortion. Any shape is successfully made—screens with rounded tops, oval shapes, circular cage screens, screens with bow shape—all are as practical and strong as shapes with straight sides and square corners.

Large Openings

The screening of large openings frequently presents problems in supporting the screens and holding them securely in place.

Our screen engineers have a broad experience which enables them to properly design the structural supporting members to give necessary strength with minimum obstruction of vision and at the same time to harmonize with the architecture of the building.

Our factory is especially well equipped to construct all kinds of light structural work of steel, bronze or other metals to meet all special requirements.

Courts and Patios—Tops of open courts or patios of any size may be screened so that no screens are required for windows and doors facing the court.

Screens for Asylums, Hospitals, etc.

Screens for insane asylums, hospitals, penitentiaries, etc., frequently present special problems. Insane patients often try to throw articles or even themselves out of the windows. They will sometimes work for hours trying to operate a catch or other piece of hardware.

For such conditions special methods of attaching the screens must be devised and not only the fastening but sometimes also the frame of the screen itself must be placed out of sight and reach of the patients. Every case presents new problems. We have solved many such special conditions in the past and are well qualified by experience to co-operate with architects in working out any peculiar problems.

Porch Screens

The screening of most porches involves careful consideration of design to properly fit the screens around columns and many varying conditions and without interfering with the architecture of the building proper. Our many years of experience in solving such problems enables us to offer practical suggestions for their solution.

Fundamental Considerations Regarding Screens

For the architect who desires to detail screens for buildings he designs, these suggestions are offered:

(1) A suitable framework or surface at top, bottom and sides to which screens can be attached should be provided. A rabbet is desirable.

(2) Blinds, shutters, doors, flower boxes, curtains, draperies, electrical fixtures, hardware, etc., should not be allowed to encroach on the space provided for screens, or to prevent proper swinging of casement screens or screen doors.

(3) For convenience in handling and storage, screens should not be made too large.

WATSON ACCESS PANELS

General

Ready access to concealed valves and pipes is always desirable. Generally when repairs are necessary they must be made quickly. Often walls are demolished by inexperienced workmen, resulting in costly repairs.

Watson Access Panels provide for emergencies of this kind. To open the panel merely insert a small screwdriver or the edge of a small coin in the bottom catch; a slight turn will release the catch allowing the panel to be removed, or if the hinged type, to swing out.

Watson panels are rigidly constructed of heavy gauge steel, with rounded corners that provide protection to the workman's hands.

They are made in two types, the Standard and the Hinged type.

Standard Access Panels

The standard type is used for the majority of openings. The door is held in place by lugs which engage in small slots in the side of the frame.

Hinged Type

The door is mounted on pivot bolt hinges which allow the door to swing without removing. This type is used mostly in ceilings or places where it is difficult to remove the door without its falling to the floor.

Features in Watson Construction

(1) All exposed edges are carefully rounded to prevent injury to the workman's hands.

(2) The box channel construction around the outside frame provides for plaster key which prevents the plaster from crumbling at this point.

(3) The square edge at the outside of the frame provides for a flush installation.

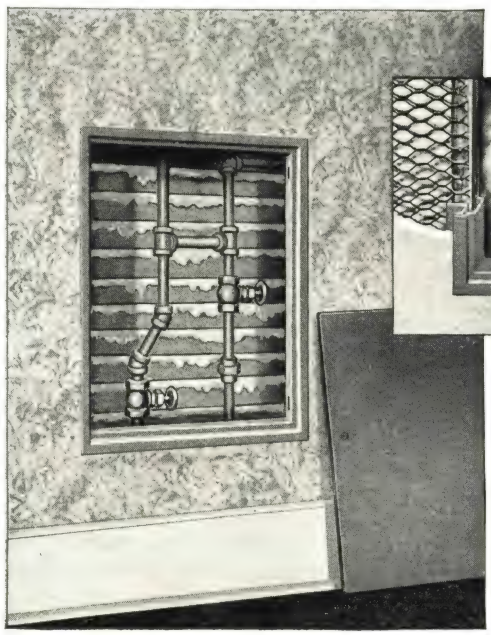
(4) The button catch used on the door provides a clear opening when the panel is removed. No obstruction to injure the hands or interfere with the workman's tools.

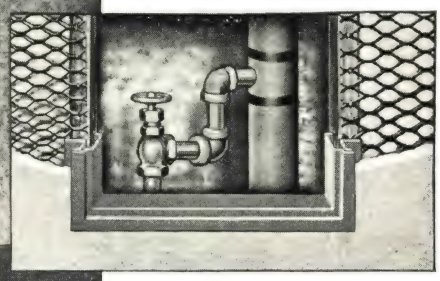
Finish

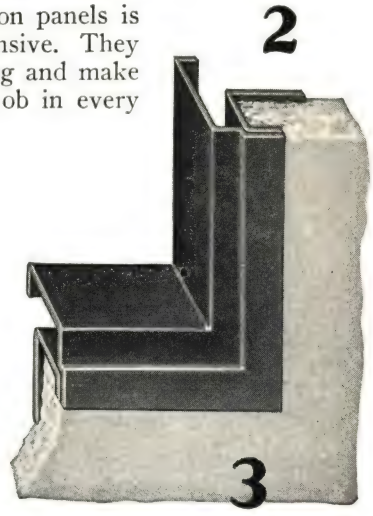
All panels are regularly finished in one light primer coat. They can be finished in any plain or grained finish to match samples at a slight increase in cost.

Inexpensive Installation

Installation of Watson panels is very simple and inexpensive. They are set before plastering and make a neat, flush finished job in every way.







STANDARD SIZES OF WATSON ACCESS PANELS

Width, in.	Height, in.	Width, in.	Height, in.
7½	11½	18½	20½
12½	12½	18½	24½
12½	16½	18½	30½
14½	14½	20½	20½
14½	18½	20½	24½
16½	16½	24½	24½

All sizes are given from door openings.

ESTABLISHED 1872

TELEPHONE
CAnal 6-2330, 6-6109

F. J. KLOES, INC.

269 Canal Street, NEW YORK, N. Y.

Products

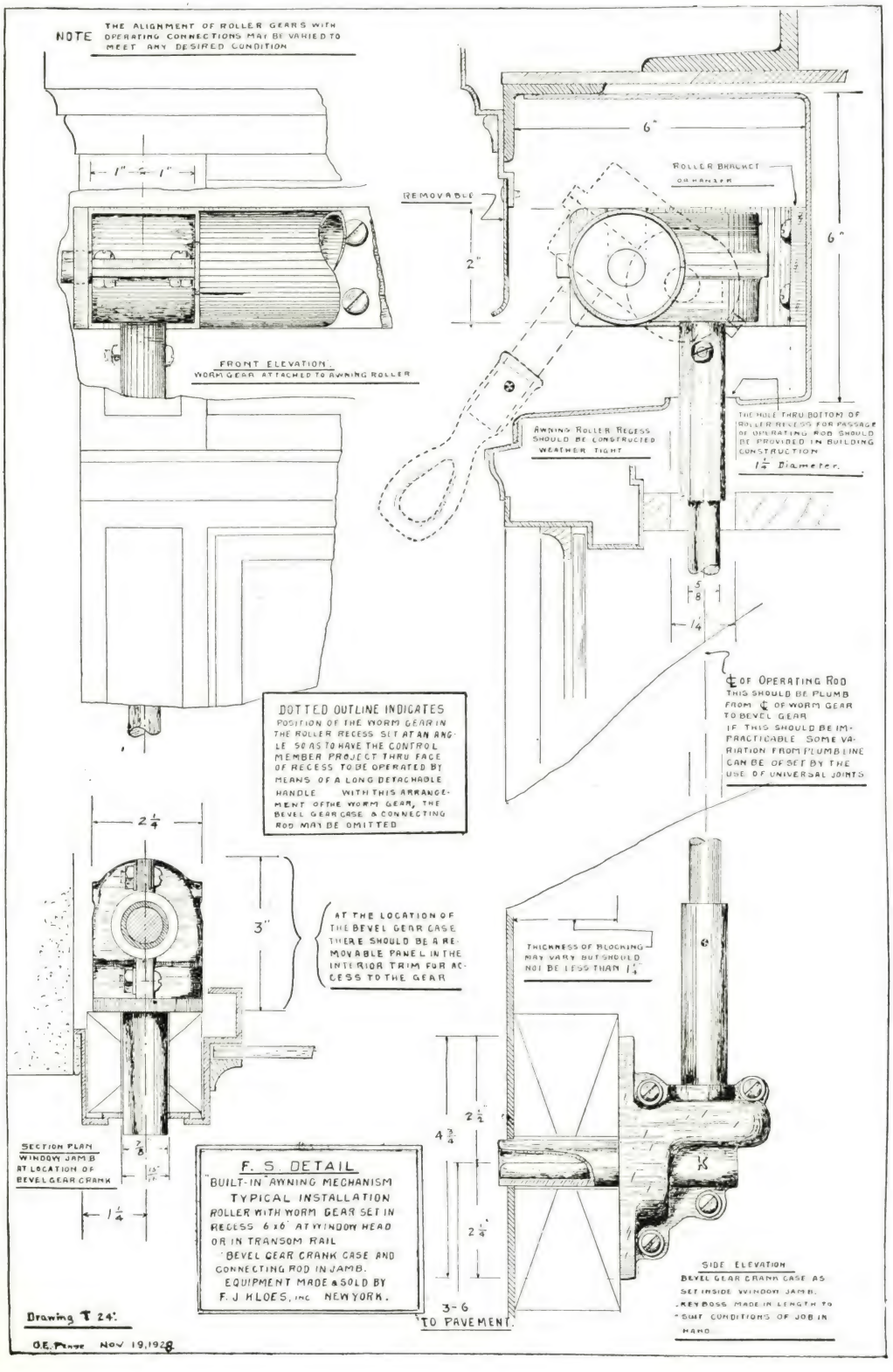
AWNINGS; BUILT-IN GEAR ROLLER AWNING MECHANISMS for Bronze Store Fronts, Hand or Power Driven; DISAPPEARING FLEXIBLE FOLDING AWNING OUTRIGGERS, for awnings on low store fronts, porches and large open terraces.

Also manufacturers of Window Shades, Curtains and Sidewalk Canopies.

Complete Awning Construction

F. J. KLOES, INC., plan, manufacture and install complete awning equipment for all types of buildings; stores, hotels, public buildings and residences.

Long experience and extensive facilities enable this company to offer architects and contractors promptest co-operation and service. F. J. KLOES, INC., have also developed several special improvements in awning construction and manipulation which greatly simplify certain awning problems.



Kloes Built-in Gear Roller Awning Mechanism

This built-in mechanism obviates the unsightly exposed mechanical features of the old fashioned type of awning and keeps awnings practically out of sight when they are not in use. It may be operated either by hand or power, as desired.

The Kloes Built-in Gear Roller Awning Mechanism is most economically installed during original building construction. It can, however, be installed in existing building fronts made of wood, stone, or iron, provided space available in jambs is at least 2½ in. in width.

Its use is especially desirable in the case of fine store fronts and wherever else it is important to preserve the best architectural harmony of the building.

Construction — The Kloes Built-in Gear Roller Awning Mechanism consists of a worm gear awning roller designed to set into a recess which is provided in the construction of the window framing either at the head of the opening or at the transom bar. A bevel gear crank box with a connecting shaft to operate the roller

is built into one of the window jambs. An opening in the face of the jamb for admission of the crank key is usually placed 3 ft. 6 in. above the pavement.

In some cases the roller control gear is not built in; a short shaft from the roller worm gear being carried directly through the face of the awning roller recess where it terminates in a pendant hook, which may be controlled by means of a long detachable handle.

The architectural design frequently calls for some special treatment of the operating connections and F. J. KLOES, INC., are prepared to submit drawings outlining any necessary applications on receipt of request with drawings.

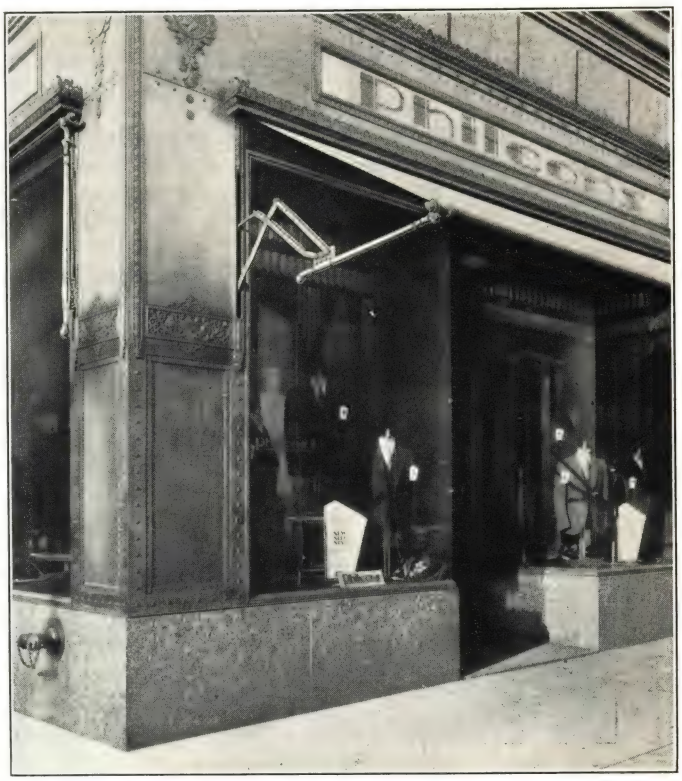
Ornamental Disappearing Awning Outriggers

These awning frames appear to be part of the store front design when in raised position.

Ornamental awning outriggers can be designed to conform with the general architectural design of the building.

The ordinary store front being less than 11 ft. high and the necessity of the awning being 7 ft. above the sidewalk restricts the possible space for awning outrigger to 4 ft. or less. The Kloes Disappearing Outrigger can be made to fold into a space of less than 4 ft. and to project from 6 to 7 ft. 6 in.

When laying out space in drawing, suitable provision should be made in the design of the window jamb to provide for the reception of the folding part of the outrigger. This outrigger can also be designed so that the outer member when raised back to building will completely close the opening to the recess, leaving absolutely no sign of an awning.



Corner of a Monumental Building Having Twenty Store Fronts All Equipped with This Type of Awning Frames

Note the very compact cornice construction in which the awning roller mechanism is located. When in raised position these awnings are entirely out of sight.

Some of the Jobs Installed

New York
B. Altman & Co.
R. H. Macy & Co.
Best & Co.
Gimbel Bros.
Bloomingdale's
Saks & Co.

Brooklyn, N. Y.
Abraham & Strauss
Frederick Loeser & Co.
A. I. Namm

Milwaukee, Wis.
Rosenberg's

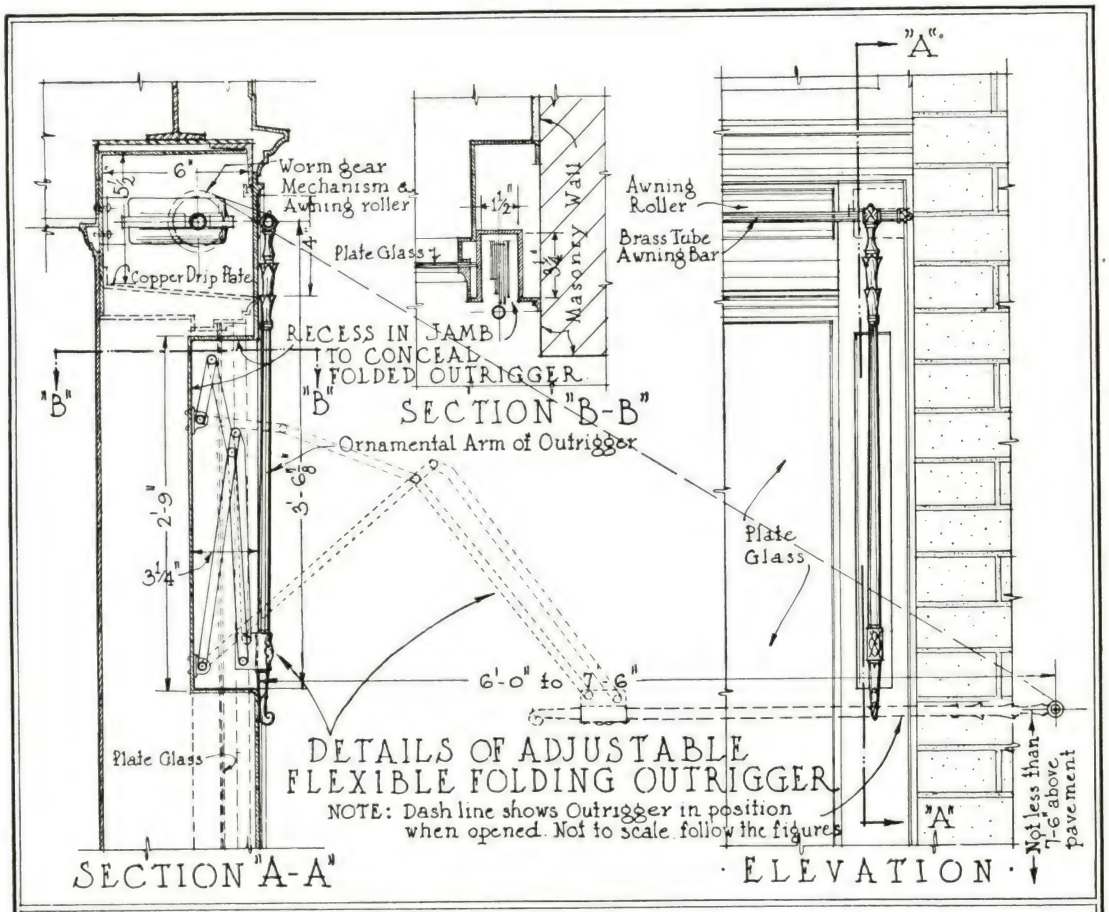
Newark, N. J.
Kresge Dept. Store
L. Bamberger & Co.

Philadelphia, Pa.
Strawbridge & Clothier
Bonwit Teller & Co.

Washington, D. C.
Garfinkel Dept. Store

Toledo, Ohio
Lamson Store

Toronto, Can.
T. Eaton Co., Ltd.



DETAILS OF ORNAMENTAL DISAPPEARING AWNING OUTRIGGERS

Motor Driven Awnings—Large Awnings for Open Terraces, Country Clubs, Hotels, Restaurants and Office Buildings

Kloes Flexible Folding Awning Outrigger (patented) is the most durable awning extension arm for awnings on low store fronts, porches, and large open terraces. It does away with uprights and slide rods and prevents awning from lowering below the desired level. Electrically operated or hand operated. Furnished in 17 standard sizes, for extensions from 4 to 27 ft.



Electrically Operated Awning Made for Westchester Biltmore Country Club, Rye, N. Y.

Awning is 114 ft. wide, extending 24 ft. Has electric worm gear drive, 6 folding outriggers, weighing 800 lb. each. Cloth: 500 yd. 15-oz. army duck. Positive emergency shelter for an outdoor dining room



Large Roller Awning for Penthouse Homes and Roof Gardens

This awning 48 ft. in width, 16 ft. projection is over a terrace on 23rd floor of the Heckscher Building, New York, N. Y. Extra heavy construction due to excessive exposure.

The photograph of this awning was taken after eight years of service. Automatic electric control

Designing, Estimates and Service

We will gladly submit plans, and estimates on all types of awning installations. We invite co-operation with architects and contractors in the solution of their awning problems.

Complete detailed drawings made up and furnished to cover any desired application.

Vibrationproof Sockets for Roof Awnings

A socket which transmits all superstructure stresses direct to the building structural steel. The roof surfacing cannot be affected. A very popular demand has developed for the construction of awnings over building roofs, such as penthouse terraces, hospitals, clubs, outdoor dining rooms, recreation centres, etc. Many instances have occurred where the application of awnings for such purposes has seemed impractical due to the danger of affecting the waterproof qualities of the roof.

These sockets are used for the erection of awning frames or other structures, which may be required subsequent to the completion of a building. Any such structure may be attached to these sockets without endangering the waterproofing in any way.

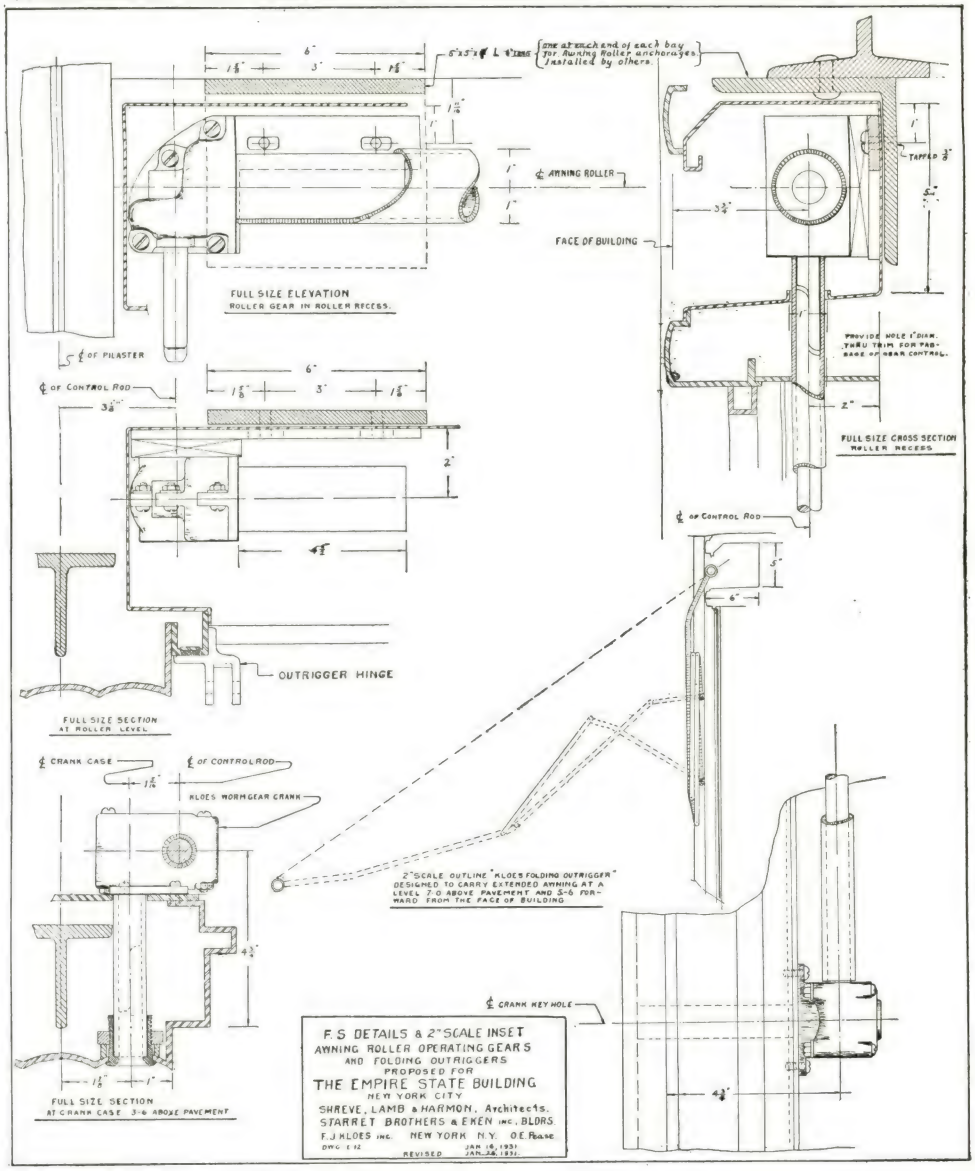
Sockets are made in lengths to reach from the top of structural roof beams to the finished surface of the roof. Also made in another type to be bolted to concrete arches.

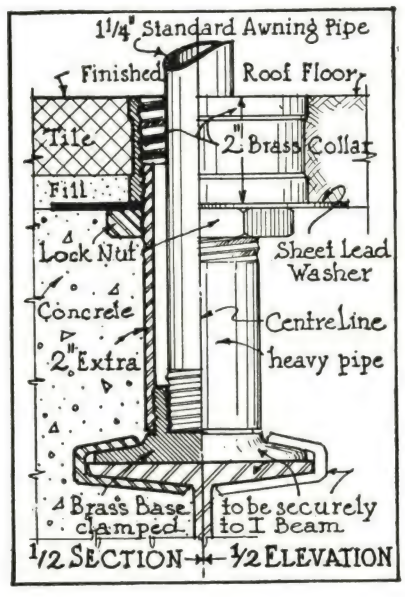
The waterproofing is protected by having the sheet lead washer flashed into the felt and tar roof covering. The brass collar on upper end of the socket is made to equal thickness of the tile surfacing. The sockets when delivered have a brass plug screwed into the brass collar to close the opening.

Whenever it may be desired to have an awning frame or other structures attached to the roof, the plug may be removed and a length of 1¼-in. standard pipe screwed into the base of the socket. The space between the outside of the 1¼-in. pipe and the inside of the socket sidewalls should be filled with pitch or other elastic substance.

APPROVED AND SPECIFIED AWNING OPERATING EQUIPMENT FOR THE EMPIRE STATE BUILDING

A SPECIAL ARRANGEMENT OF STOCK FIXTURES ADAPTED TO SUIT STRUCTURAL CONDITIONS. DESIGNED AND MANUFACTURED BY F. J. KLOES, INC.





ATHEY COMPANY

Perennial Window Shades and Disappearing Skylight Shades

6035-6045 West 65th Street, CHICAGO, ILL.

BRANCHES AND DISTRIBUTORS

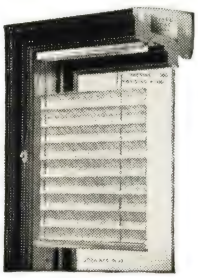
BOSTON, H. E. Holbrook Company, 89 Federal Street
BUFFALO, Howard T. Cary, 293 Voorhees Avenue
CHICAGO, Wilson & Scott, 30 No. Michigan Avenue
CLEVELAND, Consolidated Screen & Weatherstrip Company, Rockefeller Building
DAYTON, OHIO, Glawe Mfg. Co., 515 E. Herman Avenue
DETROIT, LeSage & Company, 1720 12th Street
HARTFORD, Hartford Wire Works, 90 Allyn Street
HONOLULU, T. H., Jack Drew, Box 3135
LOUISVILLE, Pryor & Carroll, 405 W. Oak Street
MEMPHIS, Chears Floor & Screen Co., 884 Adams Avenue
MILWAUKEE, Willer Screen & Weather Strip Co., 1459 No. 40th Street
NEW YORK, Franklin H. Keese, 7 E. 42nd Street
ST. LOUIS, John C. Wasson, 1020 Ambassador Building
ST. PAUL, Metal Weatherstrip Co., 910 Builders Exchange
SAN DIEGO, Consolidated Building Specialties Co., 848 8th Street
TORONTO, Cresswell Pomeroy, Ltd., 2 Grosvenor Street

CANADIAN OFFICE AND FACTORY: Cresswell Pomeroy, Ltd., 3989 Ambroise Street, MONTREAL

For our page on Weatherstrips, see Manufacturers' Index

ATHEY PERENNIAL WINDOW SHADES

The Athey Accordion Pleated Window Shade has been on the market for over 15 years, the manufacture of same having been taken over by this company in 1920. Since then many important improvements have been made so that the present shade is a perfected article in both materials and mechanism.

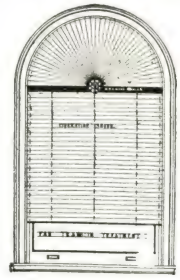


The cloth used is a herringbone weave coutil cloth, manufactured especially for Athey Shades, the thread count is 124x76 or 200 threads to the square inch, weight 1.98 lbs. to the yard. It is calendered to a smooth, dirt resisting finish; the lasting quality of Athey Shades is obtained from the cloth itself and not from artificial filling materials.

Athey Shades are furnished in the following colors: tan ecru, orange ecru, light green, dark green, taupe, black, and white, all colors being guaranteed against fading.

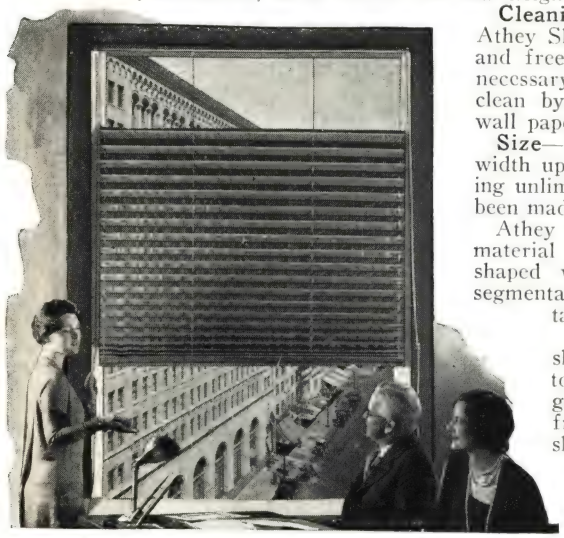
The cloth is pleated in 1⅝ in. folds, stitched along the edges of each fold thereby assuring the proper collapsing of the pleats when the shade is operated. When collapsed, very little space is occupied by the shade, about 3% of the total height.

Athey Shades are attractive, enduring and practical and are the intelligent solution of light control as they can be lowered from the top as well as raised from the bottom, thereby permitting the shading of any part of the window as desired.



Construction and Operation—The mechanism consists of a steel cord case 1⅛x$\frac{13}{16}$ in. at the head, painted in duco to match the color of the cloth. In this cord case are the brass rollers over which the cords operate and the brass adjusting sleeves for tightening the guide wires. The shade is gravity operated, weight bars being used at the top and bottom of the shade. These bars are invisible, being covered by the hem of the shade. The cord used is a hollow braided cord, all attachments made to the bars by the use of screws in the ends of the cord, no knots being used in the assembly. Guide wires, sill plates and cordhooks are all of polished brass.

Special finishes for residence work, lacquered in gold, silver, copper or any metallic colors, also chintz faced shades of cloth as may be selected by the purchaser.



Cleaning—The constant operation of Athey Shades tends to keep them clean and free from dirt. When cleaning is necessary, brush off surface, dust and clean by same method as in cleaning wall paper.

Size—Shades can be made in any width up to 17 ft. wide, the height being unlimited, in many instances having been made as high as 20 ft.

Athey Sunburst Shades of the same material can be made for irregular shaped window heads and transoms; segmental, elliptical, gothic or rectangular

Natural Ventilator—The shade acts as a natural ventilator when the sun is on the glass. By lowering the window from the top and raising the shade from the bottom, the intermediate air becomes superheated causing an upward current which ventilates the room.





Detroit Buildings
Athey Shaded

ATHEY DISAPPEARING SKYLIGHT SHADES

The Athey Skylight Shade is used to shade skylight openings, greenhouses, natatoriums or any other type of ceiling opening where a shade might be required. With the variety of *guaranteed non-fading* colors available, it is possible to secure this shade in a light color fabric to eliminate glare and diffuse light or in an opaque fabric for purposes of darkening auditoriums or laboratories for projection work.

All materials used in this type of shade are the same high quality as those used in the regular Athey shade shown on preceding page. The Athey Skylight shade, however, operates in a horizontal position and instead of the cords and wires running through the cloth, the pleats are suspended below the taut brass wires by means of bronze clips and the cords operate above the shade. When the shade is extended across the opening, all cords and wires are invisible from below. When the shade is collapsed it occupies about 3% of the length of the well affording practically full use of light coming through skylight opening on dark days.

The cost of skylight shades varies with the installation conditions. The most simple and economical installation is to have the shade operated from a point directly below the well—the operating cord loop dropping down from one corner of the well to about 6 ft. from the floor where it may either hang free or be fastened to any convenient wall or pillar.

When the operating cords below the well are objectionable, they can be diverted from the well to the nearest wall or column on a direct line, providing the distance is not more than 10 ft. When necessary to operate the shade from a greater distance, cables are used and operation effected by the use of a geared winch which naturally is more expensive to install.

In making preparations for Athey Skylight Shades, when laying out the building plans, we ask that architects consider where the shade is to be located and to keep this space clear of radiators, piping, etc. If piping for skylight radiation or sprinkling systems is necessary, locate it as close to the wall as possible and preferably at the narrow end of the well.



Offices of Bowman Dairy Co., Chicago, Ill.

All skylight shades are made to the narrowest width of the well and operate the long way. Where operating cords are to hang free, we suggest the shade be located in the lower 6 ins. of the well. Where cords are to be diverted to any great distance, we suggest the shade be located so that cords can run in a direct line to a point where they are to be diverted downward.

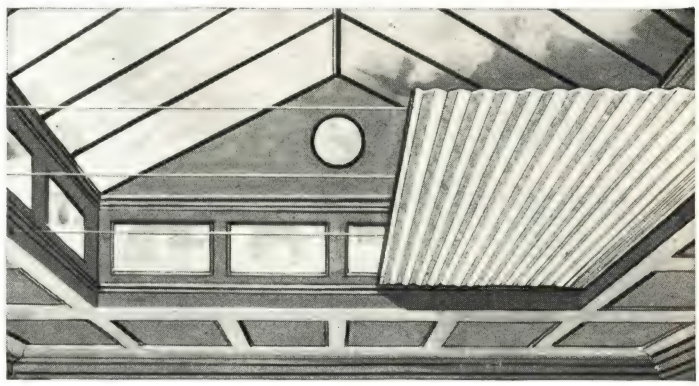
If skylight wells are of concrete we suggest the insertion of 4 in. wood grounds at each end to provide anchorage for the shade as this will simplify installation considerably.

In shading greenhouses, natatoriums or other glass roofed buildings, the same type of shade is used; however, if the pitch of the roof is as great as 45 degrees, the installation can be simplified as the shades will lower of their own weight, thus dispensing with one set of draw cords.

Owing to the excessive number of cords that would be necessary to operate the shade from both ends of the well towards the middle, the shade operates from one end only, the other end anchored to the well. Send your plans direct to Chicago for estimate or confer with our nearest representative.



The E. H. Allen Private Natatorium, Chicago



Skylight Shade

ANDEL & COMPANY

AFFILIATED WITH KERNER INCINERATOR COMPANY

Manufacturers, Contractors and Engineers

4630-4636 North Lamon Avenue, CHICAGO, ILL.

For Local Offices, see Kerner Incinerator Company pages

Products

ANDELCO LIGHTPROOF CURTAIN EQUIPMENT.
Andelco Electrical Sash Operating Equipment.
Andelco Electric Heaters.
Andelco Sheet and Plate Metal Products.
Heating-Ventilating, Air Conditioning, Cooling Equipment.
Andelco Combination Steel Fireplace Throats and Damper.
Special Mechanical Equipment.
Sheet and Plate Metal Work.
Drying and Processing.
Andelco Hoods and Canopies.
Owners and Operators of Chicago Aerological Laboratory.

ANDELCO LIGHTPROOF CURTAINS

Visual Education and Methods Requisites

Auditoriums, assembly halls, laboratories, and such rooms as lecture, class, micro-projection, X-ray or fluoroscopic, cystoscopic, operating, demonstration, fracture, eye, nose and throat, radiographic, cardiographic, and G. U. Rooms, etc. or wherever complete and full light exclusion is desired periodically.

Service

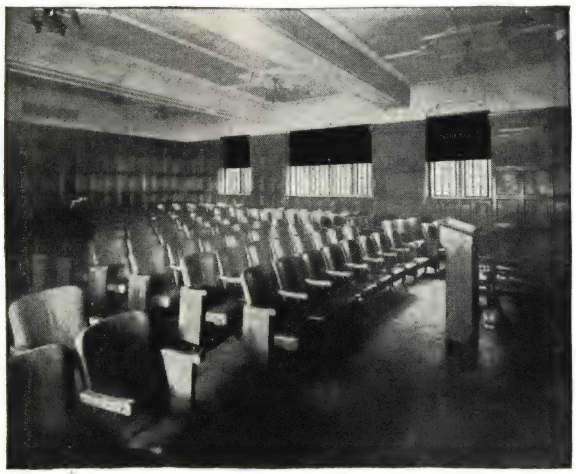
Send to us your plans, elevations and sections, or sketches, for our recommendations, details, specifications and prices or call in our nearest representative.

Construction

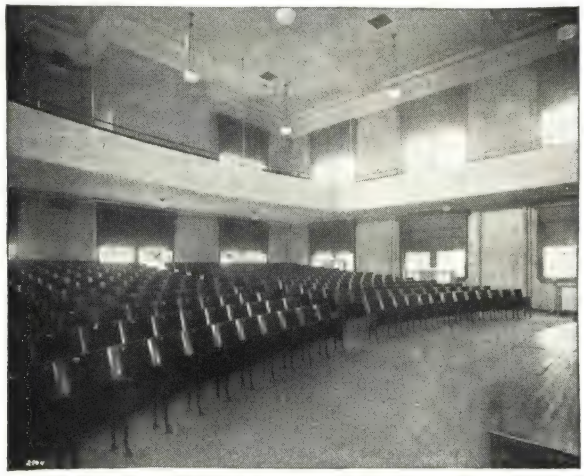
Andelco Lightproof Curtains are made of heavy doubly treated and filled special Andelette leather and steel. We manufacture both electrically and manually operated equipment. All types are automatic limiting and foolproof. Andelco best grade equipment is fully self-lubricating.

Guarantee

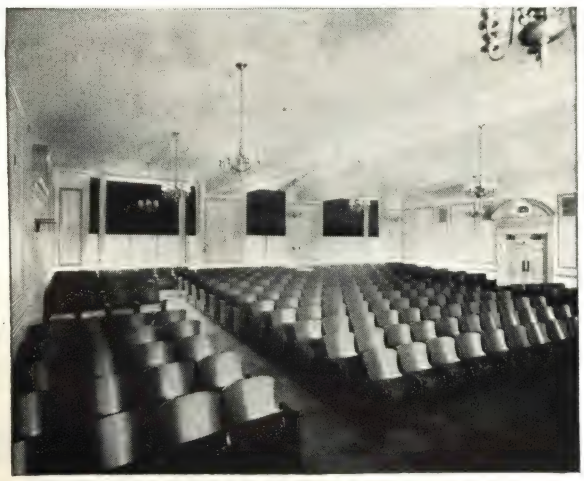
All Andelco Lightproof Equipment is guaranteed unreservedly. Any necessary replacement, repairs or adjustments to make Andelco installations wholly and fully satisfactory will be made in a period of five years after completion of installation free of any expense to the buyer.



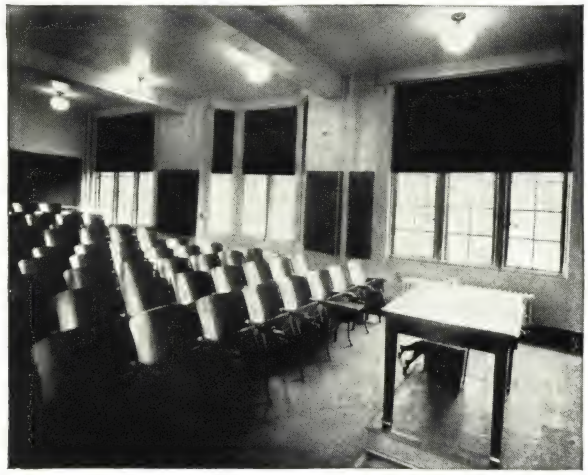
Typical Lecture Room Auditorium, University of Chicago, Social Science Building
C. HODGDON & SON, Architects
"Built-in" type installation, electrically operated



Typical School Auditorium, Indiana University, School of Pathology
R. FROST DAGGETT, Architect
"After-completion" type of installation, electrically operated



Lecture Room Auditorium, University of Chicago, Eckhart Hall
CHARLES Z. KLAUDER, Architect
"Built-in" type installation, electrically operated



Typical Lecture Classroom, "Semi-Built-in" Type Installation, Hand Operated

SUN-FAST AND VENETIAN STRIPE HOLLANDS

Manufactured by
JOSEPH BANCROFT & SONS CO.
WILMINGTON, DEL.

A MOST ATTRACTIVE AND SERVICEABLE CLOTH FOR WINDOW SHADES

SUN-FAST
TRADE MARK REG. U.S. PAT. OFF.

Sun-Fast and Venetian Stripe Hollands are covered by an absolute guarantee of the manufacturers, covering all colors, that they *will not fade by exposure to the sun.*

Sun-Fast and Venetian Stripe Hollands are made from a specially woven heavy sheeting, and are stronger, more durable and longer wearing.

Attention is called, and comparison invited, to the smooth and *lustrous beetled finish* and the brilliancy of colors.

Sun-Fast and Venetian Stripe Hollands will not stretch, crack, dry out, become tender and brittle when exposed to the sun and air.

In these goods the art of the manufacturer has, we believe, been brought to a point of perfection, far beyond anything heretofore attained. They are made by patented processes, and to secure uniformity of fabrics, color and finish, the manufacturers maintain their own mills for the spinning and weaving of the basic cloth, their own laboratories for the making of materials used for color, and their own plants for dyeing and finishing.

SUN-FAST AND VENETIAN STRIPE HOLLANDS ARE NOW CLEANABLE

Sun-Fast and Venetian Stripe Hollands are *weatherproof, waterproof, unshrinkable, insectproof, and cleanable* with soap and cold or warm water, wet cloth or sponge.

Sun-Fast and Venetian Stripe Hollands are considered the most modern of all shade cloths.

The day of scrubbing wooden floors, etc., with all the incidental disagreeable conditions and labor, are past.

You now clean Sun-Fast and Venetian Stripe window shades just like tile in a bathroom. Simply wipe the grime off. Scrubbing is unnecessary.

OTHER SHADE CLOTHS

Claysmith Company, Inc., Manufacturers

Albert Hollands

Both plain and striped. Unsurpassed among medium priced fabrics for window shades, on account of greater durability. Are true to color and of superior finish.

Claysmith Striped Hollands

An outstanding cloth for appearance and value.



London Hollands

Both plain and striped. Unexcelled among lower priced fabrics for window shades, for the reason that they are stronger, are true to color and of superior finish.

Smith's Oil Opaques

The superiority of finish, color, flexibility and durability, make them particularly desirable for window shades.

DU PONT TONTINE WASHABLE SHADE CLOTH

Made by

E. I. DU PONT DE NEMOURS & CO., INC.

NEWBURGH, N. Y.

Product

DU PONT TONTINE, the washable Window Shade Cloth.

Advantages

Genuine du Pont Tontine possesses unique advantages which architects have long sought in window shades. It is proof against the three main causes of shade failure: *dirt, rough handling and rain.*

Washable—Tontine can actually be scrubbed with soap, hot or cold water and a brush. All dust, dirt, and finger marks are easily removed—the shade restored to its original fresh beauty, season after season.

Durable—Du Pont Tontine shade cloth is made by an entirely new process—pyroxylin impregnation. This process assures the highest degree of durability. Tontine shades will survive the rough handling and abuse incident to hotel, hospital, school and other installations of like nature.

Waterproof—Rain and storms have no effect upon Tontine. Even extreme dampness at the seashore cannot make it limp.

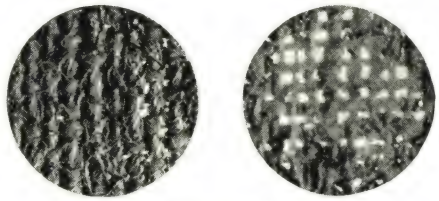
Sunfast—Tontine is made with tested sunfast pigments. It will not fade on exposure to sun, rain, or even when being washed. It is remarkably resistant to fraying on the edges.

Tontine eliminates the need of costly shade replacement. It is most economical.

DU PONT
REG. U.S. PAT. OFF.

TONTINE
REG. U.S. PAT. OFF.

THE *WASHABLE*
WINDOW SHADE



The Washing Test

Unretouched photomicrograph showing du Pont Tontine after being scrubbed with a brush, soap and hot water. Note that the surface is unharmed by this rigorous washing test

A high grade non-pyroxylin shade cloth washed exactly the same way as the Tontine cloth (unretouched photomicrograph). Filler has dropped out exposing the basic fabric



This Window Shade Can Actually Be Washed

Samples for Testing in Your Office

We will gladly send a large sample piece of Tontine to test out in your office. Soil this piece, then scrub it clean with soap, water and a brush. Immerse it in water for days—it is thoroughly waterproof. Twist and crease it between your hands. It does not crack or "pinhole."

How Tontine Is Made

Tontine is made by an entirely new process, developed by du Pont chemists. The basic fabric is special cotton cloth, woven to our strict specifications as to weight, count and tensile strength.

This material is thoroughly impregnated with imperishable pyroxylin, forced through and through the fabric—an ideal vehicle for the tested sunfast pigments used for coloring. No fillers or coatings which could deteriorate are used. Tontine's surface is beautiful, lasting, very tough and entirely waterproof.

Colors and Widths of Tontine

Du Pont Tontine shade cloth is offered in 19 solid colors and 6 duotone combinations (widths 36 to 72 in.); in attractive corded designs (widths 32 to 63 in.); and in figured patterns (widths 36 to 54 in.). All Tontine shade cloth, no matter what design, pattern or color specified, is waterproof, washable, sunfast and durable.

How to Test the Quality of Window Shade Fabrics

Before specifying any window shade, make actual tests yourself.

Will the material stand up under washing?

Rough handling?

Rain?

Note the effect of a washing test on Tontine in comparison with an ordinary filled fabric. See photomicrographs above.

Proper Specifications for Shade Cloth

All shade cloth shall be du Pont "Tontine," waterproof and washable pyroxylin material, of color to be selected by the owners. Each shade to be mounted on the Tontine guaranteed shade roller. Each bidder must submit a sample of the material he proposes to furnish.

Samples

Write for sample books showing complete color range, testing swatches, information concerning installation, and names of nearest dealers.

INTERSTATE WINDOW SHADE PRODUCTS

Manufactured by

Interstate Shade Cloth Co.
812-820 Jefferson Street
HOBOKEN, N. J.
TELEPHONES, Hitchcock 4-1760; Hoboken 3-1848, 3-1849

The Lapsley-Interstate Shade Cloth Co.
Light and Lombard Streets
BALTIMORE, MD.
TELEPHONE, Plaza 3290

Products

INTERSTATE WINDOW SHADE CLOTHS and ROLLERS are sold under trade-marked brands—Inter-twill, Radiant, Sunlite, Paragon, No-Lite Shadowless and Rolrite Guaranteed Rollers—specify accordingly.

Inter-twill—the Long Wearing Shade Cloth

An improved type of shade cloth with the strength in the twill. We believe it is the toughest and strongest shade cloth and will outwear them all. It will stand abuse and rough usage. The threads will not "burn" when exposed to the sun's rays. It has special Interstate protective coating which makes it easily cleanable, reversible and long wearing. Soil is easily removed from its surface. The manner in which the twill fabric is woven insures the extra years of service. It is pure finished, and unfilled, no clay or other fillings used in the manufacture. Made in any color tone and in any combination of colors.

INTER-TWILL WINDOW SHADES
THE STRENGTH IS IN THE TWILL

"Radiant" Washable Window Shade

The feature of this cloth is that it is not only washable but that it can also be had in colors of the modern spirit: jade, peach, old rose, celestial blue, canary, sun flower, apple green, tango, lilac, sweet pea, seafoam, sapphire, amber, gunmetal, also in other pastel tones: cream, sandstone, ecru, mauve, and in duplex color combinations.

Interstate Cambric Cloth Shades

The cambric cloth used has a thread count of 72x80 and exceeds the technical requirements of the United States Government specifications No. 345 and the revised master specifications of May 22, 1928, No. 367b as to thread count and tensile strength.

Like all Interstate Shade Cloths the following brands are pure finished, unfilled; no clay or other fillings are used in their manufacture. They are cleanable and color fast.

Sunlite, a Cambric Tint—This is lightly tinted shade cloth made on unfilled cambric cloth in all the popular tints. It is translucent in lighter colors (light without glare) and semi-translucent in darker colors.

Paragon Heavy Duty Cambric—A heavier coated shade cloth, unfilled cambric, semi-opaque in lighter colors and opaque in darker colors.

Paragon is a "heavy duty" shade cloth especially adapted for office buildings.

Many attractive colors to choose from.

No-Lite, a Shadowless Shade Cloth—This a triplex process shade cloth—made on unfilled cambric cloth and is absolutely opaque in all colors. Any color combination.

The undercoat is black, making it shadowless and lightproof. Used extensively for auditoriums, X-ray rooms, and hospital laboratories.

No-Lite is used in hotels and residences where shadows would be objectionable.

Specify No-Lite when total exclusion of light is desired.

Rolrite Shade Roller

This roller does what its name implies. It rolls right because it is made right. It has a spring that is different—we call it a super-spring. This spring is made with precision of highly tempered spring steel wire fashioned by automatic machines. Ordinary springs are handmade and are often uneven in their performance. Rolrite springs render real service. All lumber used is seasoned straight-grained white pine. Every roller undergoes a number of inspections and tests and must roll right before it leaves the factory. Every Rolrite Roller is unqualifiedly guaranteed.

An all-metal Roller is made for extra wide shades.

Diameters—Rolrite wood rollers are made in four diameters: $1\frac{5}{8}$, 1, $1\frac{1}{8}$ and $1\frac{1}{4}$ in.

Metal rollers are made in eight diameters: 1, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $2\frac{1}{4}$, 3, 4 and 5 in.

Slats are $\frac{7}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, 2 and $2\frac{1}{2}$ in. For shades up to 60 in. wide not less than $1\frac{1}{4}$-in. slat should be used.

We recommend the following diameters: for shades up to 38 in., 1 in.; shades 39 to 48 in., $1\frac{1}{8}$ in.; shades 49 to 63 in., $1\frac{1}{4}$ in. For shades wider than 63 in. use metal rollers.

Widths

Radiant, Sunlite, Paragon, No-Lite shade cloths can be furnished in any width up to 150 in. and in any color or combination of colors.

Inter-twill up to 130 in. wide.

Architect's Specifications

Shade Cloth—"Inter-twill" [Sunlite] [Paragon] [No-Lite] as manufactured by the INTERSTATE SHADE CLOTH CO. shall be used for all windows, and of a color to be selected (state if a solid color or duplex color is being considered).

Rollers — Interstate "Rolrite" guaranteed wood rollers of the proper diameter (for shade wider than 63 in. specify metal rollers).

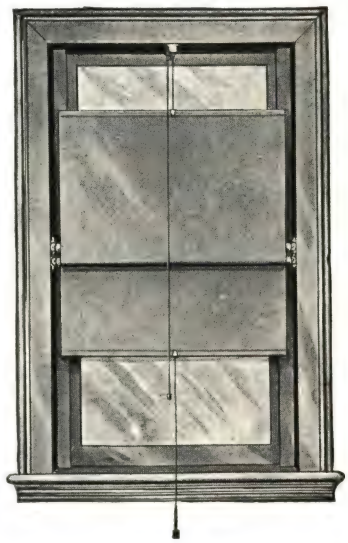
Service and Samples

Our service department will co-operate with architects in writing specifications which will prove helpful in securing estimates.

We will gladly share our knowledge of shade materials used in various types of installations and furnish sample window shades to determine color tone effect at window.

Facilities

We have ample facilities for the prompt handling of the largest contract job.



Double Hung Window Shade Installation

Two window shades are installed at center of window. One shade may be pulled up to cover upper sash, the other shade pulled down to cover lower sash. Double hung window shade installation is suitable for schools and hospitals. Permits control of light and air

ESTABLISHED 1860

STEWART HARTSHORN COMPANY

SUBSIDIARIES

OSWEGO SHADE CLOTH COMPANY
OSWEGO, N. Y.

JOANNA MILLS
GOLDVILLE, S. C.

Manufacturers of Hartshorn Window Shade Rollers and Shade Cloths

TELEPHONE
CAledonia 5-9620

250 Fifth Avenue
NEW YORK, N. Y.

BRANCH OFFICES

CHICAGO, ILL., 29 East Madison Street

TORONTO, ONT., CANADA, 54 River Street

LONDON, ENGLAND, Bush House, Aldwych, W. C. 2

Products

HARTSHORN WINDOW SHADE ROLLERS; HARTSHORN WINDOW SHADE CLOTHS.

HARTSHORN AWNING ROLLERS.

Also special grades of High Carbon and Alloy Steel Wires; Aircraft Tie Rods.

Hartshorn Automatic Spring Shade Rollers

Hartshorn Wood Rollers—Have barrels of well seasoned, kiln dried white pine; finely tempered steel wire springs, produced in Hartshorn's own wire mill; moving parts, which consist of brass pawls and rivets mounted on a copper plated steel cup that revolves on a brass ferrule, will not rust or stick and insure smooth, silent action; aluminum shells, which will not rust or tarnish, but remain always bright and new, enclose the mechanism at one end of the roller. Aluminum pin ends protect the solid end. All of these new improved mechanical parts make the Hartshorn Roller silent, smooth running and long lived. Hartshorn Rollers are guaranteed for the life of the building.

Hartshorn Wood Rollers are made in four diameters:

⅝ in. up to 43 in. in length	1⅛ in. up to 49 in. in length
1 in. up to 43 in. in length	1¼ in. up to 73 in. in length





Made in two styles: Regular full round for use with mounting machines, tacks or staples; Improved Grooved for use with shade holders.

Hartshorn Metal Rollers—Made of high grade hammered open hearth steel, heavily tin plated. Powerful springs made of finely tempered steel wire produced in Hartshorn's own wire mill; brass pawls and copper plated stamped steel parts make this roller smooth running and rustproof. Extension plugs in the ends permit the lengthening of these rollers in proportion with the diameter of the roller. Hartshorn Metal Rollers are guaranteed for the life of the building. They are made in two styles: the new groove in which fasteners are slipped over the end of the shade, pressed into the groove and turned so as to secure the cloth. The old groove in which the cloth is folded over short lengths of wire, slid into the groove from the plug end and held securely in place by these short wires.

Hartshorn Metal Rollers are made in the following diameters:

1 in. up to 4 ft. in length	2¼ in. up to 12 ft. in length
1¼ in. up to 5 ft. in length	3 in. up to 15 ft. in length
1½ in. up to 6 ft. in length	4 in. up to 18 ft. in length
1¾ in. up to 9 ft. in length	5 in. up to 25 ft. in length





Hartshorn Awning Rollers—Hartshorn All-metal Galvanized Spring Awning Rollers are made with patented all-metal extension; are rustproof and easily adjustable. Can be used for several sets of awnings. Made in 1½, 1¾, 2¼, 3, 4 and 5-in. diameters. (The 3, 4 and 5-in. diameters are made only with the regular wood plug extension.)

All exposed parts are electro-galvanized, making them completely rustproof. The powerful springs of finely tempered steel wire, produced in Hartshorn's own wire mill, can be adjusted to lift the heaviest awning. The awning canvas can be sewed to a strip of strong Holland shade cloth supplied with each roller. The Holland strip is easily inserted in the roller groove and held securely in place by a full length wire also supplied with each roller.

Also Hartshorn Steel Awning Rollers heavily plated with tin and painted with a waterproof paint. Made in all diameters listed above with regular wood plug extension.



Hartshorn Automobile Rollers—Made of high grade hammered open hearth steel plated with tin in ¾-in. diameter size with 1-in. nickelplated flanges on the ends. Noiseless and rattleproof. Obtainable in stock sizes for all standard make cars.

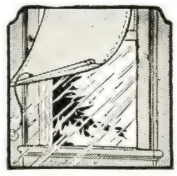
Hartshorn Car Rollers—For use in railway cars, street cars, etc., specially made with powerful springs of finely tempered wire.

Special Rollers—We are always glad to take up problems of roller construction for special devices. Having our own wire mill we are best able to furnish springs that can be adapted for any work required.

Hartshorn Shade Cloths

The muslin used in all Hartshorn Shade Cloths is made from high grade, long staple cotton, produced in Hartshorn's own mills at Goldville, S. C. These mills are equipped with the very latest types of textile machinery and are devoted exclusively to the production of shade muslin. By spinning and weaving its own shade cloth Hartshorn obtains a specialized product which has many advantages over that ordinarily used.

Hartshorn Joanna Cloth—A waterproofed beetled shade cloth with a beautiful satin, moire finish. This cloth contains no filling and is made by a manufacturing process whereby a special protective preparation literally is hammered into select cotton fabric. Exposure to rain or weather will not affect it. It is sunproof, dirt-resisting and sanitary, and is easily cleaned. Joanna Cloth will not curl, crack, stretch or bag and will hang smooth and straight at the window indefinitely. It is manufactured in both solid and duplex colors. The light colors are translucent, but will not show silhouettes. They diffuse the light of the sun and brighten up the interior of the house.



Rainproof

Hartshorn Oswego Tinted Cambric—This fabric contains absolutely no filling and is tinted by hand with pure linseed oil colors which are sunfast. It is made from the best grade of cambric shade muslin and because of its oil painted finish it is not affected by moisture or atmospheric conditions. It is a durable shade cloth that will not curl, crack or bag. Oswego Tinted Cambric is very popular in duplex combinations since, by using a shade with contrasting colors on the two sides, it is possible to match both exterior and interior coloring without the use of two separate shades. The light colors are translucent, but will not show silhouettes. They diffuse the light of the sun and brighten up the interior of the house.

Hartshorn Oswego Shadowless Triplex—Is a specially treated cloth designed particularly for use in installations where the shades must keep out all light, such as in dark rooms, laboratories, X-ray clinics, moving picture auditoriums, etc. May be had in any color so as to match the shades in other parts of the building.

Hartshorn Oswego Opaque Cambric—An unfilled hand-made shade cloth, made exactly like Oswego Tinted Cambric with the exception that a heavier paint is used on the surface, making it less translucent. Opaque Cambric is particularly suitable for use in hotels or other public buildings where shades are apt to be subjected to rough usage.

Hartshorn Chouaguen Hand-made Opaque—A hand painted shade cloth of fine smooth texture, less translucent than Oswego Tinted Cambric.

Hartshorn Satin Finish Shade Cloth—Sunproof, waterproofed and cleanable.

Hartshorn Aluminum Coated Moving Picture Screen Cloth—Very popular wherever home movies are in use. Reasonable in price, easily installed and gives a good clear projection.

Samples

Write for sample books showing complete color line.

Window Shade Specifications

General—These specifications cover the manufacture and correct installation of window shades (including labor, material, and all appliances and accessories) at the given address, so as to provide a complete installation ready for use. Accurate measurements are to be taken at the building and all conditions noted by the contractor. Shades to be made in a thoroughly workmanlike manner, cut square and true and mounted on rollers in the same manner. The materials used in the manufacture of these shades must be commercially perfect and of first quality. All shades to be free from dirt, finger marks, etc., and subject to final acceptance by the owner.

Charge of Work—Owners shall have the general supervision and direction of work. They shall pass upon materials, workmanship and installation, and may reject such as in their judgment is not in accordance with contract or specification.

Scope of Work—(State here whether shades are to be double hung—that is, two shades mounted in the center of sash so that the top shade rolls down and the lower shade rolls up (school installation)—or whether the shades are to be mounted at top of the sash to roll down, or any other type of installation that may be required.) State also windows that will not require shades or any other information bearing on the installation and requirements pertaining to the job.

Cloth—Shades to be made of Hartshorn Joanna Cloth as manufactured by the Stewart Hartshorn Company. This cloth to have a smooth, moire finish and to be sunfast and waterproofed and to be free from filling. (Alternate prices on Hartshorn Oswego Tinted Cambric, or if lightproof window shades are desired Hartshorn Shadowless Triplex, as manufactured by the Stewart Hartshorn Company. This cloth to be hand-made, free from filling, sunfast and waterproofed.)

Length—Cloth for all shades to be *finished* 9 in. longer than actual window openings and of correct width.

(Optional)—Shades that are to be installed on face of casings to have the cloth cut 4 in. wider than width of window opening, so as to allow a 2-in. lap on each side.

Color—Color to be specified by architect. (State whether solid or duplex color is required.)

Rollers—All shades to be mounted on genuine Hartshorn [wood] [metal] Rollers. Metal rollers to be made of the best grade open hearth steel heavily plated with tin and fitted with a groove for attaching shade fabric. Rollers to be of a diameter guaranteed to carry the shade. (State diameter required.)

Slats—⅞, 1¼, 1½, 1¾, 2 or 2½-in. white pine slats to be placed in hems of all shades. Slats to be cut ¼ in. less than width of cloth.

Eyelets—Shades to be equipped with stainless metal eyelets fastened through the center of slat for attaching of shade cord or shade pull.

Cord—All shades to be equipped with No. 2, 3½ or 4 braided cord (ring pull) to match color of shade and to be attached to slat and fastened to the window jamb with suitable length of cord to allow for the operation of the shades.

Hems—Shades shall be equipped with [side hems] [plain side] [reinforced pocket]. Slat hems for all shades shall be securely sewed, back-stitched and tied.

Brackets—If attached to solid metal sash or frame, screw holes to be drilled and tapped and brackets installed with machine screws. If hollow metal sash and frame, screw hole to be drilled, brackets installed with Hartshorn's Expansible Screw Grips or a case hardened self-threading screw. If attached to wood sash or frame, brackets to be installed with regular wood screws. Brackets to be installed in such a manner so as to assure true alignment when rollers are placed therein. (On installations where stop pulleys are required the same method of attaching them will be used as stated in the installation of brackets.)

Delivery—All shades shall be installed complete by .....or any other date agreed upon in writing by the owner.

Shades for Casement Windows and Other Difficult Installations

No substitute has ever been found which can control the lighting of a room through windows any better than a window shade. Our *Architectural Service Department* is familiar with every type of window shade installation and can solve your most difficult problem. Please do not hesitate to call upon them for information.

Address your letter to the Architectural Service Department, Stewart Hartshorn Company, 250 Fifth Avenue, New York, N. Y., or call CAledonia 5-9620.

E. W. A. ROWLES CO.

Manufacturers of Public Building and Industrial Shades

2500 Prairie Avenue
CHICAGO, ILL.

THE COMPANY

Experience

The E. W. A. ROWLES Co., one of the largest manufacturers of school equipment, public building shades, etc. in the United States, has been continuously in business under the same management for thirty-four years. The unqualified guarantees covering the company's products are backed by an established financial integrity.

Facilities

Our factory, a model of efficiency, devotes approximately 10,000 sq. ft. of space to the manufacture of shades. Plant capacity is from 300,000 to 500,000 sq. ft. of shades per year. All shades are manufactured under rigidly supervised, controlled processes. Uniformity of quality is positively guaranteed.

THE GA DOUBLE ROLLER DEMOUNTABLE SHADES

General Description

Type GA Double Roller Demountable Shades are complete assemblies consisting of double shades factory mounted on brackets attached to a demountable, adjustable light strip designed for either inside (between jamb) or outside (over architrave) mounting, equipped with the necessary brackets, stop pulleys, endless sash cord ready to erect with the least cost. Roller tension is set at the factory. The demountable feature (patent applied for) allows the whole shade assembly (shades and light strip) to be easily and quickly removed from the attachment brackets by the removal of two bracket pins and the whole swung to the side and hung vertically to give free access to the window for cleaning.

Only the highest quality of materials are furnished throughout as specified in detail below.

Advantages

(1) Admits the greatest possible volume of light.
(2) Eliminates glare.
(3) Offers no interference to ventilation.
(4) Is easily and inexpensively installed.
(5) Is quickly removed to give free access for window cleaning.
(6) High quality, durable materials used throughout.
(7) Is reasonable in cost.

Shade Mountings

Light Strip Assembly—Double shade brackets of heavy stamped steel are rigidly riveted to a one-piece, channel-shaped light strip of 22-gauge furniture steel, 2$\frac{3}{16}$ in. wide with $\frac{3}{8}$ in. deep folded edge flanges. A notched metal hanger bar is riveted to the back of the light strip for hanging when removed. Each end clip secured to the light strip for attachment to the stationary supporting brackets has $\frac{3}{8}$-in. lateral adjustment (patent applied for). Finish is olive green baked on enamel.

Supporting Brackets, etc.—A complete line of light strip assembly of supporting brackets is provided for inside or outside mounting attachment to either wood or steel windows or masonry or plaster reveals. Special brackets will be provided to suit any unusual requirement. Finish is olive green baked on enamel.

Pulleys—Stop pulley is made of rustproof white metal with brass axle and brass end washers, mounted on steel brackets for attachment to either wood or steel windows or masonry or plaster reveals. Special brackets will be provided to suit any unusual requirement. Finish of steel brackets is olive green baked on enamel.

Shade Rollers

Shade rollers are made by Stewart Hartshorn Company and depending on the type of shade cloth and length and width of shades are either Hartshorn's improved, self-acting wood shade rollers or Hartshorn's new groove tin rollers of the following diameters:

TYPE AND SIZE OF SHADE ROLLERS

Cloth width, in.	Cloth length	Type of roller	Roller diameter, in.
For Mastermade Tan Cotton Duck			
34 to 42	All lengths	Wood	1
43 to 48	All lengths	Wood	1 1/8
49 to 69	All lengths	Wood	1 1/4
For Calumet Washable Cotton Duck			
Up to 36	Up to 8 ft.	Wood	1
Up to 36	9 to 12 ft.	Wood	1 1/4
37 to 48	Up to 6 ft.	Wood	1 1/8
37 to 48	7 to 12 ft.	Wood	1 1/4
49 to 61	Up to 10 ft.	Wood	1 1/4
49 to 61	11 to 12 ft.	Tin	1 1/4
62 to 72	All lengths	Tin	1 1/2
For LaSalle Washable Shade Cloth			
34 to 42	All lengths	Wood	1
43 to 48	All lengths	Wood	1 1/8
49 to 63	All lengths	Wood	1 1/4
64 to 72	All lengths	Tin	1 1/2

Shade Cloth

Mastermade Tan Cotton Duck—

Material—8-ounce double filled enameling duck (on basis of 36-in. width and pro-rata in all wider widths). The pick is 84x28 and the breaking strength of warp 134 lbs. and filling 65 lbs.

The material is that known commercially as "First Grade" made of thoroughly cleaned cotton, free from waste and from avoidable imperfections, defects or blemishes affecting either the appearance or serviceability. It contains no loading that is water soluble.

Color—Sunpruf (bleached shrunk) Tan.

Side Edges—Sewed with three-thread overcast stitch.

Characteristics—A reasonably priced, high grade, heavy, wear-resisting, light-diffusing shade cloth well adapted to the average installation in schools, office buildings and public buildings. It is unaffected by moisture, dryness or other climatic conditions and is easily cleaned by brushing, vacuum cleaning or dry cleaning.

Calumet Washable Cotton Duck—

Material—8-ounce double filled enameling duck (on basis of 36-in. width and pro-rata in wider widths). The pick is 86x28 and the breaking strength of warp 107 lbs. and filling 68 lbs. The material is that known commercially as "First Grade" made of thoroughly cleaned cotton, free from waste and from avoidable imperfections, defects or blemishes affecting either the appearance or serviceability. It contains no loading that is water soluble.

The cloth is impregnated with an absolutely water insoluble base so treated as to resist pinholing, cracking and breaking when folded or in service.

Colors—Sunpruf Tan and Green (also made in "LiteTite" black).

Side Edges—Sewed with three-thread overcast stitch.

Characteristics—A particularly high grade, heavy, wear-resisting, opaque shade cloth that is washable without streaking or loss of color. Costs approximately 25% more in the tan than the Mastermade Tan Cotton Duck. The green costs approximately 10% more than the tan.

LaSalle Washable Shade Cloth—

Material—Weight is 4¼ yds. (36-in. wide basis) per pound. The pick is 72x80 and the breaking strength of warp 78 lbs. and filling 46 lbs. The cloth is that known commercially as "First Grade" made of thoroughly cleaned cotton, free from waste and from avoidable imperfections, defects or blemishes affecting either the appearance or serviceability. The cloth is impregnated with absolutely water insoluble base and contains no loading that is water soluble. It is so treated as to resist pinholing, cracking and breaking when folded or in service.

Colors—Sunpruf Green, Ivory, Olive, White, Pongee, Mauve, Ebony.

Characteristics—A high grade, medium weight, smooth, opaque shade cloth particularly adapted to office buildings, hospitals and public buildings where the range of colors harmonize with or contrast pleasingly with wall treatments. It is washable without streaking or loss of color. Costs approximately 17% more than the Mastermade Tan Cotton Duck.

Shade Slats

One and one-quarter inch (1¼ in.) clear pine.

Shade Cords

Shade cords are continuous (ends fastened to top of upper shade and bottom of lower shade) size 4 glazed braided "Silver Lake" cords attached to slats with patent hanger which prevents cutting or chafing.

SHADE SPECIFICATIONS

(1) Work Included

The work included under this specification shall be the furnishing and erecting of window shades as follows:

Note: *Here list and locate the windows to be shaded.*

(2) Materials

(2a) General—All shades and shade fixtures shall be as manufactured by E. W. A. Rowles Co., 2500 Prairie Avenue, Chicago, or equivalent meeting fully this manufacturer's standards of materials and workmanship as established in their catalogue contained in Sweet's Architectural Catalogues, Twenty-sixth edition.

(2b) Shade Fixtures—Double shades shall be factory mounted to proper tension on Rowles Type GA Double Roller Demountable Light Strips complete with light strip brackets, stop pulleys, pulley brackets, screws, expansion screws, etc., as best adapted to the window detail.

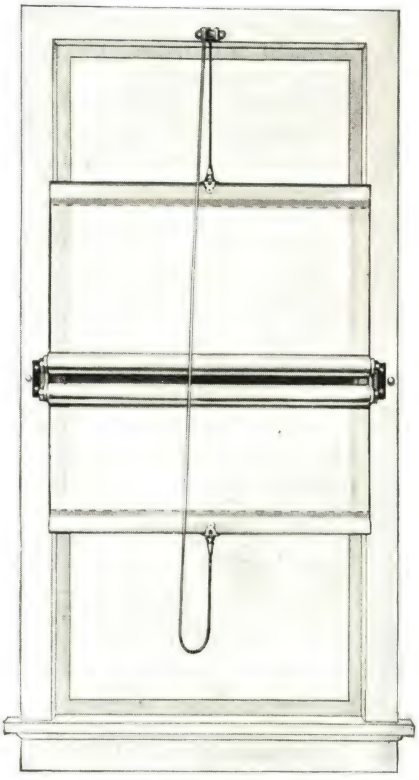
(2c) Shades—Shades shall be made of (*here specify the grade and color of shade cloth*) mounted on either Hartshorn's Improved Self-acting Wood Rollers or Hartshorn's New Groove Tin Rollers of proper diameters as required for the particular shade width and length.

Shades shall be equipped with 1¼-in. clear pine slats and size 4 "Silver Lake" glazed, braided endless cords attached to slats with patent hangers.

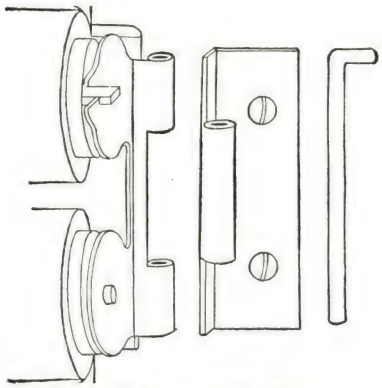
Shade cloth shall be accurately and substantially mounted on rollers and in addition to the full length required when full drawn shall have at least three (3) full turns around the roller.

(3) Erection

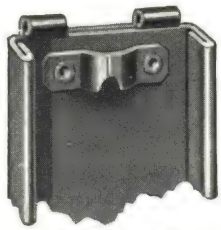
All shades shall be erected neatly and accurately in accordance with the manufacturer's printed directions and left in perfect working condition.



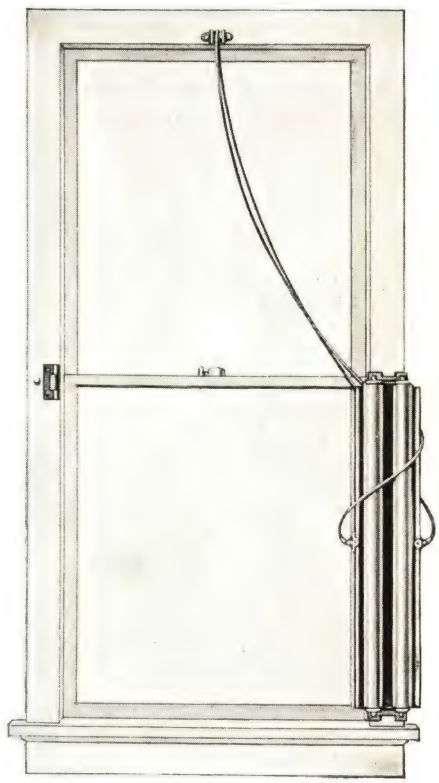
Shade in Place



Detail of Demountable Fixture
Patent applied for



Detail of Bar and Hanger
Patent applied for



Shade Removed

THE KEMITEX PRODUCTS COMPANY

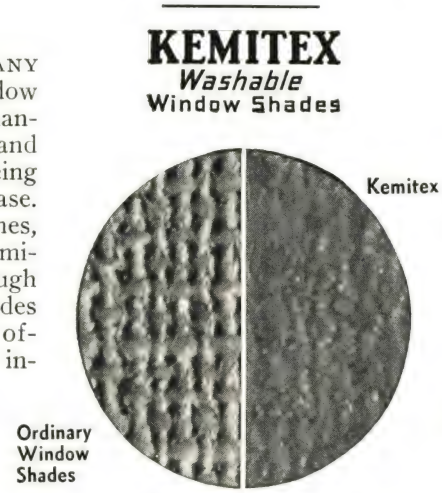
Manufacturers of Washable Shade Cloth and Window Shades

WADSWORTH, OHIO

Introduction

THE KEMITEX PRODUCTS COMPANY presents two types of washable window shades—Kemitex and Kemitex Kanvas. They are equally sunproof and washable, the main difference being in the weight of the fabric base. Kemitex is adapted for use in homes, libraries, hospitals, etc., whereas Kemitex Kanvas will withstand the rough treatment usually accorded shades in schools, colleges, gymnasiums, office, and industrial buildings. The installation of either type in its given field spells ultimate economy because there is no appreciable wear from repeated washings after years and years of use. Dirt, grease or stains cannot penetrate the chemically impregnated base of these shades, hence the ease of cleaning and the minimum wear.

The various colors of Kemitex and Kemitex Kanvas Shades possess a remarkable ability to withstand the sun's rays for years without the least fading.



The secret of Kemitex quality and utility is its insulation—the manner in which it is made impervious to moisture, heat, dirt, sunlight, and other destructive agents

Kemitex Washable Window Shades

Advantages—*Stainproof*—Kemitex is stainproof, so discolorations such as ink, grease, paint or other similar materials wash off easily.

Washable—A sponge, a pan of water, a cake of neutral soap (like Ivory) is all that is needed to restore Kemitex to its initial beauty. No scrubbing is necessary, because all soil or stain is on the surface.

Weatherproof—Exposure to the weather, sunlight and other destructive agents ever present in the atmosphere soon tests the quality of a shade cloth. Practical tests of this kind prove that Kemitex will stand an almost unbelievable amount of hard service.

Colors—Kemitex Window Shades are available in thirteen solid colors and four duplex colors, affording a selection to match any decorating scheme. They are also made in attractive stripe styles.

Widths—Kemitex solid colors and duplex colors—36, 38, 42, 48, 54, 63 and 72 ins.

Kemitex stripe colors—in widths up to 54 ins. only.

Manufacture of Kemitex—In the manufacture of Kemitex Shade Cloth every step is closely guarded. Only the best selected cotton is used and all fabric is made on the most modern looms. After passing a rigid inspection by Kemitex Engineers, Kemitex Shade Cloth is processed in one of the most modern shade cloth plants. A Scott testing machine tests the tensile strength and stretch before and after the cloth is subjected to steam and water. The "fadometer" then determines its fastness to light, testing samples from every roll of Kemitex Shade Cloth produced.

When the fabric is ready for making up into shades, it is subjected to another inspection. Even the finished shade, ready for hanging, is given a final inspection, and each is then individually wrapped and packed.

Kemitex Kanvas Heavy Duty Washable Window Shades

Our new shade cloth, Kemitex Kanvas, is made for use where a heavy duty shade cloth is required—one having the characteristics of giving long life and service. This new product is the adaptation in a modified degree of our Kemitex Process on selected 8-ounce double filling enameling duck. The merits of the Kemitex Kanvas Shades are proved by the fact that they were adopted by the Board of Education of San Antonio, Texas, after a series of very exhaustive and competitive tests.

The thorough impregnation of this Kemitex Kanvas with waterproof, age-resisting chemicals makes it impervious to sunlight and moisture as well as to the penetration of dust or dirt. Kemitex Kanvas Shades are easily dry cleaned, or washed with soap, water and a sponge without removal from the roller.

Kemitex Kanvas Shades hold their shape because of their permanent "body." They have a clean, substantial, linenlike appearance. Suitable for clubs and apartments or for heavy duty service in schools, hospitals, hotels, industrial buildings, etc.

Colors—Ecru, linen, duplex linen and black, and solid black. Duplex linen and black is for rooms where the use of a moving picture machine is demanded; solid black is used extensively in hospitals in X-ray rooms where absolute light opacity is desired.

Widths—36, 45, 48, 55, 61, 70 and 73 ins.



Kemitex Kanvas Window Shades Used Throughout New Y. M. C. A. Building, Akron, Ohio

Columbia
VENETIAN BLINDS
AND
WINDOW SHADES

THE *Columbia* MILLS
INCORPORATED
225 FIFTH AVENUE, NEW YORK

THE COLUMBIA MILLS, INC.

225 Fifth Avenue, NEW YORK, N. Y.

BRANCH OFFICES

BALTIMORE, BOSTON, CHICAGO, CINCINNATI, CLEVELAND, DALLAS, SAN FRANCISCO, DENVER, DETROIT, FRESNO, KANSAS CITY, LOS ANGELES, MINNEAPOLIS, SEATTLE, NEW ORLEANS, NEW YORK, PHILADELPHIA, SPOKANE, PITTSBURGH, PORTLAND, ST. LOUIS

PRODUCTS

Columbia TRADE-MARK

COLUMBIA PERFECTED VENETIAN BLINDS: De Luxe, Standard

COLUMBIA SHADE CLOTHS: Niagara Washable-Waterproof, Crescent-Tint, Damasko Hevi-Duty, Vellmo Light-Proof.

COLUMBIA GUARANTEED SHADE ROLLERS: Wood and Metal.

COLUMBIA AWNING ROLLERS.

SALES CHANNELS

Venetian Blinds—Because of the extreme care with which Venetian Blinds should be installed and the necessity of experience in order to best meet the wishes of Architects, Authorized Dealers have been appointed by *Columbia* Mills in various territories, whose duty it is to co-operate with the profession in planning installations. The name of the nearest Authorized Dealer in your territory will be furnished on request. His services can be fully relied upon, and will meet with your approval.

Window Shades and Rollers—*Columbia* Window Shades and Rollers are obtainable in specialty window shade shops, reliable department stores, at decorators, and at house furnishings stores all over the country, so that there is never any difficulty whatsoever in obtaining replacements, regardless of who makes the original installation.

ARCHITECTURAL SERVICE DEPARTMENT

Columbia Architectural Service Department will submit samples of Venetian Blinds, shade cloth, and rollers on request. Architects are invited to avail themselves of *Columbia's* engineering service. An experienced man will gladly assist you in solving your blind and shading problems and in the preparation of specifications. Each one of our branches throughout the country has an architectural service department. Through this department you may be assisted in the selection of the proper type of window treatment, and be recommended to reliable dealers to supply your needs.

A FEW NOTABLE INSTALLATIONS

VENETIAN BLINDS

Title Guarantee & Trust Co., Los Angeles, Calif.
Tudor City, New York, N. Y.
Brooklyn Borough Gas Co., Brooklyn, N. Y.
Courthouse, Batavia, New York
American Insurance Building, Newark, N. J.
Albany Office Building, Albany, N. Y.
Courier Express Building, Buffalo, N. Y.
Holy Child of Jesus Rectory, Richmond Hill, N. Y.
General Fireproofing Co., New York, N. Y.
International Business Machine Corp., New York, N. Y.
Garret A. Hobart Residence, Paterson, N. J.
W. A. Walsh Residence, Cedarhurst, L. I., N. Y.
A. J. Drexel Biddle, Jr., Fuller Building, New York, N. Y.
Schenectady City Hall, Schenectady, N. Y.

WINDOW SHADES

Ventura Senior High School, Ventura, Calif.
National Bank of Commerce, Los Angeles, Calif.
Robertson Building, Beverly Hills, Calif.
Consolidated Bank Building, Tucson, Ariz.
Commerce High School, Portland, Ore.
Lexington Hotel, New York, N. Y.
Chimes Building, Syracuse, N. Y.
Courthouse, Brooklyn, N. Y.
Long Island College Hospital, Brooklyn, N. Y.
St. Peters Hospital, New Brunswick, N. Y.
Governor Clinton Hotel, New York, N. Y.
Psychiatric Institute, New York, N. Y.
High School, Granville, N. Y.
Bronx County Courthouse, Bronx, N. Y.



Installation of Columbia Venetian Blinds,
Mutual Plate Glass Institute,
Shelby, Ohio



Installation of Columbia Venetian Blind,
Van Nes and Stacy, 136 E. 57th Street,
New York, N. Y.

COLUMBIA VENETIAN BLINDS

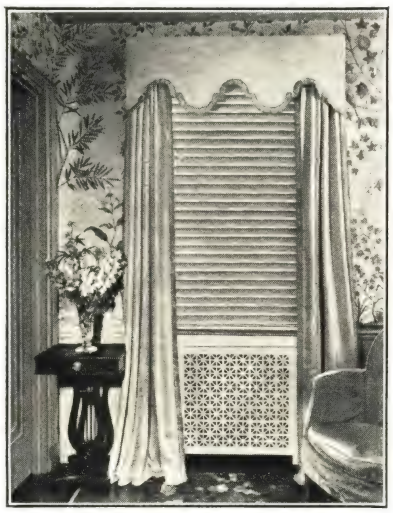
COLUMBIA PERFECTED VENETIAN BLINDS

Columbia Perfected Venetian Blinds are the result of research by illuminating engineers and *Columbia* designers to provide control of light without loss of ventilation for rooms equipped with any type window. *Columbia* blinds permit full or partial daylight without impairment of ventilation. In a recent test with these blinds, it was found possible to increase the natural daylight in the darker portion of a room from 100 to 130 percent, without subjecting the areas close to the windows to overlighting.

Columbia Perfected Blinds make possible the following features: seclusion combined with regulated light; simplicity plus elegance; illumination of the darker portions of the room by scientific direction and reflection of the light. They eliminate the need for awnings, and are designed to give years of service at a negligible upkeep cost.

There are two types of *Columbia* blinds: the De Luxe and the Standard.

Columbia
PERFECTED
VENETIAN BLINDS



Installation of Pulley Operated Columbia Venetian Blind

COLUMBIA DE LUXE BLIND

Columbia De Luxe Venetian Blinds have been designed to combine mechanical excellence with beautiful appearance. They embody many special features that render them adaptable for all purposes where blinds of the highest quality are demanded.

All slats are made from the best Port Orford white cedar. They will not warp out of shape even after years of continuous usage.

One of the exclusive features of the De Luxe blind is the Tilt Control Device, perfected by *Columbia* engineers. It is a ratchet type, and enables the slats to be set easily at any angle, and it holds them securely in place. Once set, they cannot be jarred out of position by wind or vibration.

Another special feature is the *Columbia* method of hanging the blind, whereby it can easily be removed and replaced when desired without the use of special tools. This is made possible by the use of brackets supplied with each blind.

The tapes used are of a high grade imported fabric, and the cross strips are woven directly into the tapes, insuring added strength and durability.

Where wind pressure might cause blinds to sway, guides are installed with slide brackets on every twelfth slat and bottom rail. Where conditions demand it, such as plaster embrasures, we install metal or wood backing strips 5/8-in. wide to which channel guides are applied.

Columbia De Luxe Blinds are finished with Tudor Lacquer semi-gloss Velvet Finish in the following standard colors: Ivory, Gray, Apple-green, Natural, Green, and Tan. Special colors may be made up, if desired. Duplex colors (different color on each side of slat) may also be furnished.

COLUMBIA STANDARD BLIND

Columbia Standard Venetian Blinds are particularly suitable for windows of small or medium size where a practical but less expensive blind than the De Luxe type is desired.

While not possessing many of the features of the De Luxe, it nevertheless will render long and trouble-free service.

The slats are tilted at any angle by means of a friction locking device which keeps the slats firmly set in any desired position. The tapes are made from a high grade domestic fabric.

For the larger sizes, center supports prevent the head rail from sagging or warping, and guide rails are installed when warranted by wind pressure.

The Standard blind is available in the same range of colors as the De Luxe blind.

OPERATION

Columbia De Luxe and Standard Blinds are made in three types: Pulley Operated, Roller Operated, and Mechanically Operated.

Pulley Operated—Recommended for small windows, up to 80 sq. ft. The pulley operated type is also made with compound operation (extra tapes, lifting cords and pulleys for easy operation) where the size demands.

Roller Operated—Recommended for blinds of large size up to 120 sq. ft.

Mechanically Operated—Should be used on unusually large windows whose area is 120 sq. ft. or over.

INSTALLATION

Columbia Venetian Blinds may be installed at any type window, either inside or outside of the window opening. (See Page 5.)

SPECIFICATIONS FOR DE LUXE PULLEY TYPE VENETIAN BLINDS

Venetian Blind Specification for.....(name)
Building .....(address)

General—All Venetian Blinds called for in these specifications and shown on plans or drawings shall be manufactured by THE COLUMBIA MILLS, INC., 225 Fifth Avenue, New York, N. Y. Only first quality materials shall be used, assembled in a workmanlike manner throughout to conform with the following specifications:

Brand—Blinds to be furnished under these specifications shall be the Columbia "De Luxe" Pulley Type.

Operation—Blinds up to 35 sq. ft. shall be regular pulley type assembly end lift (front pull optional) raising cords, operating over double-race ball-bearing pulleys on steel shafts. Blinds less than 35 sq. ft. made single pull. Blinds 35 sq. ft. and over are made compound pull. (For openings over 80 sq. ft. Roller or Mechanical operation is recommended—see note).

Head Rail—Shall be 2 5/8 in. wide by 1 1/8 in. thick, exposed edges to be thoroughly sanded and rounded. Cord and pulley routings to be clean cut allowing sufficient clearance for free action of cords and pulleys.

Tilt Rail—Shall be clear well-seasoned Port Orford Cedar 2 1/2 in. wide by 49/64 in. thick with exposed edges rounded and Cord slots shall be clean cut 1 1/8 in. long by 7/16 in. wide.

Slats—Shall be of uniform size 2 3/8 in. wide and 1/8 in. thick made of clear Port Orford White Cedar, free from pin knots, machine marks, etc. Cord slots shall be clean cut, without fractured edges, not over 1/4 in. wide slot. Ends and cord mortises shall be thoroughly finished with lacquer.

Bottom Rails—(Blinds less than 35 sq. ft.) Shall be clear Port Orford White Cedar 2 1/2 in. wide by 49/64 in. thick, edges thoroughly sanded and rounded. Recesses to be provided for knotting of lift cords.

Bottom Rails—(Blinds 35 sq. ft. and over) Shall be clear Port Orford White Cedar 2 5/8 in. wide by 1 1/8 in. thick. Under side to be recessed for cords and ball-bearing pulleys.

Hardware—All hardware to be steel electro copper plated or solid bronze. (Can be finished same color as blind).

Brackets—All blinds shall be hung on Columbia Universal Patented snap-lock brackets, to enable removal of blinds for cleaning etc.

Tilt-Lock—All blinds shall be equipped with Columbia positive stop ratchet tilt device allowing at least eleven adjustments of slats and insuring smooth and quiet operation of blind by use of tilt cords.

Center Supports—Blinds over 43 in. in width shall be equipped with heavy steel center supports to eliminate possibility of sagging or warping. To be of a design to allow full angle of tilt in either direction without interfering with slats.

Finish—All head-rails, tilt-rails, slats and bottom bars including end and cord slots shall be finished with pyroxylin base lacquer, to produce a semi-gloss velvet finish. Color to be selected from Columbia color line. (Special colors and finishes can be furnished).

Tapes—Shall be first quality imported with cross straps interwoven, free from defects in warp, woof or weaving. Color to be neutral drab. Tapes shall be spaced not less than 4 1/2 in. or over 7 in. from ends of slats, intermediate tapes spaced not more than 28 in. on centers.

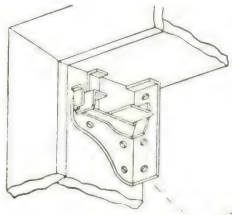
Cords—All cords shall be first quality 4 1/2 hollow braided and glazed to minimize wear. They shall be of sufficient length to properly control the tilting and raising of the blind from the floor.

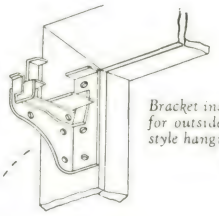
Installation—To be made in a thoroughly workmanlike manner in accordance with manufacturer's standards and to be subject to inspection and approval of manufacturer's and architect's representative.

Note: Specifications for the roller and mechanically operated blinds, and for the *Columbia* Standard Blind may be had upon request.

Universal Brackets. Brackets may be attached either inside or outside of casing. Head rail of the blind slips into brackets and locks itself there. Instantly removable by finger pressure on retaining guard

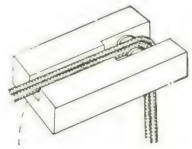
Bracket installed for inside "A" and "B" style hanging.





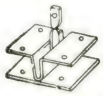
Bracket installed for outside "C" style hanging.

Pulleys. Free action pulleys insure easy raising and lowering of the blinds.

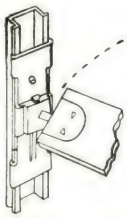




Spring Gear Tilt-Lock. Automatically locks the slats at any angle. Lock automatically releases when cord is pulled to readjust angle of slats.



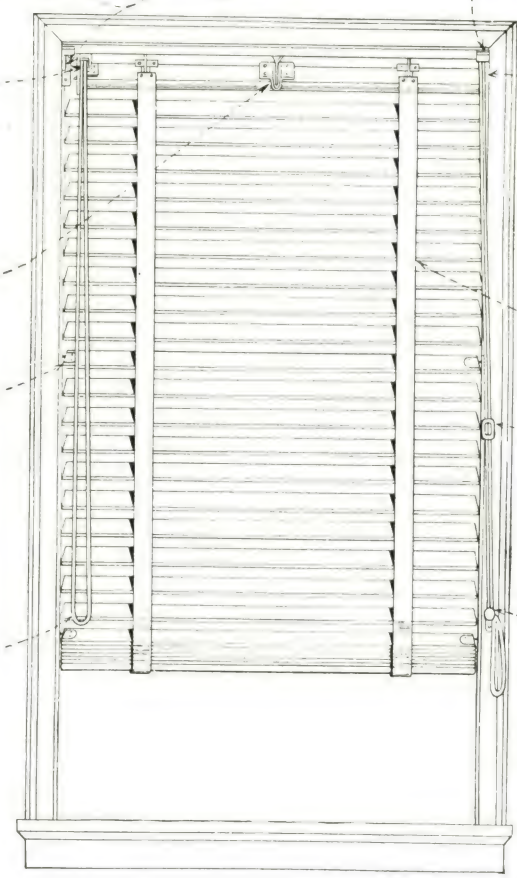
Anti-Sag Center Support. Used on the wider Columbia Blinds to eliminate all possibility of sagging or warping. Gives extra support at center of head rail without interfering with tilting of slats.

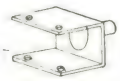


Slider Guides. An optional feature to prevent billowing or swaying of blind in the wind.

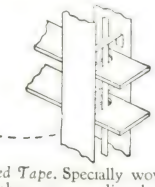


Tilting Cord. Easy to grip. Lifting and tilting cords are of *Columbia* glazed hollow tube cord.





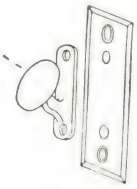
Tilt Rail End Clip. Reinforces the end of tilt rail against splitting, and holds gudgeon always firmly in place at pivotal center of tilt rail.



Imported Tape. Specially woven tape. Cross tabs are woven directly into vertical tapes.

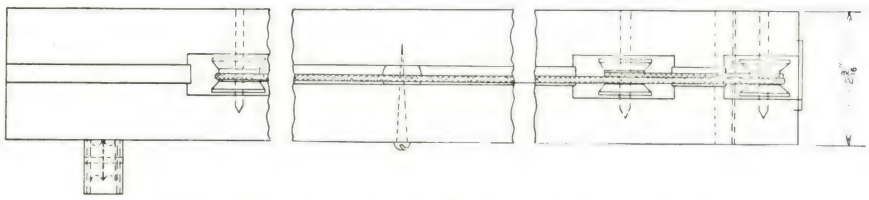


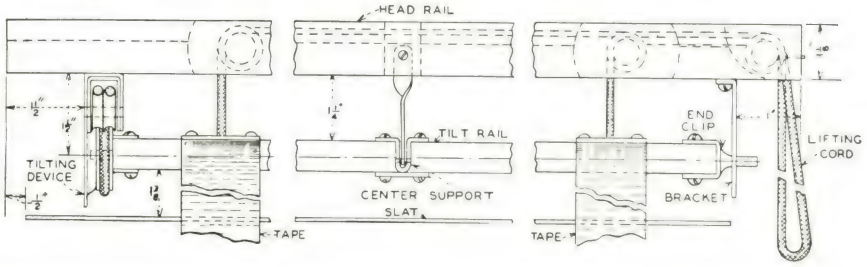
Equalizer. This simple device keeps lifting cords uniform and insures even raising and lowering of th blind.



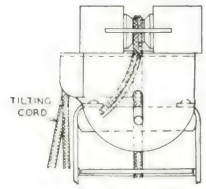
Cord Holder. Holds blinds securely in any position. Adapter plate finished to match color of the blind is furnished where necessary.

DETAILS OF HEAD RAIL SHOWING PULLEY OPERATION



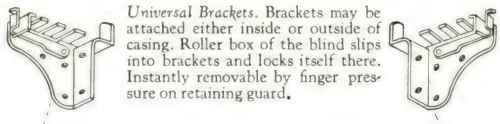


Application—The Pulley Operated Blind is recommended for window openings up to 80 sq. ft. in area. (Limit 12 ft. in height.) The Pulley Operated Type is made in Single and Compound Pull, Compound Pull being used on blinds over 35 sq. ft. or 70 in. wide and wider.



End View

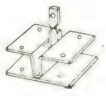
DETAILS OF COLUMBIA VENETIAN BLINDS—DE LUXE PULLEY OPERATED



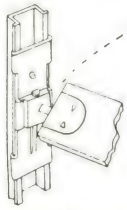
Universal Brackets. Brackets may be attached either inside or outside of casing. Roller box of the blind slips into brackets and locks itself there. Instantly removable by finger pressure on retaining guard.



Spring Gear Tilt Lock. Automatically locks the slats at any desired angle. Lock automatically releases when cord is pulled to readjust angle of slats.



Anti-Sag Center Support. Used on the wider *Columbia* Blinds to eliminate all possibility of sagging or warping. Gives extra support without interfering with tilting of slats.



Slider Guides. An optional feature to prevent billowing or swaying of blind in the wind.

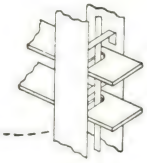


Tilting Cord. Easy to grip. Lifting and tilting cords are of *Columbia* glazed hollow tube cord.

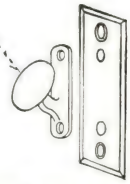




Tilt Rail End Clip. Reinforces the end of tilt rail against splitting, and holds gudgeon always firmly in place at pivotal center of tilt rail.



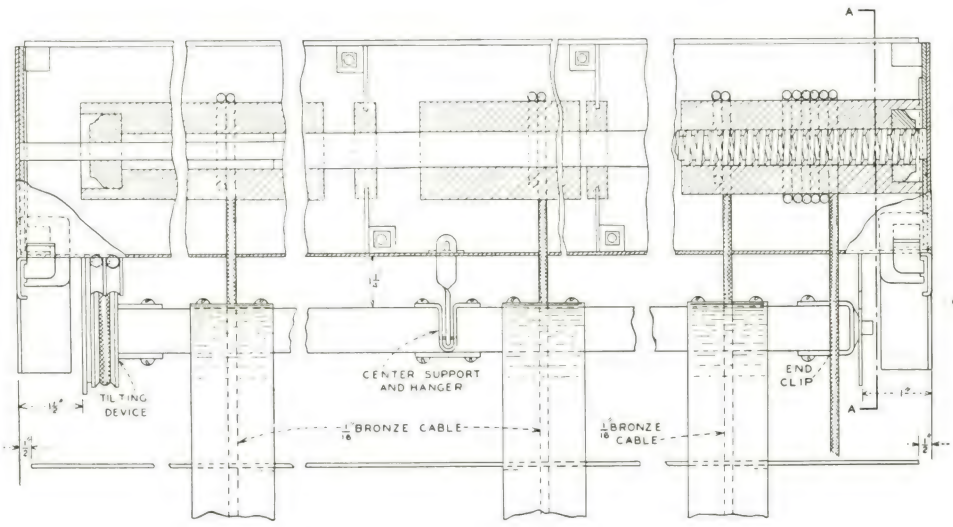
Imported Tape. Specially woven tape. Cross tabs are woven directly into vertical tapes.

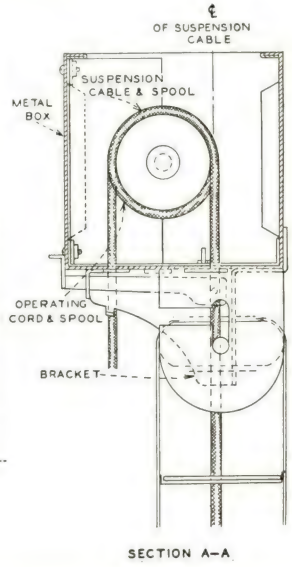


Cord Holder. Holds blinds securely in any position. Adapter plate finished to match color of the blind is furnished where necessary.

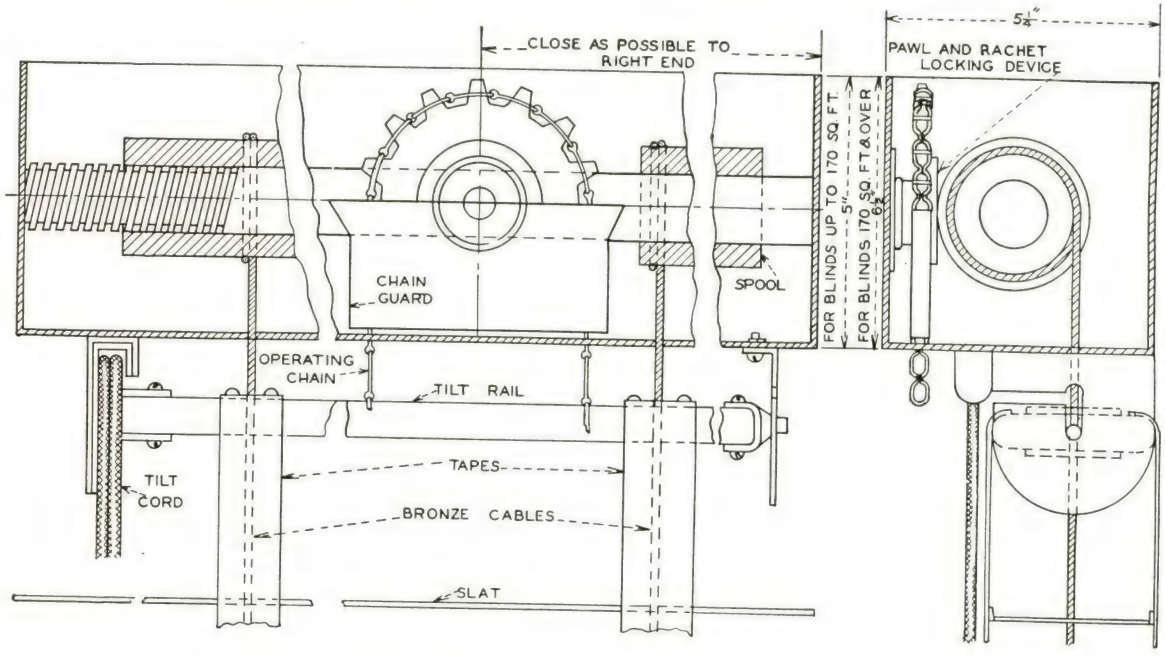
DETAILS OF ROLLER BOX AND TILT RAIL SHOWING OPERATION

Application—The Roller Operated Blind may be used for any size window, but its ease of operation makes it particularly suitable for blinds of large area. It is generally used in connection with blinds from 80 to 120 sq. ft. On ususually large blinds, generally over 120 sq. ft., the Roller Lift is usually equipped with Mechanical Operation, details of which will be found on the next page. Both types are available in the De Luxe and Standard Blind.

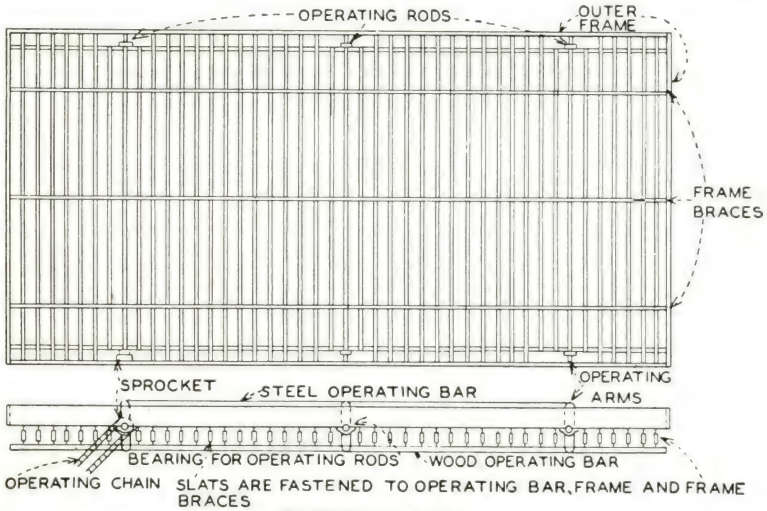




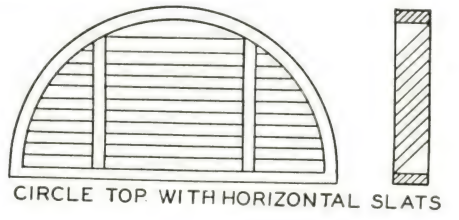
DETAILS OF COLUMBIA VENETIAN BLINDS—DE LUXE ROLLER OPERATED



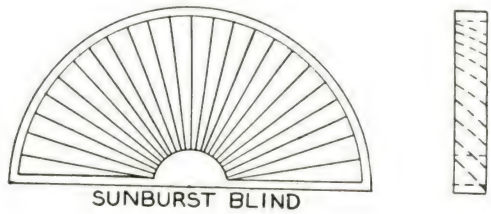
ROLLER TYPE WITH MECHANICAL LIFT OPERATION



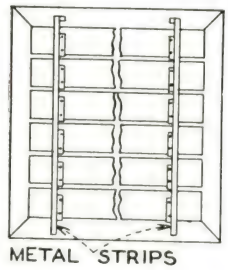
SKYLIGHT BLIND



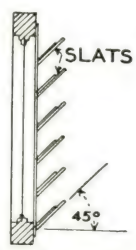
CIRCLE TOP WITH HORIZONTAL SLATS



SUNBURST BLIND



METAL STRIPS



ARMS PROJECTING FROM METAL STRIPS ON 45° ANGLE AND FASTENED WITH RIVETS.

TRANSOM BLIND

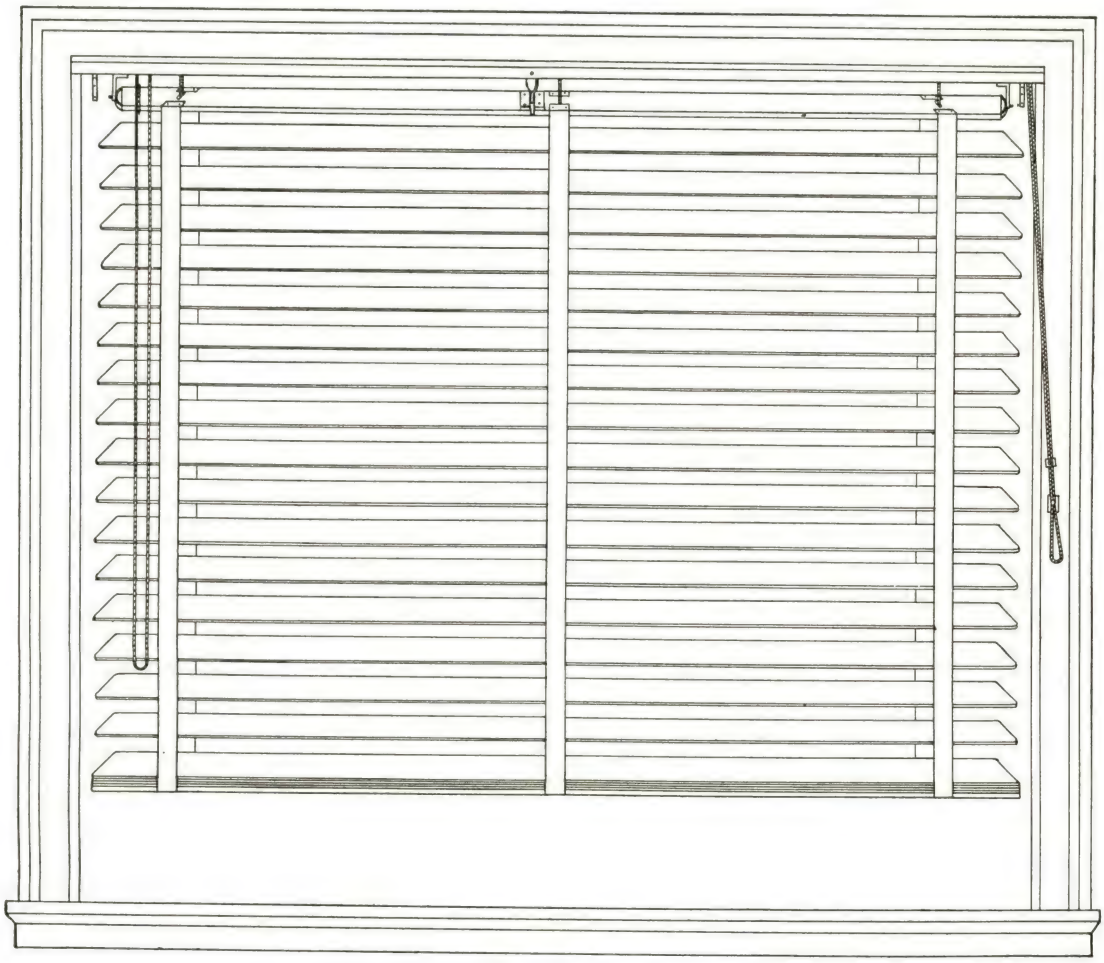
INSTALLATION DATA

Type	Bundle space, in.	Width of pocket, in.
Pulley	3¾ plus 1¼ for each foot in height of window opening	4½
Roller No. 1 Blinds up to 40 sq. ft.	3⅝ plus 1¼ for each foot in height of window opening	4½
Roller No. 2 Blinds up to 80 sq. ft.	4⅛ plus 1¼ for each foot in height of window opening	4½
Roller No. 3 Blinds up to 120 sq. ft.	4⅞ plus 1¼ for each foot in height of window opening	4¾
Roller No. 4 Blinds over 120 sq. ft.	4⅞ plus 1¼ for each foot in height of window opening	5½
Mechanically operated Blinds up to 170 sq. ft.	6½ plus 1¼ for each foot in height of window opening	6⅝
Mechanically operated Blinds up to 225 sq. ft.	8 plus 1¼ for each foot in height of opening	6⅞

Columbia Perfected Venetian Blinds can be successfully installed at any window. Pivot sash, casement, circle-top or any special type of window offer no obstacle. Plans and details for any particular installation will be furnished on request.

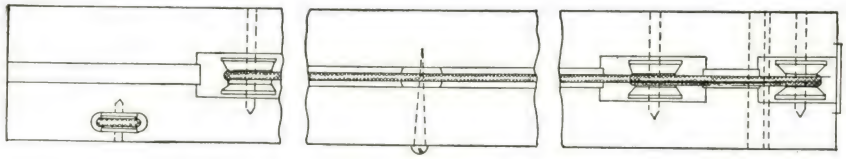
Bundle Space—The space occupied by the blind when fully raised. The most satisfactory method of installing Venetian blinds is to allow for a pocket above the window so that the blind is completely concealed when raised. Table at left gives data for figuring size of pockets. Where it is not practical to construct pockets, the bundle space shows how high blinds should be hung above the opening, if installed on the casing, to clear window entirely when raised. It will also show how much light will be cut off if the blind is hung between jambs.

DETAILS OF COLUMBIA VENETIAN BLINDS

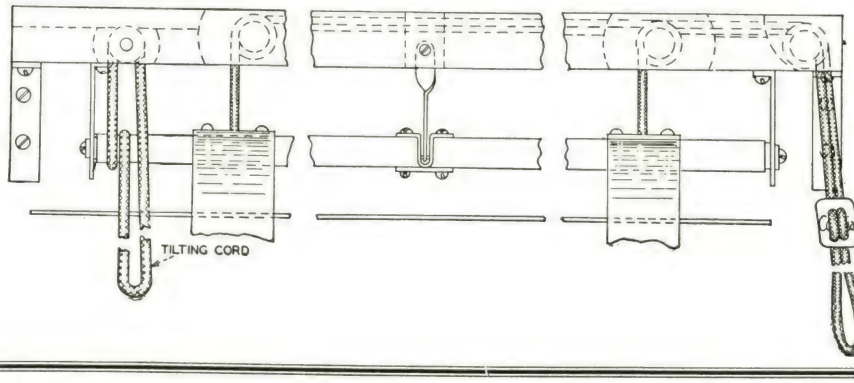


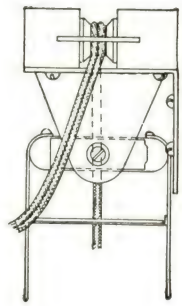
DETAILS OF HEAD RAIL SHOWING PULLEY OPERATION

Application—The Pulley Operated Blind is recommended for window openings up to 80 sq. ft. in area. **(Limit** 12 ft. in height.) It is made in Single and Compound Pull, Compound Pull being used on blinds over 35 sq. ft. or 70 in. wide and wider.









DETAILS OF COLUMBIA VENETIAN BLINDS—STANDARD PULLEY OPERATION

COLUMBIA SHADE CLOTH

NIAGARA—DAMASKO HEVI-DUTY—CRESCENT-TINT—VELLMO

(Specifications will be found on page 10)

COLUMBIA SHADE CLOTHS

Columbia Shade Cloth is manufactured in several grades, each grade for a particular service. On the following pages will be found actual samples of each of the following grades: Niagara washable-waterproof; Crescent-Tint; Damasko Hevi-Duty; Vellmo, light-proof.

COLORS

Columbia Niagara is made in the following tone colors: Egg Shell White, Parchment, Chamois, Persian Gold, Peachskin, Plaza Gray, Strained Honey, Circassian Brown, Hunter Green, Canton Jade. Also made in duplex combinations (different color on each side): Meadowbrook (dark green and white), Frontenac (dark green and light ecru).

Crescent-Tint, Damasko, Hevi-Duty, and Vellmo are also obtainable in the above colors in addition to many other standard colors. Special colors for these three grades are available if desired. Sample books will be furnished on request.



Installation of three common brackets

SHADE ACCESSORIES

Brackets for any type of installation can be furnished. For detailed information refer to the *Columbia* Roller Catalogue, which will be furnished upon request.

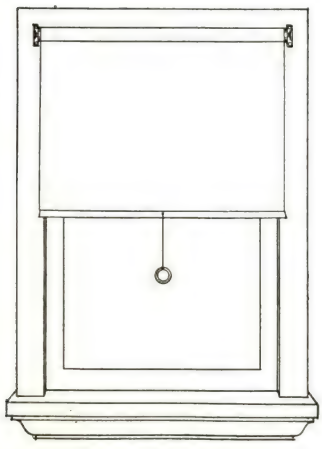
INSTALLATION

Columbia Shades may be installed at any type of window opening, including all types of casement windows.

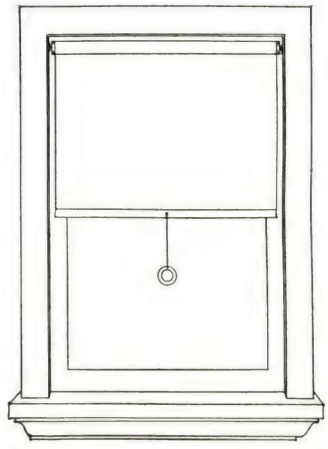
Information regarding any particular situation will be furnished through our Architectural Department.

The illustrations below indicate the most widely used types of window openings and the manner in which the shades are installed.

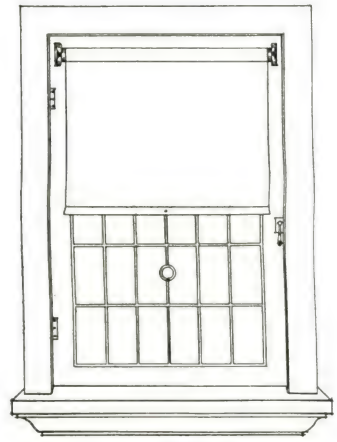
INSTALLATION SUGGESTIONS



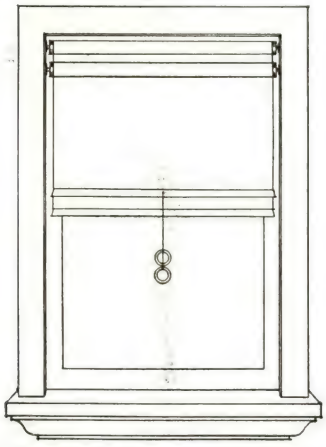
Outside hung. Brackets fastened to the face of the casing



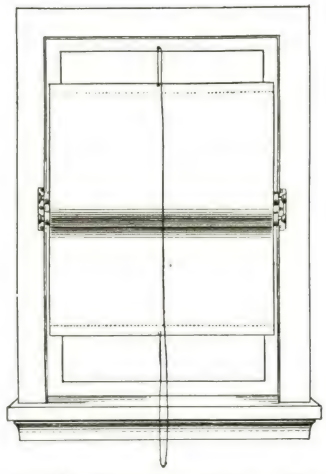
Inside hung. Brackets fastened to the inside of the casing



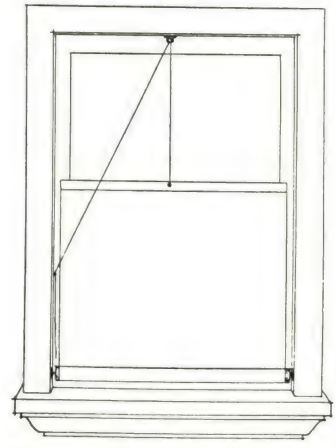
Casement hung. Brackets fastened to top rail of casement sash



Two shades hung on the inside of the casing



Double Hung Installation. One shade pulls up and the other down. May be inside or outside the casing



Bottom-up Installation. Inside or outside with stop pulley



Niagara—A washable, waterproof shading of the finest quality. Its translucent, warm, clear colors, and velvety texture combined with the fact that it can be easily washed without injury to finish, shape or texture, make it a beautiful as well as economical window shade. It hangs flat and will not stretch; it will not crack, show pinholes, or flake, even after numerous washings. The high quality of this shading is preserved indefinitely at an extremely low maintenance cost. Its washability insures the permanence of its beauty.

It may be used for all purposes where a high grade, durable, and attractive shade is desired. It is especially recommended for residences, and for apartments, hotels, schools, and other public buildings. Width to 72 inches.



Crescent-Tint—An unfilled, tinted cambric. The base is a 72x80-count cambric of the highest quality, made especially for the purpose. It is sized and painted by hand. Being translucent, it allows the sunlight to filter through it, toned into warm, soft colors. It is weatherproof, cleanable, and will not crack or show pinholes. It is recommended for fine public buildings and for private homes. Width to 150 inches.

QUALITY SAMPLES OF COLUMBIA SHADE CLOTH



Damasko Hevi-Duty Cambric—Made from the same base as *Columbia* Crescent-Tint, a highest grade, 72x80-count cambric. Like Crescent, it is hand sized and painted, but it is opaque and heavier in weight. This quality renders it especially appropriate for withstanding continuous hard usage. It will not crack or show pinholes.

Recommended for schools, office buildings, hospitals, and any other place where a heavy duty shade is necessary. Width to 150 inches.



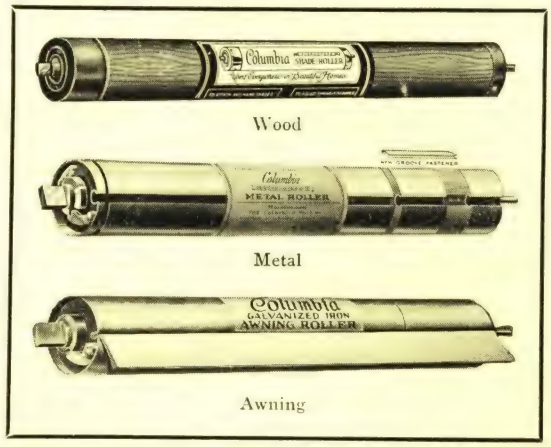
Vellmo (Light-proof)—This shading will completely exclude light without the sacrifice of color scheme, and is a light-proof shade of real beauty. Where complete exclusion of light is essential Vellmo is recommended. It is ideally adapted for use in dark rooms, X-ray rooms, and auditoriums where pictures are shown. Width to 150 ins.

QUALITY SAMPLES OF COLUMBIA SHADE CLOTH

COLUMBIA SHADE ROLLERS AND AWNING ROLLERS

COLUMBIA GUARANTEED WOOD ROLLERS

Columbia Full Round Wood Rollers are made from carefully selected, well-seasoned, kiln-dried white pine, and are fitted with nickel-plated brass ends which are absolutely rustproof. Extra weight springs give more than ample lifting power and have great reserve strength. Special semi-closed end construction protects the pawls from dust, moisture, and ravellings. They are made in standard sizes of $\frac{15}{16}$ in. to 1¼ in. in diameter and 18 in. to 6 ft. in length.



Columbia Rollers

Brackets for metal rollers are of aluminum alloy. They are lighter, stronger, and of better appearance than the heavy cast-iron type.

Metal rollers are made in the following sizes: 1, 1¼, 1½, 1¾, 2¼, 3, 4, and 5 in. in diameter, and in length from 18 in. to 26 ft.

COLUMBIA GALVANIZED AWNING ROLLERS

Columbia Awning Rollers are made with galvanized iron barrels. All other parts have a rustproof, sherardized finish except the pawls, which are of brass.

They are constructed throughout for heavy work and are provided with unusually powerful spring mechanisms. Awning roller brackets are sherardized and rustproof.

All *Columbia* rollers are guaranteed against defects in materials and workmanship.

COLUMBIA GUARANTEED METAL ROLLERS

Columbia Metal Rollers are manufactured of specially selected prime open-hearth tin-plate. The barrel is lock-seamed, doing away with sharp edges and giving the barrel strength and rigidity. Sagging or buckling of the rollers is prevented by this lock-seam, consisting of four plies of metal.

STANDARD SPECIFICATION FOR WINDOW SHADES

Window Shade Specification for.....(name)
Building .....(address)

General—These specifications shall cover the manufacture and correct installation and operation of all window shades. Shades shall be made in a thoroughly workmanlike way, cut square and true, and mounted on rollers in the same manner, using suitable substantial fasteners. The materials used in the manufacture of these shades shall be commercially perfect and of first quality.

All shades shall be clean and free from dirt, finger marks, and other imperfections due to faulty handling. A complete shade shall be submitted with bid as a sample and will be held until job has been approved.

The contractor shall be responsible for any damage to the building, which is caused by him or his employees; he must also protect his work from damage until released by its final acceptance and must clear away all surplus material or scaffolding used in the erection of the shades.

Cloth—All shades shall be made of (Niagara, Washable-Waterproof), (Damasko Hevi-Duty Hand-made Unfilled Cambric), (Crescent Hand-made Unfilled Tinted Cambric), (Vellmo Light-proof Cloth), as manufactured by THE COLUMBIA MILLS, INC.

The above cloth to meet the following specifications:

Made of the best cambric muslin. Finished cloth shall be pliable, free from pinholes, and not subject to cracking when wrinkled or folded.

Color—Shall be..... (as selected)

Length—All shades shall be finished 12 in. longer than actual height of the window frame.

Rollers—All shades shall be mounted on *Columbia* Guaranteed Metal Rollers and shall be constructed with lock-seam reinforced barrels.

Alternate clause for wood rollers: All shades shall be mounted on *Columbia* Guaranteed Wood Rollers constructed with rustproof nickel ends.

Slats—All shades shall be equipped with smooth, kiln-dried wooden slats of either ⅞ in. or 1¼ in. in diameter as the conditions demand. Windows over 5 ft. in length shall be equipped with smooth, kiln-dried wooden 2-in. slats in hems.

Eyelets—All shades shall be equipped with stainless aluminum eyelet in center of hem for cord.

Cord—All shades to be equipped with No. (..) cord, same to match color of shades, and securely fastened in the center eyelet, allowing enough length to permit the shade to be drawn to the bottom of the window and rolled to the top without going over the roller and fastened 24 in. above the sill on the left side.

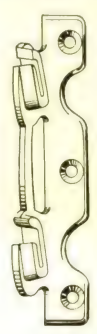
Cord Holders—Cord holders are to be installed 24 in. above the sill. To consist of Parker hollow metal screweyes in the event that the casings are of steel or other metal. On wood casings, Crampton cord holders are required.

Brackets (for Metal Rollers)—On steel or other metal casings, aluminum brackets are to be installed in the proper location at the top of the window, and are to be securely fastened in this location by the use of hollow metal or machine screws. In the event that the casings are of wood, brackets are to be fastened by means of brass wood screws.

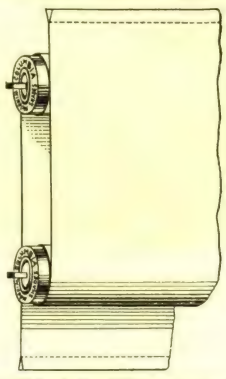
Brackets (for Wood Rollers)—Brackets for wood rollers shall be stamped nickel-plated steel brackets fastened with brass wood screws if the castings are of wood. On steel or other metal casings, brackets shall be securely fastened either by use of machine or hollow metal screws.

Delivery—All shades shall be completed 30 days after receipt of contract or date agreed upon.

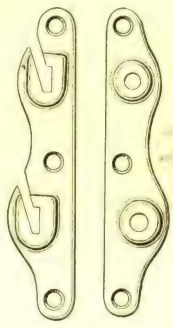
Note: This quotation covers labor, materials and all appliances herein specified above for the necessary installation and complete operation of the shades.



No. 186. Double Outside Bracket for double hung installation

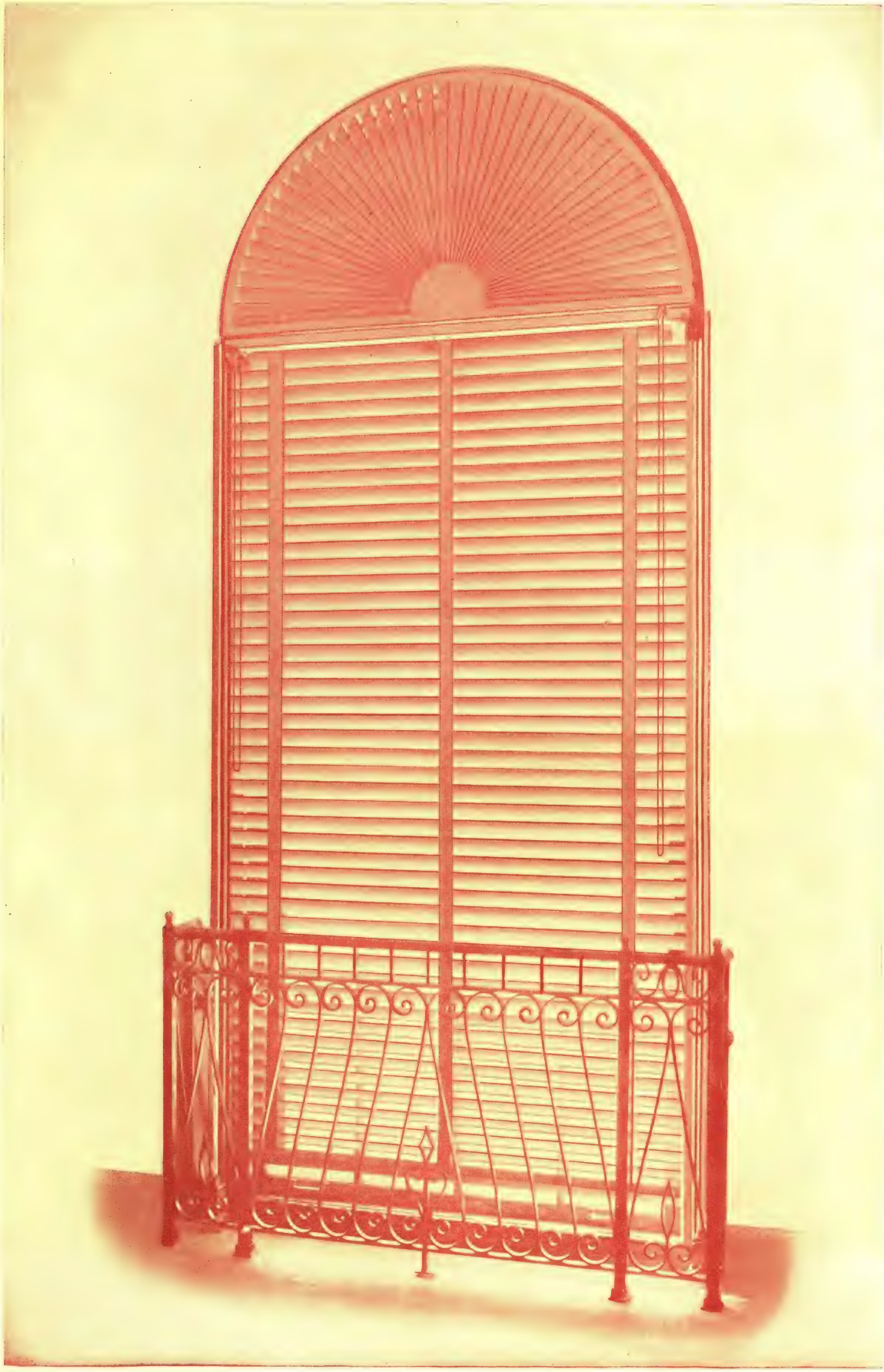


Proper method of hanging shades for double hung installation



No. 187. Cast Iron or No. 199 Aluminum Double Inside Bracket for double hung installation

DETAILS OF DOUBLE HUNG INSTALLATION



WARREN SHADE COMPANY

Manufacturers of Venetian Blinds—Wood Fabric Porch and Industrial Shades

2905 East Hennepin Avenue, MINNEAPOLIS, MINN.

WARREN'S VENETIAN BLINDS

Adaptability

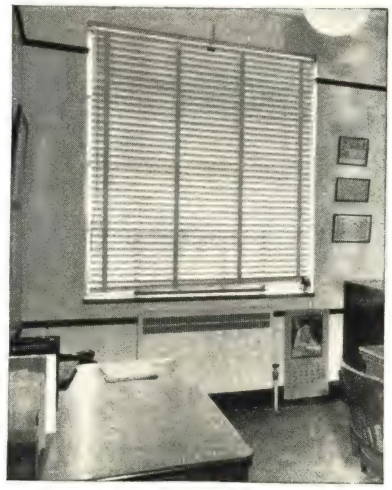
Venetian blinds are suitable for use in banks, office buildings, hotels, public buildings, residences, sleeping porches and solariums. The use of roller shades and awnings is not necessary when Warren's Venetian Blinds are installed, for they provide perfect control of light and ventilation. By properly tilting the blind slats, all direct sun rays are excluded, flooding the room with an abundance of soft, diffused light; while, at the same time, the air currents may pass between the slats where they are deflected upward, eliminating any direct drafts.

Operation

Warren's Venetian Blinds are supplied with suitable operating devices to insure all blinds operating easily with a minimum of wear and attention. The blinds can be completely raised or lowered or can be secured at any height by a turn of the lift cord around the horned hook placed on the window trim. The slats may be tilted to any desired angle by a slight pull on the tilting cord which is generally placed at the left end of the blind. The slats are held at any desired angle by the use of a worm gear tilt lock. This form of lock is far superior to the old style friction devices in that it is much easier to operate and it is impossible for the slats to open up when tilted.

Installation

Warren's patented installation brackets simplify erection. No screws are necessary to hold the blind in position and it may be installed or taken down as easily as a roller shade.



Warren's Venetian Blinds are made to fit the individual window and are shipped completely assembled ready to install.

Service

We welcome inquiry from architects and owners. Complete data and sample blinds will be sent them for the asking.

Materials

Wooden Parts—All wooden parts are of clear white basswood. This wood is free from pitch and sap, light in weight, and does not cup or twist. Slats are ⅛x2⅜ in.; top and bottom rails, $\frac{13}{16}$x2⅜ in.; head members, 1⅛x2⅜ in.

Ladder Tape—We use only best quality interwoven cotton tapes. Tape is eyeleted with brass eyelets and secured to the rails with brass screws to allow for easy dismantling.

Cords—All cords are of the best grade of tubular woven glazed cord. The tubular weave eliminates twisting and snarling; the glazing prolongs the life of the cord.

Hardware—All parts, except horn hook, are of heavy gauge auto body steel, brass plated and lacquered to resist rust.

Pulleys—All pulleys are ½x⅞ in. steel, double race ball bearing type and mounted on ⅛-in. shafts.

Worm Gear Tilt—All blinds are provided with a positive action worm gear tilting device guaranteed to hold the slats at any angle in all sized blinds. It is of extremely simple construction and guaranteed for the life of the blind. Tilting cords are finished off with ornamental pendants.

Anti-sag Center Support—All blinds over 48 in. in width are provided with center supports to insure against any sag in the tilting rails.

Side Guides—When desired, blinds can be furnished with a special channel side guide. Pins attached to each end of every sixth slat engage into a ⅜x⅜-in. brass guide channel.

Finish—All wooden parts are given a special lacquer finish which is extremely durable. They can be had in a wide range of standard colors or finished to match sample submitted. Ladder tapes and cords can be dyed to match the slats.





Typical Warren's Venetian Blind Installations

ESTABLISHED 1880

THE BOSTWICK-GOODELL CO.

Manufacturers of Victoria Venetian Blinds

NORWALK, OHIO

SALES AGENCIES IN PRINCIPAL CITIES

Victoria Venetian Blinds

Of approved manufacture for over thirty years. They exclude the sun, admit air and regulate the amount of light to any degree.

Preferably made from thoroughly dry basswood with cream enameled finish, and fully guaranteed against warping and splitting.

Head Piece—2¼ in. wide by 1⅛ in. thick, and as long as width of window opening, when blind is installed within the opening.

Top Tilting Bar—2⅜ in. wide by ⅞ in. thick, secured to head at each end with sheet metal brackets, metal clips over each end for additional strength. (Figs. 1, 2 and 3.)

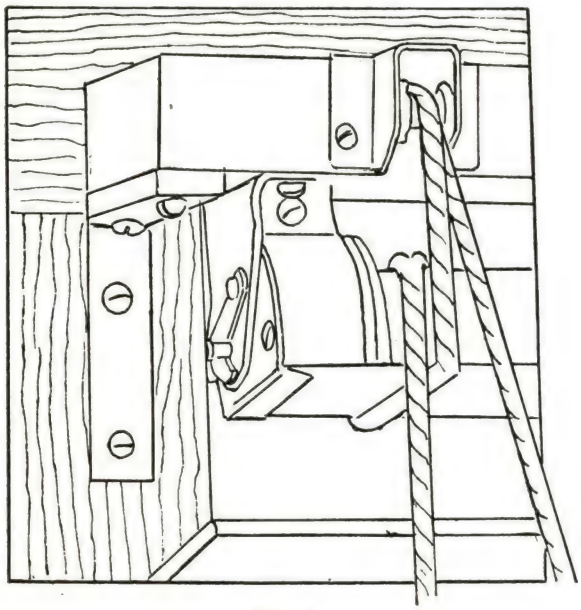


Fig. 1

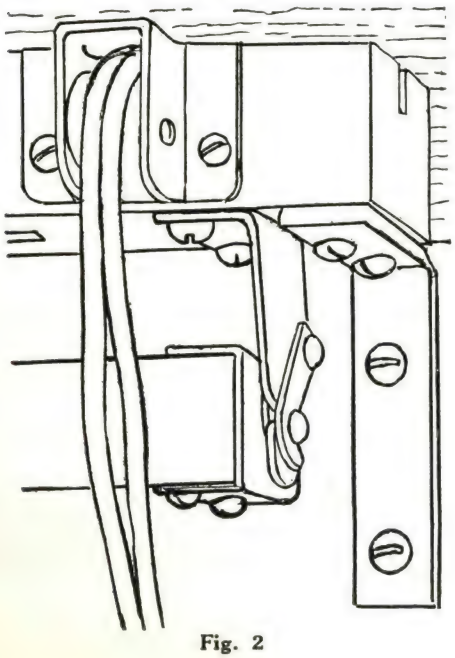


Fig. 2

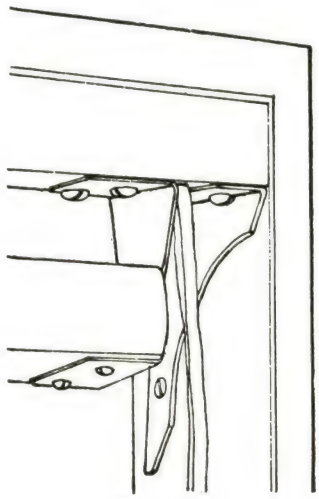


Fig. 3

Automatically held at any angle with an all-metal spring (Fig. 1), adjustable to any degree, without removing blind from window and instantly detachable from head by raising the metal dog at right-hand end. (Fig. 2.)

Slats—2⅜ in. (or 2 in.) wide by ⅛ in. thick.

Tapes—Best quality domestic, also imported stamped and approved qualities.

Cords—Flexible heavy woven and glazed to minimize wear. Tilting cords operate in front. (Fig. 1.). Raising cords either front lift (Fig. 2) or end lift (Fig. 3) as desired.

Pulley Wheels—Cold rolled steel or brass or double race ball bearing.

Sill Brackets—No. 32 (Fig. 4).

Side Sill Brackets—No. 34 (Fig. 5).

Operate in connection with heavy metal pins in end of thick bottom slat, that has sheet metal clip on each end to prevent breakage.

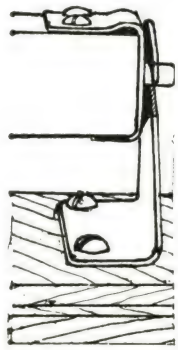


Fig. 4. Sill Bracket No. 32

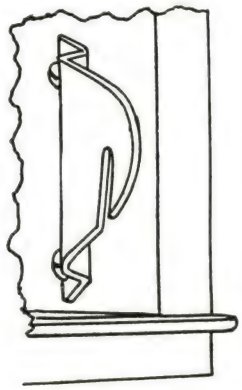


Fig. 5. Side Sill Bracket No. 34



Solid Brass Cord Clip No. 103

For raising cords, keeps slats horizontal

Hardware—Steel brass finish, or solid brass.

Installation—Very easy with two or more 2¼-in. No. 12 round head screws through head into overhead jamb or casing or *inside brackets* at each side of jamb supporting the blind between stops or jambs (Fig. 3), or *angle brackets* (2½ in.) supporting the blind on face of subjamb or face of casing. (Figs. 1 and 2.)

Type E.L. (Easy Lift)

Has pulleys also in thick bottom slat that makes a blind "Easy Lift" and is recommended for blinds over 50 in. wide.

Roll Head and Oscillating Roll Head Blinds

For both large and small windows.

Austral Blinds—Transom Blinds

These blinds are without the 2¼x1⅛-in. head and with special brackets shown at end of tilting bar are secured directly to the sash. The cords pass through porcelain eyelets in tilting bar. (Fig. 6.)

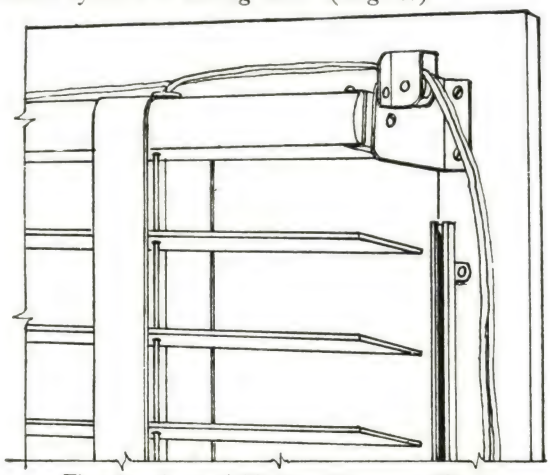


Fig. 6. Austral Blinds—Transom Blinds

Type S.R.

Has a ⅜-in. thick slat about every ten or twelve slats, with brass rings operating on $\frac{3}{16}$-in. brass rods at each side of blind.

Type R.O.S.

Has brass rings on thick bottom slat and on every other or every third slat, operating on $\frac{3}{16}$-in. brass rods at each side of blind. (Fig. 7.)

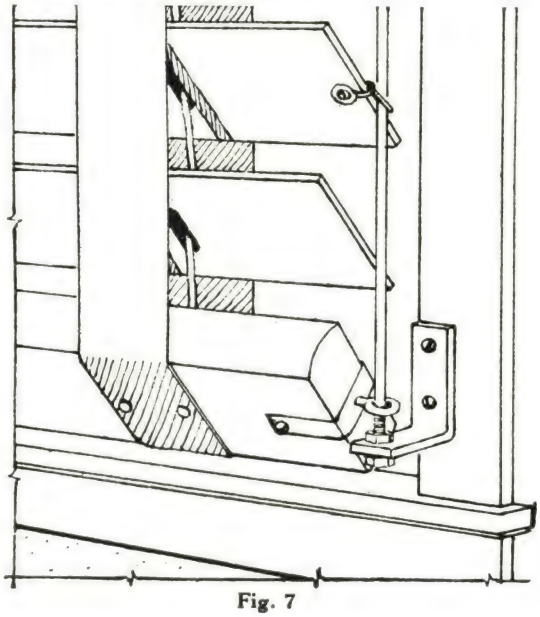


Fig. 7

Metal Side Guides

Either solid brass or steel brass finished. Either ½-in. square with open seam; ½-in. round open seam tube with brass ball bearing fixture (Fig. 8) or metal shoe fixture or ¼x ½-in. square with metal shoe.

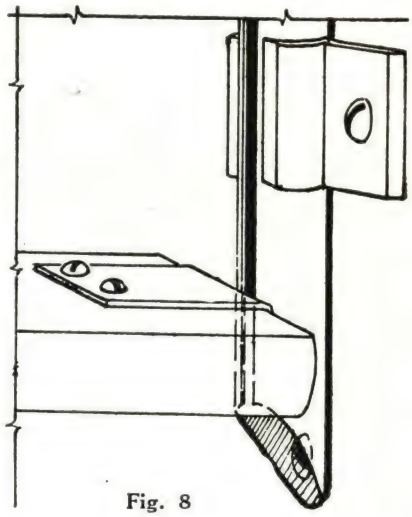


Fig. 8

Metal Shoe No. 84

(With brass clip.) Can be used with either square channel or round tube and by some is preferred to ball bearing fixture. (Fig. 9.)

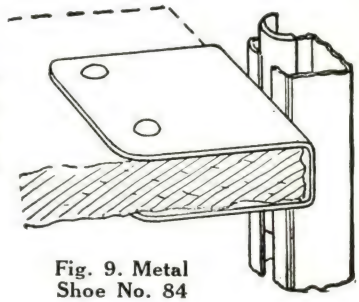


Fig. 9. Metal Shoe No. 84

Brass Eyelet No. 59

May be had in the slots through which the cords pass in the slats. They add to the strength of the slats and make a perfectly smooth edge, preventing wear on cords.

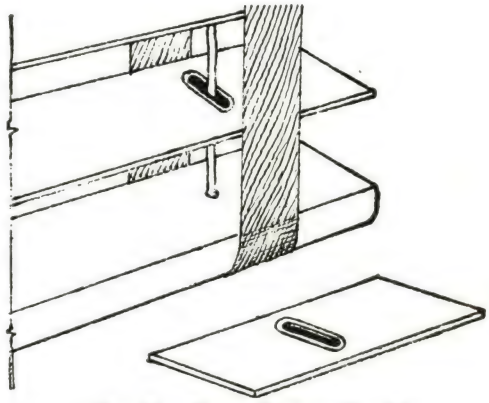
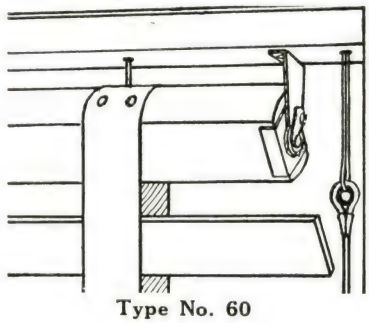


Fig. 10. Brass Eyelets No. 59



Type No. 60

Type No. 60

Has multiple strand copper cable down through the slats (instead of cords) and practically eliminates cord wear. Keeps slats horizontal when raised and lowered.

Sample Blinds

Sample blinds of any type, mounted in 15x32-in. frames, show improved construction, finish and appearance better than any word description or picture and may be had for the asking.

Measurement and Hardware Blanks, Literature

Literature, blanks and Bulletin No. 205 with more details about blinds and installations, mailed on request.

ESTABLISHED 1882

BURLINGTON VENETIAN BLIND COMPANY

Manufacturers of Burlington Venetian Blinds

BURLINGTON, VT.

REPRESENTATIVES IN ALL LARGE CITIES

Products

"Burlington" Venetian Blinds of all types, including Regular "Burlington" Head Piece, "E-Z Lift," "Roller," "Junior Roller" and "Traverse Roller" types.

We also make Inside Sliding Blinds and Wood Frame Insect Screens.

Manufacture

All our blinds are made to order only. They are the output of a large, well equipped factory, employing men skilled in this line. Sizes of blinds are secured by our representatives as well as the color of finish desired. Each order is then run through the factory according to the specifications for that order.

Quality of Materials

Slats—We use only the best quality of materials which in our experience has given satisfactory and lasting construction. All wood used is first air dried in our own yards and is then kiln dried. On account of the thinness of the slats as well as their length on large blinds it is absolutely necessary to use the very best wood obtainable to prevent twisting. Unless some other wood is specified we use linden, as we consider it the best obtainable for this purpose and gives the best results. It is light, durable, does not twist and will take any kind of finish. Other woods will be used, however, if so desired.

Sizes of Slats—Slats 1/8 in. thick and 2 3/8 in. wide are generally used. In small windows, slats 2 in. wide are used. The blinds with the wider slats are lower priced as fewer slats are required.

Finishes

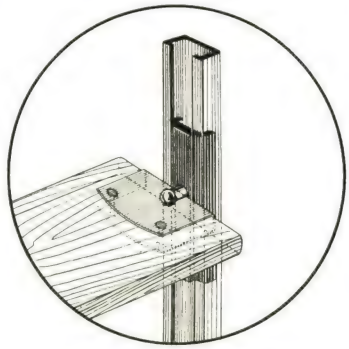
Blinds are finished natural wood varnished, stained and varnish, painted, enameled or lacquered in any color.

Ladder Tape

The tape and the interwoven cross straps supporting the slats are of the very best quality of imported or domestic manufacture.

Cord

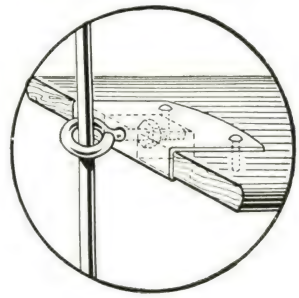
We use a hollow braided cord as it does not twist when handled. It is specially treated to prevent wear.



Channel Guide Type

Side Guides

Side guides can be furnished when desired. These are of two types, the extruded brass channel type and the brass rod type. The shoes running in the channels and the rings running over the rods are secured to heavy slats which are spaced every sixth or seventh slat, depending on the height of the blind.



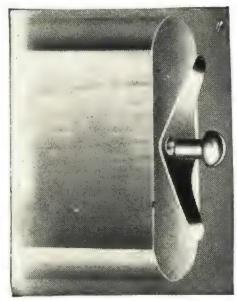
Brass Rod Type

Burlington Venetian Blinds Tilt Easily and Noiselessly

The tilting of slats in all types of our blinds (slats are "raised" flat under each other) is accomplished easily and noiselessly by operating a cord at the left of the blind.

They are held fixed at any angle until changed by a friction spring which is one of the features of our blinds. This spring presses against the right-hand hanger.

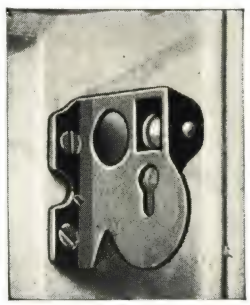
The tension of the spring may be adjusted by turning a round headed screw which holds the spring in place as well as supporting the top tilting rail.



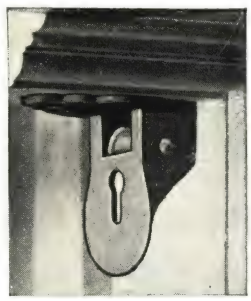
Spring on Top Rail
Engaging with hangers and holding slats at desired angle



When Attached to Stop Beads or Subjambs



When Attached to Face of Casings



When Attached to Top of Window Frame

Right Hand Hangers for "Burlington" Type Venetian Blinds

Ease of Installation

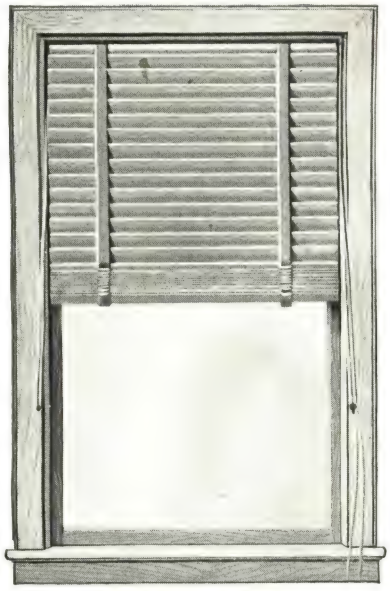
All of our blinds are shipped completely finished with the necessary hardware for proper installation of each type of blind.

As each blind is built to fit each opening they are easily installed with a few screws.

Keep Out the Sun—Permit Perfect Ventilation—Control the Light

TYPES OF BURLINGTON VENETIAN BLINDS

The Modern Window Furnishing



Burlington Type
For windows up to 24 sq. ft. Operating and tilting cords



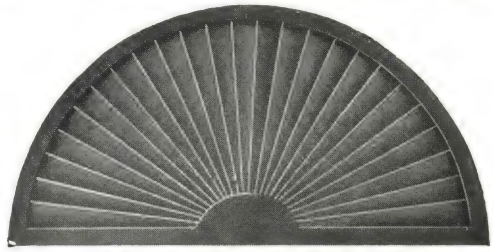
Head Piece Type
For windows larger than 24 sq. ft. Pulley operated



Roller Type
For any size window. Held at any height without securing tape



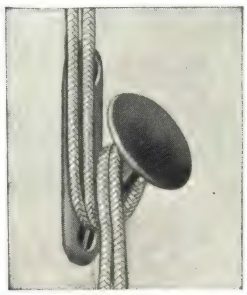
Circular Top with Horizontal Slats



Circular Top with Radial Slats



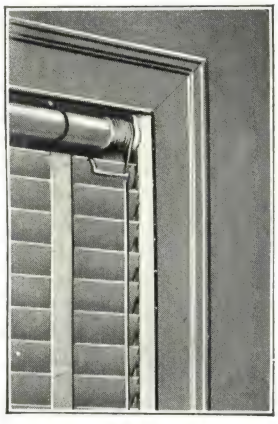
Cord Knob Holds Tilting Cord Taut



Horned Hook or Cord Hook for Operating Cord



"E-Z" Lift Type
Designed for easy operation of large blinds

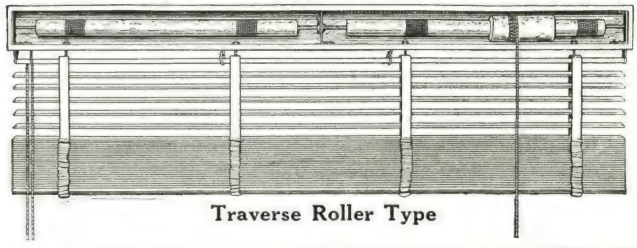


"Junior Roller" Type Showing Blind without Ratchet

Raising and Lowering of Blinds

All our blinds are raised and lowered easily and, except the "Roller" Type, are secured at any desired elevation by a single turn of the cord around a horned hook secured to the jamb or trim.

Note: The operating cord is regularly placed at the right side of the blind but, when conditions require it, the position of operating and tilting cords may be reversed.



Traverse Roller Type

KANE MANUFACTURING COMPANY

Manufacturers of "Kane Quality" Venetian Blinds and Skylight Blinds for Exterior and Interior Installations

MAIN OFFICE AND FACTORY

KANE, PA.

SALES OFFICES AND DISTRIBUTERS IN ALL PRINCIPAL CITIES

For our pages on Metal Weatherstrips, and Wood, Metal Frame and Roll Screens, see Manufacturers' Index

"KANE QUALITY" VENETIAN BLINDS

Standard Lift, Double Lift, Circle, Oval or Segment Head, Traverse Roller, Skylight and Exterior

Patents

All special features incorporated in the design of the above blinds are covered by patents and patent applications.

Adaptability

"Kane Quality" Venetian Blinds are adaptable to all kinds of windows, sun porches, skylights, or other openings in residences, offices, hotels, schools and public buildings where complete control of light and ventilation is desired. By proper tilting of the slats, direct sun rays are diffused and reflected into soft mellow light. Perfect control of ventilation is obtained as air currents are deflected and broken up, giving positive circulation without direct drafts, at open windows. Utmost privacy is assured, as they permit occupants seeing out without being seen from the outside.

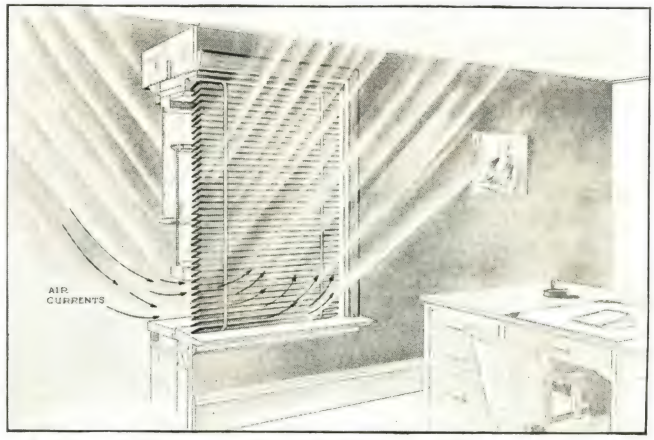
Roller cloth shades or awnings are not necessary with "Kane Quality" Venetian Blinds. Venetian blinds are economical as they outlast several sets of shades and awnings and eliminate costly replacements and repairs.



A Typical Office Installation

Operation

"Kane Quality" Venetian Blinds are easily raised and lowered and are secured at any desired elevation by a turn of the lifting cord around the horned hook secured to window trim. Slats may be tilted to any desired angle by the operating cord and are held firmly in position by a positive tilting bar operator. The operating cord is regularly placed at the right-hand side of the blind, but may be reversed, if necessary. Front tilting bar operator is standard, but end tilting bar operator may be supplied as required. End lift is regularly supplied for raising or lowering the blinds, but front lift may also be furnished.



Positive and Convenient Control of Light and Ventilation Afforded Through Tilting Slats

Slats may be adjusted in a wide range of positions. Harsh, bright light rays are reflected and diffused in soft, mellow light. Drafts are retarded and turned upward

Installation

"Kane Quality" Venetian Blinds are custom-made to individual order and are supplied completely finished, with all necessary fixtures for hanging. Installations are easily and quickly made by our experienced workmen. A complete range of brackets may be supplied to meet any condition.

Materials

The slats are 2⅜ in. wide and ⅛ in. thick for general use; 2-in. slats may be furnished when ordered, for medium and small openings. Unless otherwise required, we use genuine Port Orford cedar or basswood—both are light in weight, very serviceable, do not warp, split or check easily, have a closely knit, even grain, finish smoothly and present an ideal surface for any finish.

The fabric ladder tapes with interwoven cross strips supporting the slats and the hollow braided glazed cords are of best imported or domestic grade.

All materials entering into the manufacture of "Kane Quality" Venetian Blinds are of highest quality selected as best suited for the purpose.

Hardware is of special design and of our own manufacture.

Colors

"Kane Quality" Venetian Blinds are finished in three standard colors, Ivory, Light Green or Light Gray. Any other color, stain or natural wood with varnish finish can be supplied at slight extra cost.

The standard color for fabric tapes and cords is drab. Other colors may be supplied to harmonize or contrast with the slats, at a slight additional cost. Any special color may be supplied as we can dye tapes and cords to conform to any color treatment.

"KANE QUALITY" VENETIAN BLIND TYPES

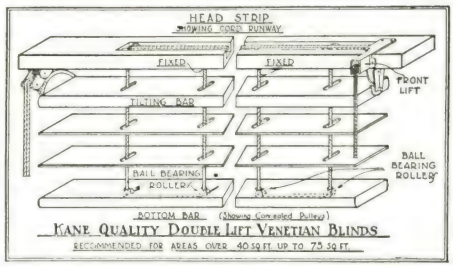
Type "A" Blinds—Are standard free hanging and are usually installed in residences, apartments, hotels, clubs and fixed windows.

This type gives perfect control of light rays and ventilation and materially lowers room temperature in warm weather. Sill brackets are recommended for holding the blind securely and quietly to the sill.

Type "C" Blinds—Type "C" blinds are recommended for offices, institutions, hospitals, sun porches, residences and public buildings, on windows which are frequently opened for ventilation. Slats are held securely by noiseless, oil treated sliding wood shoes held in tension by concealed springs operating in brass channel guides. Guide slats occur every 20 in., and are 2⅜ in. wide by $\frac{5}{16}$ in. thick, with double beveled edge.

Single and Double Lift Types "A" and "C" Blinds—Both Types "A" and "C" blinds are made in single and double lift construction. Single lift up to 40 sq. ft. in area; double lift over 40 and up to 100 sq. ft. The pull exerted for single lift blinds is one-half pound per square foot. Double lift blinds operate on block and tackle principle, and pull exerted is only half the weight or one-quarter pound per square foot. Ball bearing steel rollers are placed in the bottom bars over which cord runs.

Traverse Roller Blinds—Recommended for extremely large openings, as in banks, auditoriums, public buildings, etc., with amazing ease of operation on sizes from 75 to 125 sq. ft. Traverse roller blinds can be supplied with wood facia or metal box covering for completely concealing the roller mechanism.

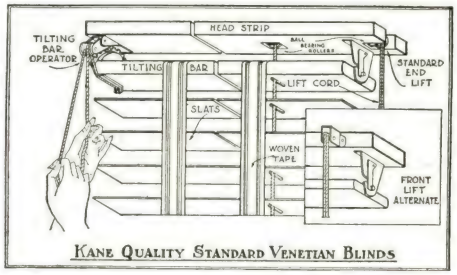


KANE QUALITY DOUBLE LIFT VENETIAN BLINDS
RECOMMENDED FOR AREAS OVER 40 SQ FT. UP TO 75 SQ FT.

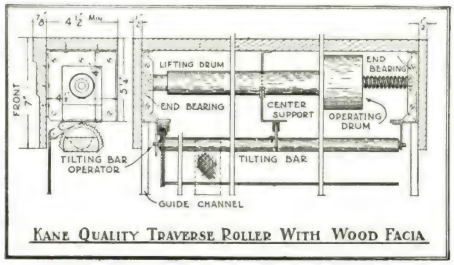
Circle Head Blinds—Circle head blinds for oval, semicircular or segment top openings may have stationary or radial slats set at 45° angle in frames which may be hinged, secured to sash or transom bar or attached to blind below.

Skylight Blinds—Are installed in light wells and skylights in offices, industrial plants and mercantile establishments; either pole or hand operation through draw cords.

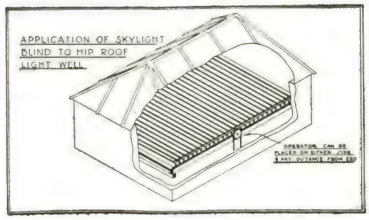
Details—Complete details and specifications are available on request on all types of blinds.

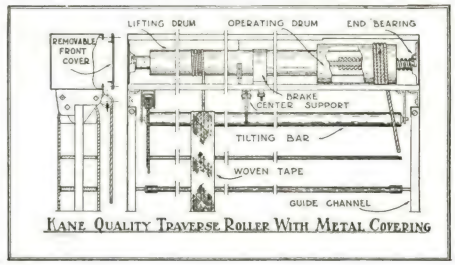


KANE QUALITY STANDARD VENETIAN BLINDS

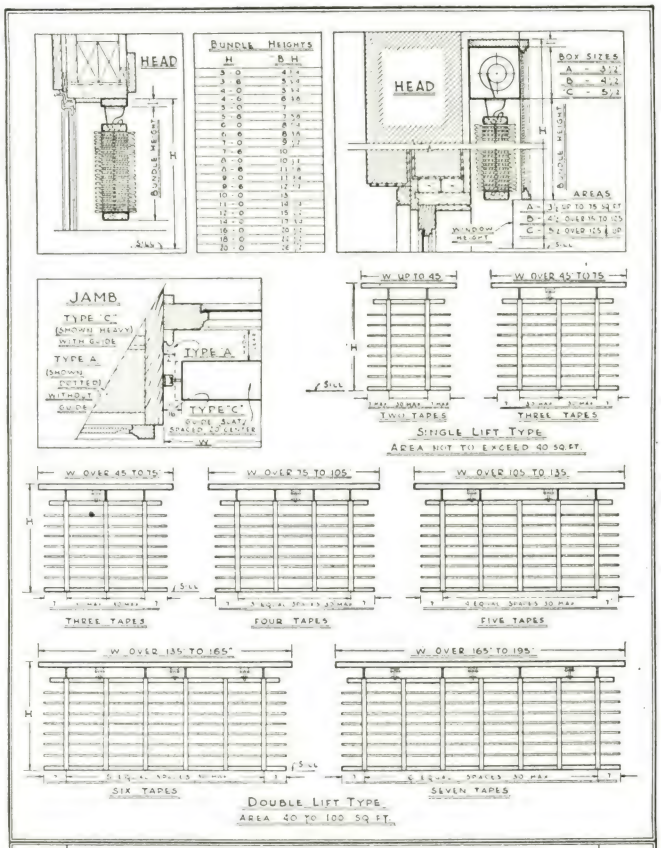


KANE QUALITY TRAVERSE ROLLER WITH WOOD FACIA

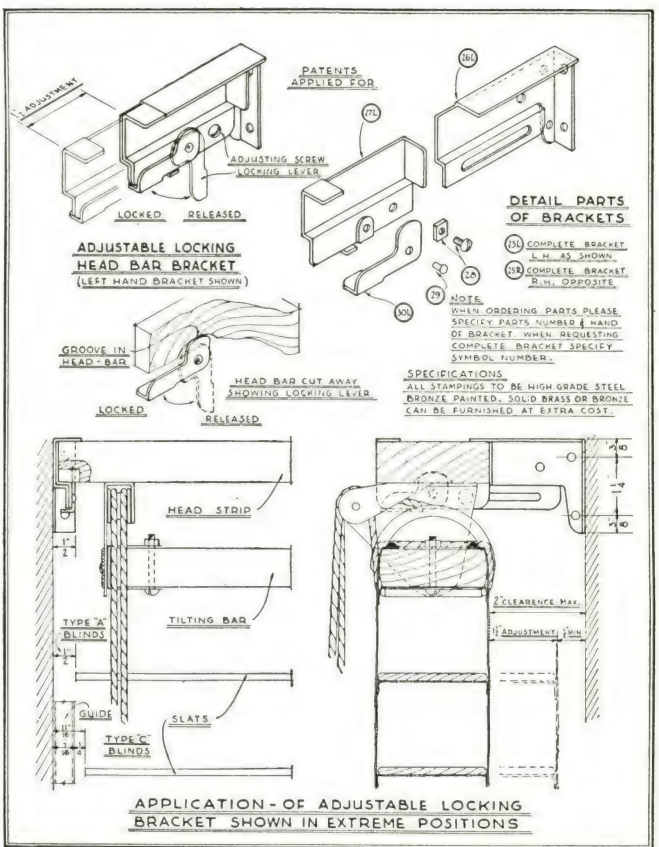




KANE QUALITY TRAVERSE ROLLER WITH METAL COVERING



SCALE 1/8" = 1"	KANE - QUALITY - VENETIAN - BLINDS TAPE SPACINGS & BUNDLE HEIGHTS	PLATE NO. 190



APPLICATION - OF ADJUSTABLE LOCKING BRACKET SHOWN IN EXTREME POSITIONS

SCALE 1/2" = 1"	KANE - QUALITY - VENETIAN - BLINDS ADJUSTABLE LOCKING HEAD BAR BRACKET	PLATE NO. 290

SIMON VENTILIGHTER CO., INC.

(ALSO KNOWN AS VENTILIGHTER CO.)

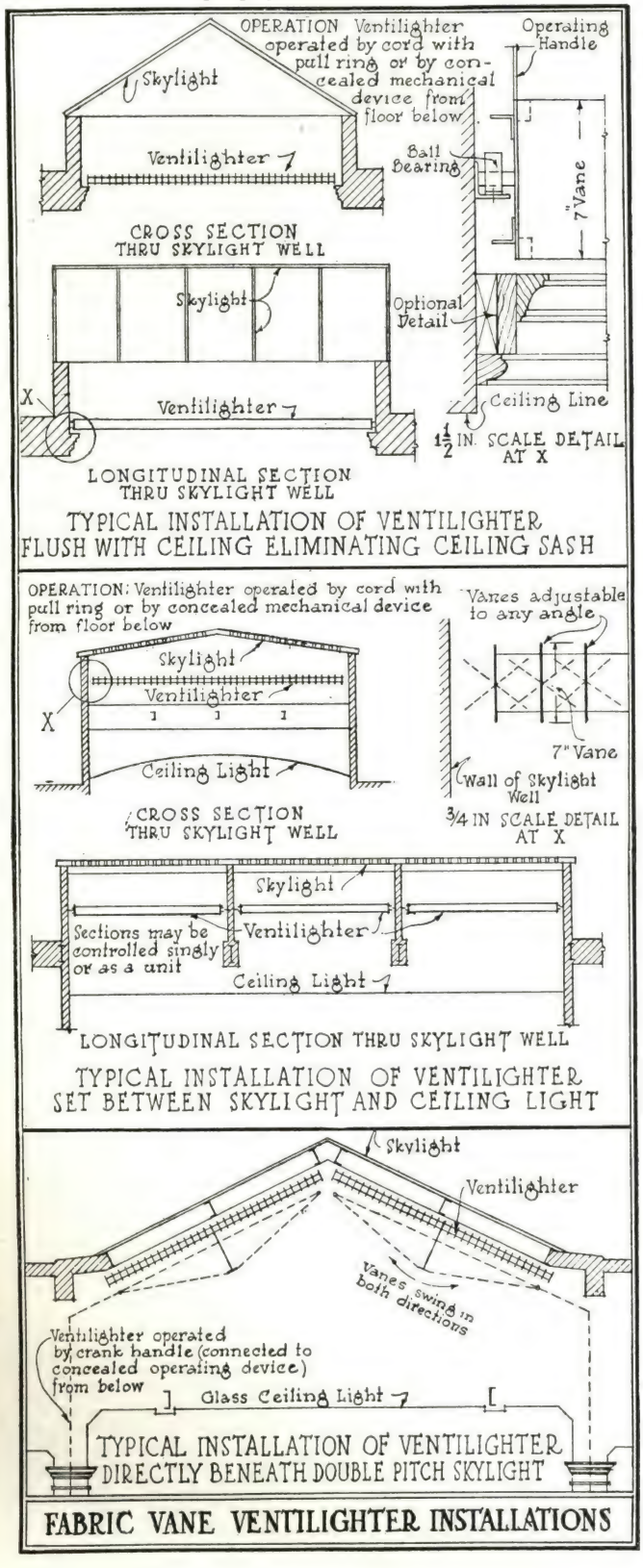
Ventilating Vane Shades for Skylights, Windows and Sleeping Porches

101 Park Avenue, NEW YORK, N. Y.

Product and Service

VENTILIGHTER, a scientific light controlling device adapted to skylights, windows and sleeping porches, and encompassing within its uses the complete control of light in all its phases.

We shall be pleased to consult with you concerning special requirements.



Principle of Ventilighter

Ventilighter consists of a series of specially woven fabric vanes (although metal or other material may be substituted in special instances) mounted in a metal lattice framework. The vanes may be opened or closed so as to overlap, ventilation remaining unimpaired (except where the all-metal skylight Ventilighter described on the following page is used for complete darkening. The use of various types of vanes corresponding to the individual problem permits the concentration, diffusion or elimination of light rays.

Fabric Skylight Ventilighters

Ventilighter for skylights is a special louvre construction as illustrated, with the louvres or vanes adjustable within the area covered, so that they overlap or open wide at will. When fabric is used the heat of the sun is tempered and a soft diffused light results, which can be controlled in the desired direction.

Glare and shadows are absolutely eliminated. When the vanes are completely closed they overlap but do not touch, hence ventilation is unimpaired. *To emphasize again, light is perfectly controlled, heat reduced, glare eliminated, and ventilation unimpaired.*

Estimates and Installation

In writing for information please submit a sketch illustrating conditions. For skylight Ventilighters show construction of skylight opening and possible obstructions such as columns, piping, etc. For window Ventilighters show section of jamb, head and sill.

We furnish blue prints showing an easy method of installing. Our staff, if desired, will undertake complete installation.

Write for catalogue of construction, and installations.

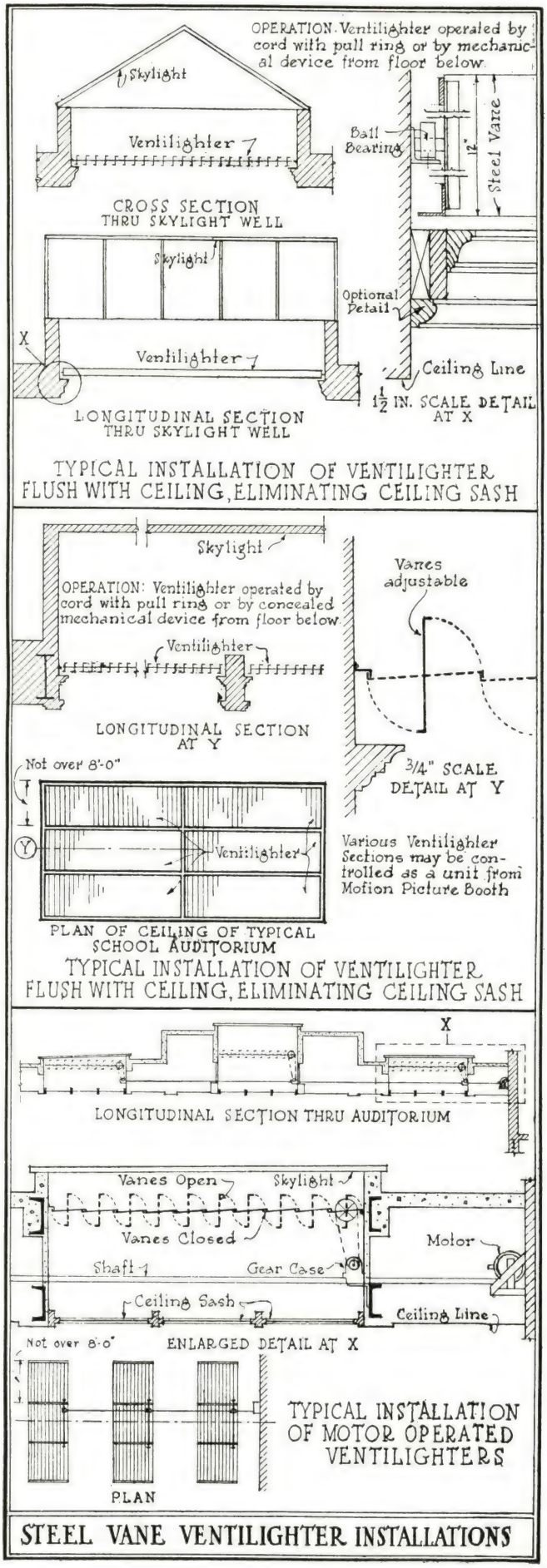
Specification

All skylights [windows] [sleeping porches] shall be equipped with Ventilighter, a scientific light controlling device, as manufactured by the SIMON VENTILIGHTER CO., INC., 101 Park Avenue, New York, N. Y., consisting of a series of special vanes, adjustable as desired by the operation of a movable metal lattice frame, in which the vanes are mounted, thus permitting the control of light without impairing ventilation. Material of vanes to be a specially woven fabric with selvedge on both edges (or metal vanes as desired). Frames to be finished to match surroundings.

Note: Where metal vanes are used eliminate reference to unimpaired ventilation.



View Above Ceiling Light, Breckenridge Long Art Gallery, St. Louis, Mo.
GUY STUDY, Architect



All-metal Skylight Ventilighters (Darkening)

A most important phase of our work is the use of metal vanes flanged at the edges so that when the louvres are closed they overlap and darkness is instantly effected. Ofttimes *skylights in auditoriums must be darkened* when motion pictures are shown and the value of causing instant darkness by merely pulling a cord or turning a crank is apparent.

Reversing the above, very often the vanes are made similar in design but enameled white. Thus the vanes when closed act as a big reflector to the artificial lights, creating an *ideal indirect lighting system,* yet when daylight is strong enough to be used, the vanes are opened at the proper angle to reflect natural light to the proper operation point. Ventilighters may be operated from predetermined points of convenience when proper provision is made; electrically also if desired.

Some Buildings Where Ventilighters Are Installed

Building and Location	Architect
Fogg Art Museum, Harvard University	Coolidge, Shepley, Bulfinch & Abbott (French & Hubbard, Eng'rs)
Union & New Haven Trust Co., New Haven	Cross & Cross
New York Public Library, New York	Carrere & Hastings
Detroit Institute of Arts, Detroit	Paul P. Cret and Zantzinger, Borie & Medary
Auditorium Bldg., California Institute of Technology, Pasadena	Bertram G. Goodhue
Annex, Pierpont Morgan Library, New York	Benj. W. Morris
Art Gallery, University of Rochester	McKim, Mead & White
L. Cass Ledyard Jr. Residence, Syosset, N. Y.	Chas. A. Platt
Gallery of Fine Arts, Yale University	Egerton Swartwout (French & Hubbard, Eng'rs)
Savings Bank of Newport, R. I.	Thos. M. James
Free Library of Philadelphia	Horace Trumbauer
Museum of Natural History, New York	Trowbridge & Livingston
Mitsui Bank, Tokio, Japan	Trowbridge & Livingston
Chemical Laboratory, Princeton University	Day & Klauder
Schools, Wilmington, South Orange, etc.	Guilbert & Betelle
Packard Memorial, Lehigh University	Visscher & Burley
First National Bank of Hawaii, Honolulu	York & Sawyer
New York State Office Bldg., Albany	Wm. E. Haugaard
Hon. Alfred E. Smith Apartment, New York	
Westchester County Park Com., Bronxville	
Long Island State Park Com., Babylon	
Mellon National Bank, Pittsburgh	Trowbridge & Livingston
Essex County Courthouse, Newark	Guilbert & Betelle
Providence Institution for Savings, Providence	Howe & Church
Providence County Courthouse, Providence	Jackson, Robertson & Adams
Centerville National Bank, Arctic, R. I.	Hutchins & French
Col. H. H. Rogers Residence, Southampton	John Russell Pope
U. S. Depart. of Commerce Bldg., Washington	York & Sawyer
Government Museum, Quebec, Canada	Wilfrid Le Croix
Union Trust Co., Baltimore, Md.	Smith & Hay

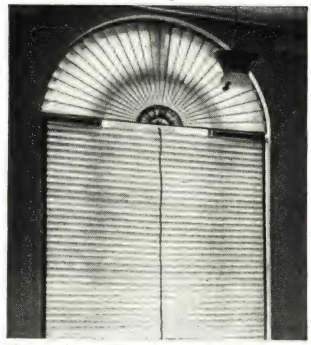
Window Darkening Ventilighters

We also manufacture a special sliding sheet steel device electrically or manually controlled for darkening purposes, so devised that a battery of windows may be darkened at one time, such as proves necessary in auditorium work. When not in use the plates collapse into a pocket out of sight and at the press of a button or the turn of a crank reappear and extend so as to completely cover the openings.

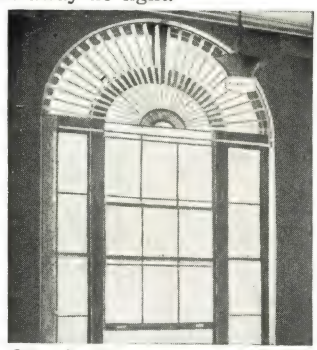
Window and Sleeping Porch Ventilighters

Ventilighters for windows and sleeping porches consist of a series of specially woven horizontal fabric strips or vanes mounted in a framework and so devised that the vanes may be tilted up or down without impairing ventilation. For windows we have standardized on a gold colored fabric designed to eliminate the heat and glare of the sun without loss of light. For sleeping porches we have standardized on a cravenetted opaque green material which is impervious to snow or rain and withstands the strongest winds.

Window and sleeping porch Ventilighters collapse to the side jamb (occupying ½-in. space to the running foot) by pulling a cord. The entire construction is absolutely noiseless and rattleproof, easily controlled on the largest windows, and by virtue of folding to the side takes away no light.



Circular Head and Window Ventilighter Closed



Circular Head Open; Window Ventilighter Folded to Side

ESTABLISHED 1856

SWEDISH VENETIAN BLIND COMPANY

Manufacturers and Distributors of Swedish Venetian Blinds

TELEPHONE
BOgardus 4-7750

1265 Broadway
NEW YORK, N. Y.

CABLE ADDRESS
"Venetblind"

LOCAL FACTORY: BROOKLYN, N. Y.

Products

SWEDISH VENETIAN BLINDS.

For our page on Partitions, Rolling Doors and Shutters, see Manufacturers' Index.

Catalogues, details, prices sent on request.

Uses

Swedish Venetian Blinds are used in buildings wherever shading and ventilation are required.

Adaptability

They are suitable for private residences, sun porches, libraries, offices, hotels, etc.

Manufacture

Manufactured and imported by us, made of the highest grade material, Port Orford Cedar, thoroughly kiln-dried; also of Norway Pine, straight grained. They excel in material, improved construction, ease of operation, durability and harmony of colors.

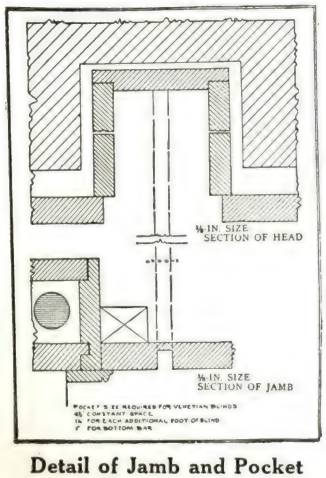
Added to their excellence of construction are the conveniences, refinements and niceties which, together with the perfect service and easy control, afford a luxury only to be expressed by the term "Swedish Venetian."

Slats (Imported Blind)

Made of Norway pine, straight grained, very thin and due to our secret process, are guaranteed not to warp.

Finish

High class painted or stained finish; all colors. Also natural wood.



Detail of Jamb and Pocket

When above is followed, it will result in a most satisfactory installation of Venetian blind, either outside, between screen and sash, or on the inside, giving a better service than any other blind of its kind

Ladder Tape and Fixtures

Best imported tape, good quality cord, and neat brackets and hardware for hanging.

Either brass pulleys or glass rings to prevent the cord from wearing are used.

Installation

Installation is quite easy, inasmuch as all the necessary material is furnished.

Operation

Different systems of operation are applied according to the individual job.

Blinds can be adjusted to any angle by a patented regulating device, and can be put up and taken down as easily as a roller shade, requiring no tools. Side attachments such as brass rods or heavy wire, or metal guides with attachment on intermediate slats are recommended for blinds attached to doors or swinging transoms and wherever exposed to a strong wind.

Years of practical service have brought about operating ease.

Attractive Appearance

Swedish Venetian Blinds enhance both the interior and exterior appearance of buildings.

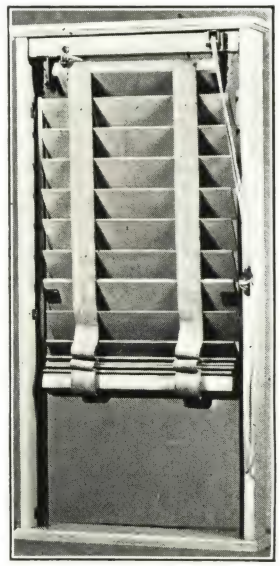
Our blinds close tightly and present a neat appearance. Installed in the finest residences throughout the country.

Sliding Venetian Blinds

For outside and inside purposes, with or without grooves.

Also made with extensions, taking the place of awnings.

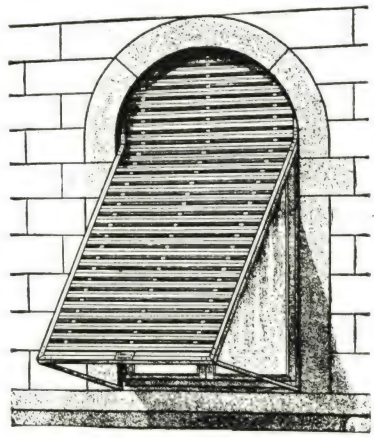
They answer the purpose of a shutter to a certain degree when let down.



Sliding Venetian Blind in Brass Grooves with Brass Attachments on Heavy Slats

Outside Roller Blind

Made of heavy wood slats connected with non-rustable metal connectors. The slats slide in a neat metal groove. Slats can be adjusted so as to give ventilation and privacy, with only one tape operation inside. Rolls completely out of the way up into a pocket on the inside.



Roller Blind Open and Extended Out Like an Awning

As satisfactory and durable a blind as there is on the market.

Outside Venetian Blind with Metal Tape

Illustrated on this page is an outside Venetian blind, a long-felt commodity. It is made of materials and so constructed that it will give long and satisfactory service; there is nothing that will wear out or go out of order. The slats are made with a center cut to operate on an L-shaped metal groove on the side. A metal hoisting tape and metal chain of non-rustable material are used; will not wear out and will withstand any atmospheric conditions, making this blind practically indestructible, and a very low cost blind installation.

Office Installation

Improper distribution of light in any office, industrial building or factory lowers the efficiency of the entire working force.

Swedish Venetian Blinds afford a highly effective method of so distributing light as to completely eliminate eyestrain when working or reading. Windows may be open without fear of drafts or papers blowing about, as the blinds only permit a continuous uninterrupted circulation of air.

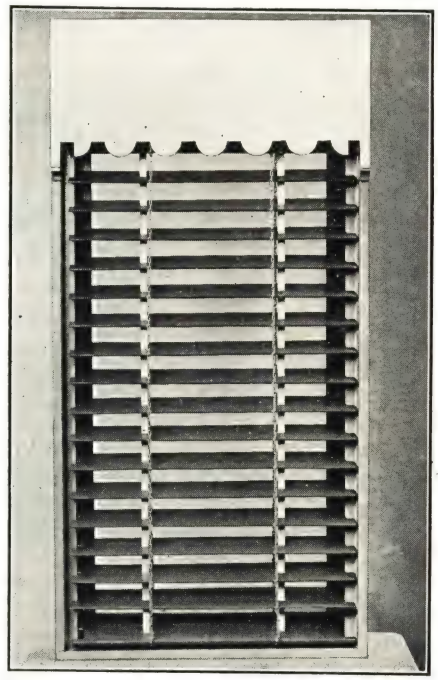
Our blinds pass many times as much light through windows as can be passed by fabric shades or awnings with direct sunlight cut off. They do not invite fire, or disaster through windstorm.

Sizes

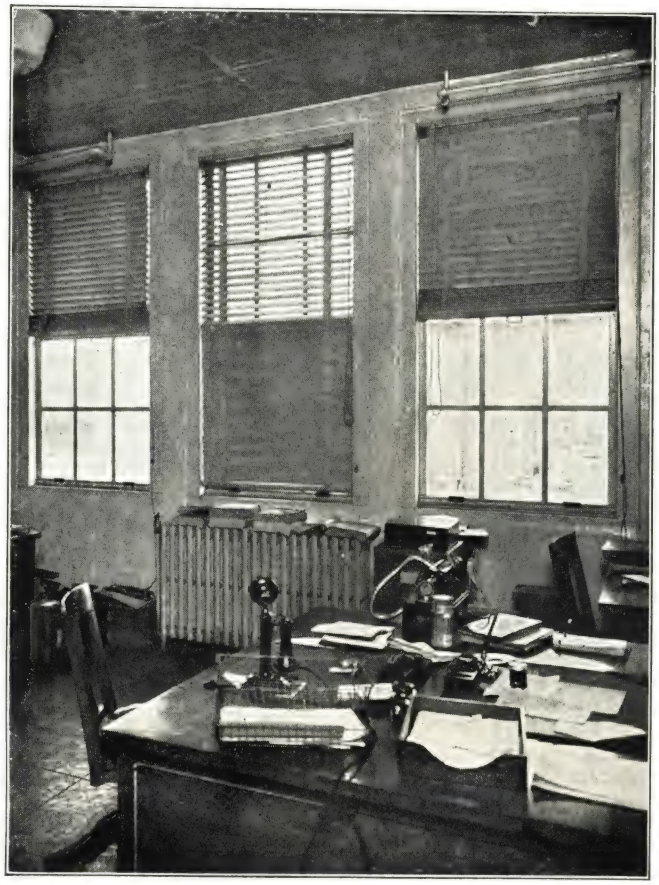
Swedish Venetian Blinds can be had for all sizes and types of windows.

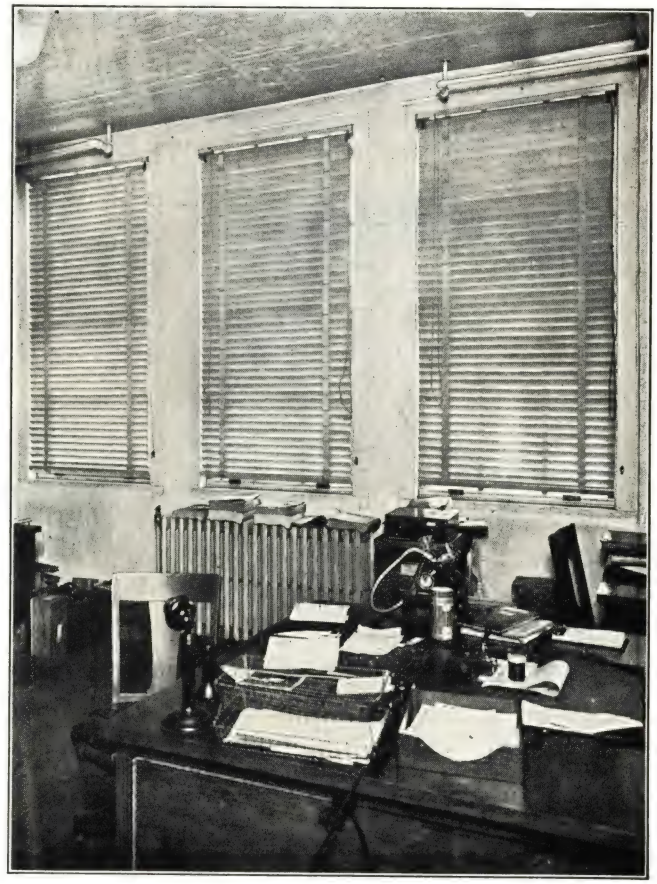
Service

This company is rendering and will promptly give expert advice to architects when consideration is given blinds during preliminary work so that proper provision can be made for same.



Outside Venetian Blind with Slats Partly Tilted and with Metal Facia





A Typical Office Installation

WATSON MANUFACTURING COMPANY

Manufacturers of Watson Venetian Blinds

630 Taylor Street
JAMESTOWN, N. Y.

For Watson Insect Screens and Office Furniture, see Manufacturers' Index

Products

VENETIAN BLINDS of all kinds for all types and sizes of windows.

Watson Quality

The name Watson is a guarantee of quality. All of our products are made only of the best materials, selected after careful investigation and thorough tests. The best mechanics only are employed in our factory.

Watson Venetian Blinds in All Types

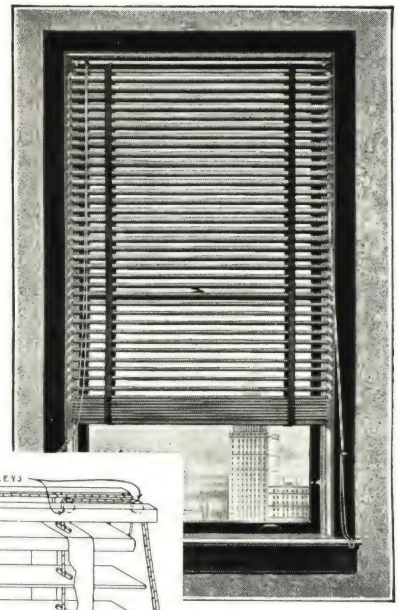
There is a type of Watson Venetian Blind to fit any type of window in either the roller or pulley types of blinds.

They are made principally for interior use but may be used outside on porches, etc., where ventilation with shade is required.

GENERAL DESCRIPTION AND OPERATION OF WATSON VENETIAN BLINDS

The slats of Watson Venetian Blinds are made of wood supported by woven fabric ladder tapes. Brackets and hardware are of metal. All pulleys operate easily on hardened steel ball bearings which are standard construction and provide for a minimum of effort in raising and lowering the blinds.

Slats are tilted by means of a cord attached to the tilting bar which is supported from the top head member by metal brackets. At left end of tilting bar there is a strong spring which compresses against the bracket and causes enough friction to hold the bar at any angle without fastening the cord. The tilting of the bar and slats is entirely independent of the raising and lowering of the blind.

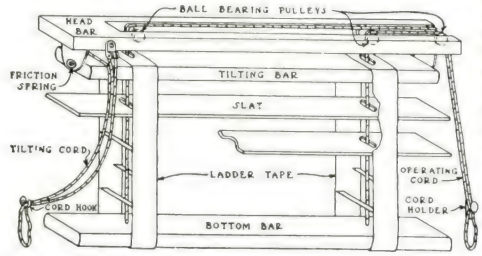


Above:

Single Lift Blinds

For small and medium sized windows not over 50 sq. ft. in area.

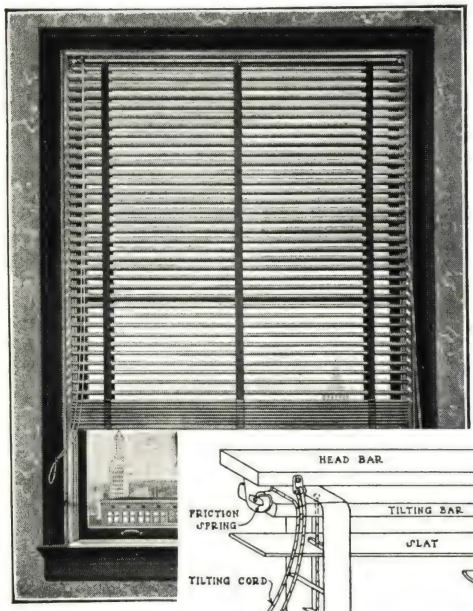
For larger windows, use double lift blinds



WATSON PULLEY TYPE BLINDS

Watson Pulley Type Blinds are offered in two styles—the Single Lift and Double Lift (Easy Lift) that cover practically any ordinary window.

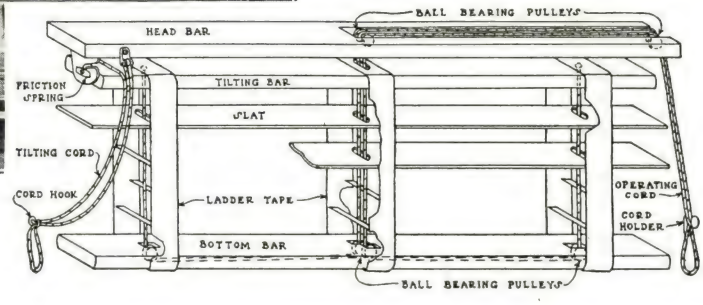
They are very similar in appearance and can be used on adjoining windows where symmetrical appearance is required.



At Left:

Double Lift Blinds

For windows over 40 sq. ft. in area. Not recommended for 75 sq. ft. in area



Accessories

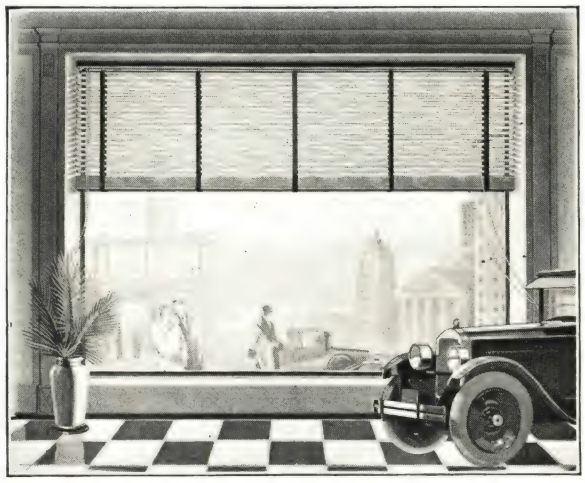
Side guides are not ordinarily required but can be furnished.

Operating cords can be arranged to come through the front top bar.

The drum style adjustable friction brake can be furnished if desired.

WATSON ROLLER TYPE VENETIAN BLINDS

The roller type blinds are distinguished from the pulley type by the wooden roller placed between the top bar and the tilting bar. Operating cord is wound around one end of roller, which revolves on hardened ball bearings as the blind is raised or lowered. The particular advantage of the roller type is their ease of operation. The slats are always truly horizontal, which makes them desirable for use with side guides.



Types of Roller Blinds

We manufacture three types of Roller Blinds: the "Ratchet Roller," "Plain Roller," and "Traverse Roller." The "Ratchet" and "Plain Roller" types and the "Traverse Roller, Light Type," are for all size windows up to 90 sq. ft. For very large openings, we recommend the "Traverse Roller, Heavy Type."

"Ratchet Roller" and "Plain Roller" Blinds

These blinds are for similar uses. Both are identical in construction with the exception that the "Ratchet Roller" has a stamped steel ratchet and pawl at the right-hand end of roller and the "Plain Roller" does not. Ratchet attachment automatically holds blind stationary at any height at the instant the operating cord is released. The "Plain Roller" requires the fastening of operating cord to the hook placed on jamb.

On both types of blinds the bronze tapes, which support the blind, are fastened to roller, passing down through the slats to bottom bar. They wind in grooves, in the roller, in a direction opposite to operating cord.

As these blinds operate on ball bearings and no cord pulleys are required, friction is practically eliminated. Operating cord is regularly at right of blind and tilting cord at left, but this can be reversed. We prefer the cord to a tape as the cord does not get crumpled, is easy to hold and is more practical.

Both of these blinds are furnished with a head member which supports the roller. Head member may be screwed directly to soffit of window head, or hung by brackets either under the head or on face of trim.

"Traverse Roller" Blinds

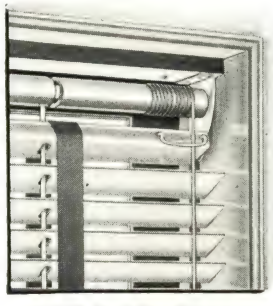
Heavy Type—These blinds are designed for use in very large windows, such as show windows, banks, etc., when the area to be covered is 100 sq. ft. or more. They are operated with the greatest ease by a cord, but very large blinds are sometimes operated by worm and gear or winch.

Operation—The 2-in. steel tube roller is correctly proportioned, and is revolved by the operating cord which is coiled around a steel drum larger than the roller. The raising cords wind around the roller in a direction opposite to the operating cord. In raising and lowering the blind, the roller, supported on hardened steel ball bearings in steel brackets, is revolved and a screw causes it to move endwise (oscillate), but no weight is carried on the oscillating screw.

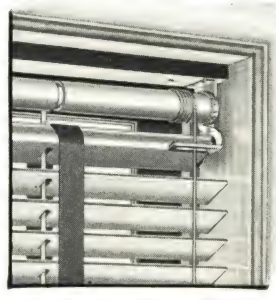
Blind Case—On account of the mechanism, the blind head is completely enclosed, either in a wooden or a steel case. The steel case costs slightly more, but saves space. Fronts may be paneled or plain when exposed.

Side Guides—Side guides may be used when it is desired to keep the blind from swinging in the opening during windy weather. Made in three types: Channel Guide, Channel Guide with Extension Bracket, and Rod Guide. Slat end fixtures are attached to the bottom bar and to each eighth slat as standard (each 16 in.) which is usually sufficient. Other spacing can be made if desired.

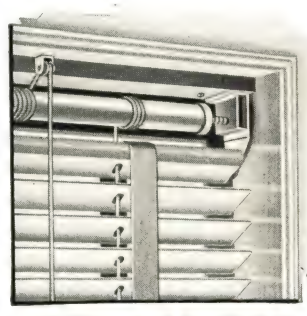
Light Type—Similar to the "Plain Roller" type but without the drum for the operating cord. A lateral traverse motion insures both the operating and lifting cords rolling flat and smooth on the roller. Cord must be fastened to hold the blind at the desired height. Not recommended for windows over 90 sq. ft. in area.



Plain Roller Blind



Ratchet Roller Blind



Traverse Roller Blind

WESTERN VENETIAN BLIND COMPANY

FORMERLY WESTERN BLIND & SCREEN COMPANY

Manufacturers of Venetian Blinds

101 Park Avenue
NEW YORK, N. Y.

2700 Long Beach Avenue
(Vernon Branch Post Office)
LOS ANGELES, CALIF.

WESTERN VENETIAN BLIND AGENCIES

ABILENE, TEX.
AMARILLO, TEX.
ATLANTA, GA.
AUSTIN, TEX.
BELLINGHAM, WASH.
BIRMINGHAM, ALA.
BOISE, IDA.
BOSTON, MASS.
BOULDER, COLO.
CHARLESTON, W. VA.
CHARLOTTE, N. C.
CHICAGO, ILL.
CLEVELAND, OHIO
DALLAS, TEX.
DAYTON, OHIO
DETROIT, MICH.
ELLENSBURG, WASH.
EL PASO, TEX.
FORT WAYNE, IND.
FORT WORTH, TEX.
FRESNO, CALIF.
HARLINGEN, TEX.
HELENA, MONT.
HOUSTON, TEX.
INDIANAPOLIS, IND.
JACKSON, MISS.
JACKSONVILLE, FLA.
KANSAS CITY, MO.
LAREDO, TEX.
LUBBOCK, TEX.
MEMPHIS, TENN.
MIAMI, FLA.
MILWAUKEE, WIS.
MINNEAPOLIS, MINN.
NEW ORLEANS, LA.
PHILADELPHIA, PA.
PHOENIX, ARIZ.
PITTSBURGH, PA.
PORTLAND, ORE.
RALEIGH, N. C.
ROANOKE, VA.
ROCHESTER, N. Y.
SACRAMENTO, CALIF.
ST. LOUIS, MO.
ST. PETERSBURG, FLA.
SALT LAKE CITY, UTAH
SAN ANGELO, TEX.
SAN ANTONIO, TEX.
SAN DIEGO, CAL.
SAN FRANCISCO, CALIF.
SEATTLE, WASH.
SPOKANE, WASH.
STAMFORD, CONN.
TAYLOR, TEX.
TERRE HAUTE, IND.
TOLEDO, OHIO
WASHINGTON, D. C.
WAUKEGAN, ILL.
WILMINGTON, DEL.
WEST PALM BEACH, FLA.

FOREIGN AGENCIES

ANCON, C. Z., Pan American Sales Co.
HONOLULU, T. H., Waterhouse Co. Ltd.
BUENOS AIRES, ARGENTINE, W. D. Cone

Western Venetian Blind Uses

Western Venetian Blinds combine the functions of awnings and window shades. They deflect and diffuse sunlight and regulate air currents and control ventilation and temperature. They give daylight without glare and ventilation without draft.

TRADE-MARK

Adaptability

Venetian Blinds are used in banks, hospitals, office buildings, schools, public buildings, solariums, homes, sleeping porches, prism store fronts, transoms, automobile and other showrooms, apartment houses and many other window openings.

Installation

All the necessary hardware and fixtures for Western Venetian Blinds are furnished with each order.

Installations are under the supervision of the territorial representative. Service is localized through various agencies. The Sales Company contracts for installation of large or complicated jobs.

Operation

Descriptive details and illustrations shown in the following pages cover the different operating devices, which vary in accordance with the sizes of the blinds. A suitable operating device is supplied to make all blinds operate freely and positively, with minimum wear.

Prices

Owing to the varying sizes of windows and finishes of blinds, it is impracticable to quote prices here. Estimates and personal service may be had, however, by furnishing to the nearest office shown above, a list of windows, filling in sizes called for on the Measurement Diagram.

Oscillating Roller Type Blinds

This type of blind is designed for use in very large openings, such as found in banks, etc. Regardless of the size of the opening, these blinds are made to operate easily and freely. See illustration following page. Standard as to slats, ladder tape, and finish. Lifted on $\frac{1}{16}$-in. flexible wire cables by means of a single No. 6 sash cord. Recommended for blinds containing more than 100 sq. ft.

Rod Guide Blinds for Doors and Transoms

Blinds for transoms that swing into the room should be equipped with rod guides. This attachment consists of small swivel rings securely attached to the ends of slats which operate on $\frac{7}{32}$-in. brass rods, holding the blind firmly to the sash at all times.

This arrangement is also preferable for doors, as it prevents the blind from flapping as the door is operated, but in no way interferes with the operation of the blind or the door.

This attachment is also recommended for blinds which are exposed to strong winds.

Skylight Blinds

This type of Western Venetian Blind overcomes the disadvantages presented by skylights which are often difficult to cope with.

Skylight blinds entirely eliminate glare and subdue bright sunlight that without them would flood through the skylight. Also heat from the sun, which is intensified by glass, is minimized and almost excluded by them.

They can be had in any size for all types of skylights.

Type F Circular Head Blinds

This type of blind is made with stationary slats tilted to 45° angle, housed into a solid circular sawn frame $1\frac{1}{4}$x$1\frac{3}{4}$ in. in section.

Where there is no transom bar in the window, Type A or B blinds may be attached directly underneath the bottom rail of Type F blinds; adequate supports are provided, regardless of width.

Description

Slats—Made from clear Port Orford white cedar, a wood of fine texture, finished $\frac{1}{8}$ in. thick. Standard width $2\frac{3}{8}$ in.; also made in $1\frac{1}{2}$-in. and 2-in. width. Guaranteed against warping, splitting or breaking.

Slats made from other woods are furnished, but not recommended or guaranteed; $1\frac{1}{2}$-in. and 2-in. slats recommended only for small windows.

Ladder Tape—Best quality cotton and linen fabric interwoven ladders; imported or domestic.

Cord—Hollow, specially braided, glazed to prevent wear.

Finish—Western Venetian Blinds are finished in any color required, preferably in cream or natural lacquer. Only the highest grade of lacquer is used, giving a clean, smooth finish that will withstand the strong rays of sunlight and weather conditions to which the blinds are subjected. Dark finishes are not recommended where daylight must be considered.

Attractive Appearance

Western Venetian Blinds not only outwear the ordinary fabric window covering many times, but distinguish the building by reason of the clean cut exterior.

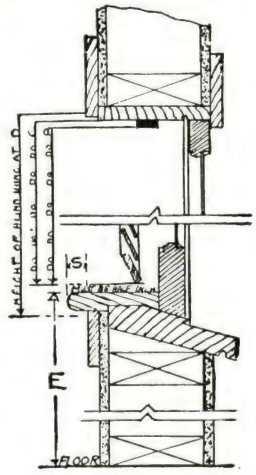
The architectural lines are maintained and both interior and exterior appearance is enhanced.

How to Measure for Western Venetian Blinds

For Ordinary Windows—When blinds are to hang between stops or jambs (B or C) always give full net width and height of opening between such points and mention where measured.

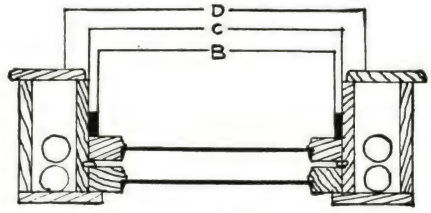
When to be hung on face of casings (D) give the actual width and height of the blind wanted, mentioning where measured. For example—"Width D, 48 in.; height of blind, 84 in."

For Doors or Hinged Transoms—When measuring these for Western Venetian Blinds, always give the actual size of the glass. It is also desirable to mention the distance from the edge of the glass to the nearest point of any hardware which occurs on the transom sash or door stiles.

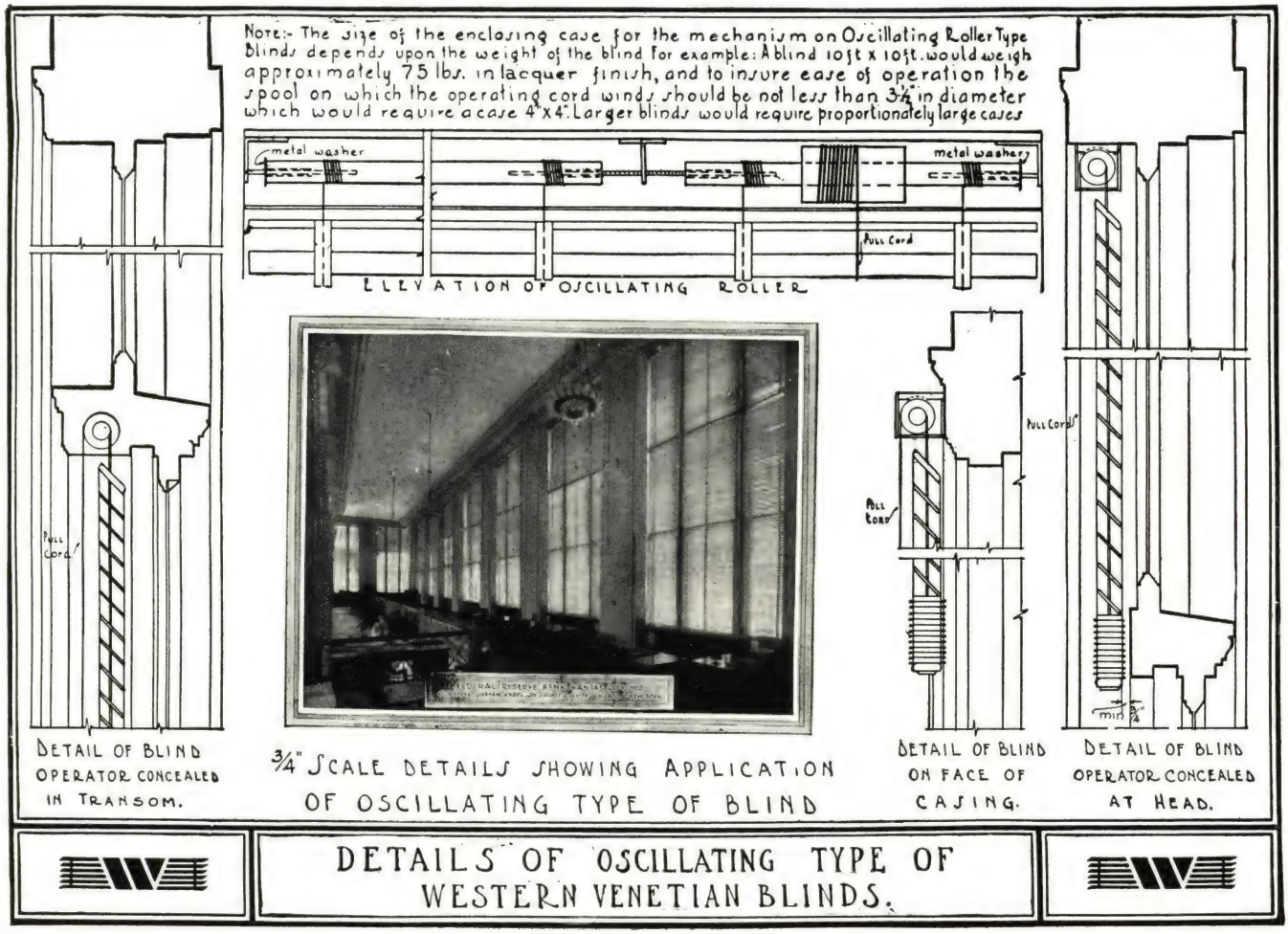


For Circular Windows—In furnishing working measurements for circular transoms, etc., it is always best to cut a paper templet the size and shape of the opening where the blind is to go.

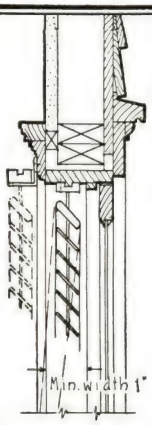
Note: Always give distance from floor to bottom of blind, so that operating cords may be made the proper length.



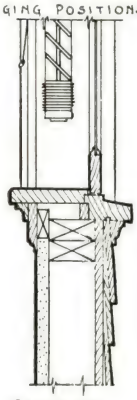
Measurement Diagram of Western Venetian Blind



DETAILS OF OSCILLATING TYPE OF WESTERN VENETIAN BLINDS.



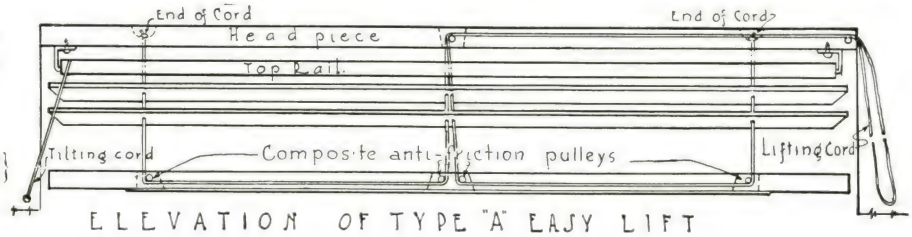
SECTION THRU HEAD SHOWING ALTERNATE HANGING POSITIONS.



SECTION THRU SILL.

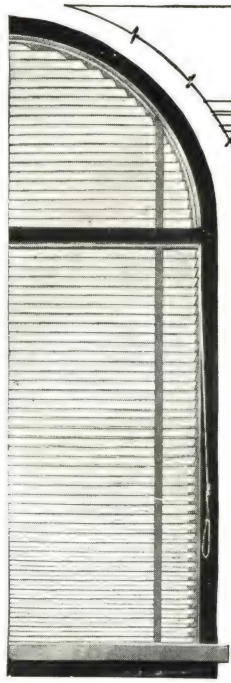
3/4" SCALE DETAILS OF "A" TYPE BLINDS.

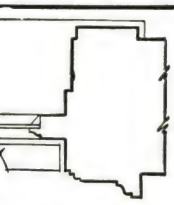
1 1/8" Thick→
7/8" Thick→
1 1/8" "A" Type
7/8" "B" Type



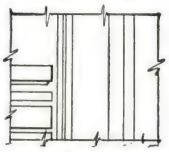
ELEVATION OF TYPE "A" EASY LIFT

NOTE:- CIRCULAR TRANSOMS.
Where the circular transom sash swings in, the blind is attached directly to the sash either by means of screws through the bottom rail and uprights of the blind, or by the use of a special button which makes the blind quickly removable, yet holding same firmly to the sash. Section at right shows TYPE "F" CIRCULAR BLIND and method of attaching TYPE "A" BLIND to the bottom rail of same.

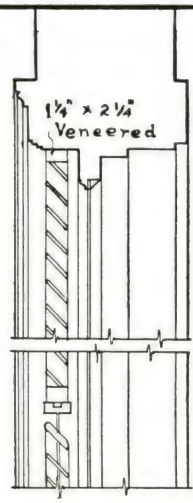




SECTION THRU JAMB

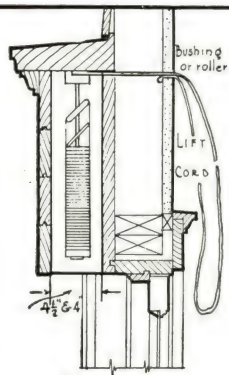


PART ELEVATION AT BOTTOM RAIL

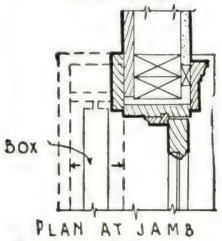


SECTION THRU CIRCULAR WINDOW TRANSOM "F" TYPE BLIND

3/4" SCALE DETAILS SHOWING APPLICATION OF TYPE "F" CIRCULAR HEAD BLINDS.



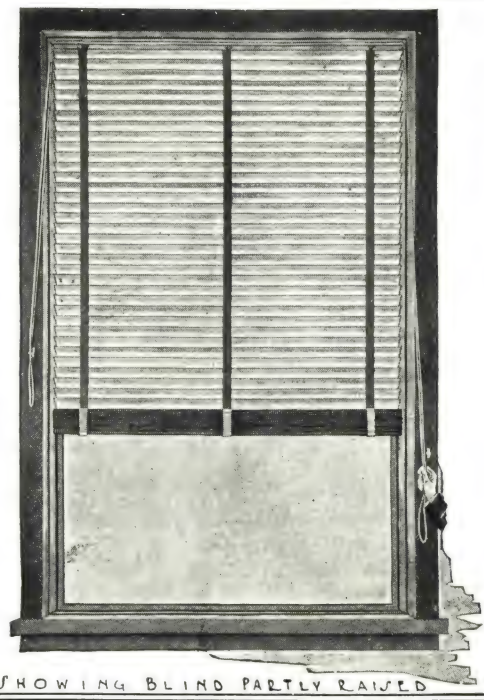
SECTION



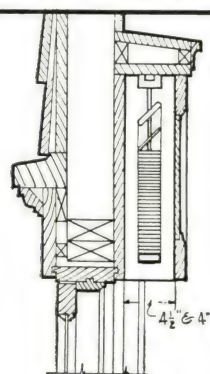
PLAN AT JAMB
BLIND CONCEALED OUTSIDE OPERATED FROM ROOM

NOTE BLINDS WITH 2 3/8" SLATS REQUIRE A POCKET 4 1/2" WIDE TO DETERMINE DEPTH OF POCKET BEGIN WITH 3" AND ADD 1 1/4" FOR EACH FOOT IN HEIGHT OF ACTUAL WINDOW OPENING

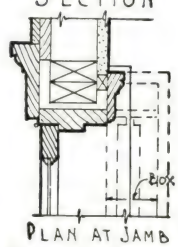
BLINDS WITH 2" SLATS REQUIRE A POCKET 4" WIDE FOR DEPTH BEGIN WITH 3" AND ADD 1 1/2" FOR EACH FOOT IN HEIGHT OF ACTUAL WINDOW OPENING.



SHOWING BLIND PARTLY RAISED



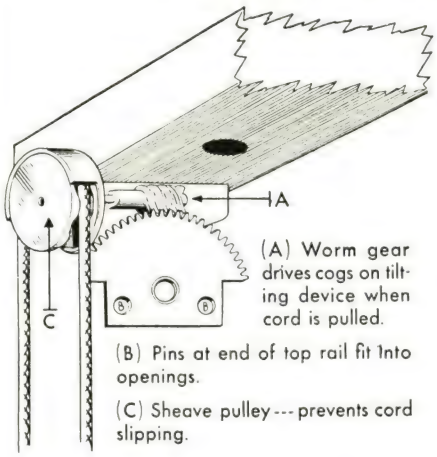
SECTION



PLAN AT JAMB
BLIND CONCEALED IN ROOM

DETAILS OF CIRCULAR HEAD & TYPE A WESTERN VENETIAN BLINDS

ILLUSTRATIONS AND DETAILS SHOWING OPERATING FEATURES



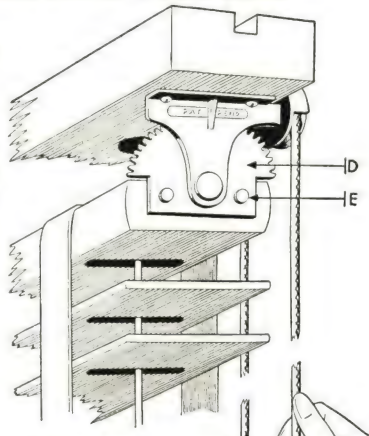
(A) Worm gear drives cogs on tilting device when cord is pulled.

(B) Pins at end of top rail fit into openings.

(C) Sheave pulley --- prevents cord slipping.

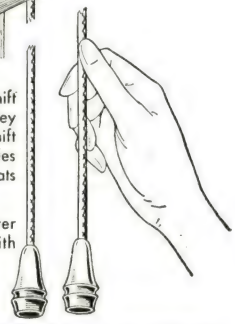
Two Views of Worm Gear Tilting Device

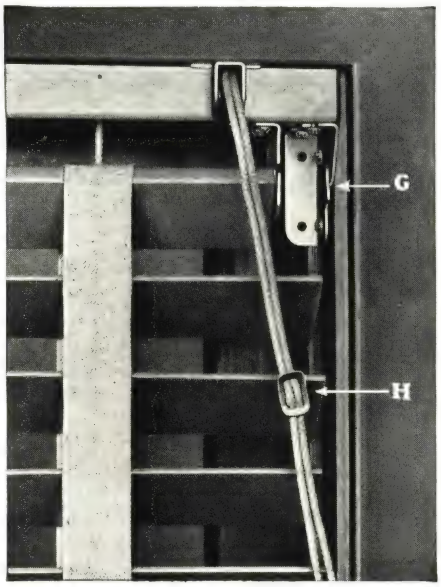
Locks slats at any angle—noiseless in operation—adds value to any installation. This is one of the greatest advances toward mechanical perfection ever made in connection with blind operation.



(D) Tilting device cannot shift except upon operating pulley with cord --- slats cannot shift position --- gear ratio enables operator to easily place slats at exact angle required.

(E) Shows installation after top rail is connected with tilting device.





Removable Head Bracket (G)

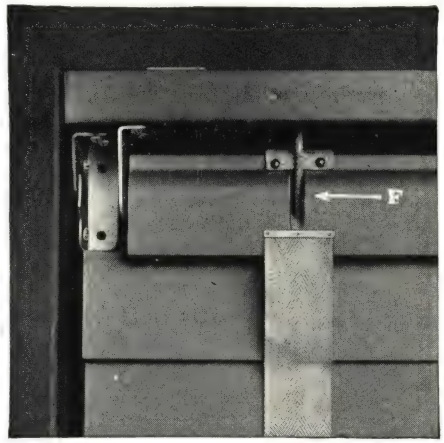
To remove blind from window, loosen screws at front and back on each end of head piece. Bracket is slotted, allowing blind to be removed. Any owner can do this in just a moment's time.

Cord Equalizer (H)

Blind pulls up evenly at all times—no twisting nor angling to wear tape or cord.

Angle Bored Tilt Rail (F)

Shows angle bore on tilt rail that allows blind to be pulled up or lowered without cord friction or wearing, no matter at what angle blind is tilted. Saves many dollars in repair bills.



CONDENSED SPECIFICATIONS FOR WESTERN VENETIAN BLINDS

Slats, Headrails, Tilt Rails and Bottom Rails—All of kiln dried, clear, select Port Orford cedar.

DIMENSIONS

	Net width, in.	Thickness, in.
*Slats	2 3/8	1/8
Headrails	2 7/16	1 1/8
Tilt rails	2 3/8	7/8
Bottom rail:		
Type A	2 3/8	1 1/8
Type B	2 3/8	7/8

*Slats will also be furnished in 2-in. and 1½-in. widths when desired.

Tape—Carr's imported grade C.C.L.

Bored Tilt Rail—All tilt rails are so bored that blinds will pull up freely even when tilted completely shut. Avoids undue wearing of cord.

Slots—Cord slots in slats are routed by high speed drill to give smooth, unbroken edges. We do not use a punch.

Worm Gear Tilt—Standard on all blinds (illustration above).

Removable Head Brackets—Standard on all blinds up to 48 in. wide (illustration above).

Cord—All cord of best quality hollow braid with glazed finish to prevent wear.

Cord Pulls—Brush brass cord pulls are placed on each end of tilt cord.

Cord Equalizers—Standard on all blinds so that blinds always pull up evenly; avoid cord wear.

Pulleys—22-bearing, double race pulleys are standard, except where climatic conditions make fibre pulleys advisable.

Finish—Only best grade of lacquer used. Three coats applied to each wooden part. Standard color is No. 2 Ivory, ideal as light reflecting surface. Any color can be matched, however.

Hardware—Cord holders are of solid brass. All other hardware is of brush brass finish but will be sprayed to match blinds if requested.

Channel Guided Blinds—All channels and guide clips are of solid brass.

WOODWEB SHADE MANUFACTURERS, INC.

WASHINGTON, N. J.

BRANCHES AND DISTRIBUTERS

BOSTON, MASS., Eames & Priest, Inc., 216 Tremont Street
CHICAGO, ILL., W. L. Van Dame Co., 820 Tower Court
DETROIT, MICH., 3062 Fischer Avenue
INDIANAPOLIS, IND., Barrere, Inc., 117 E. Michigan Avenue
NEW YORK, N. Y., 353 Fifth Avenue
PHILADELPHIA, PA., 401 No. Broad Street
PACIFIC COAST AND THE ORIENT, C. J. Waterhouse Co., 55 New Montgomery St., SAN FRANCISCO, CAL.

SELLING AGENCIES IN PRINCIPAL CITIES

Product

"Fyneart-Woodweb" Ventilating Shades, that combine in one fixture the desirable characteristics of window shade, blind and awning.

Construction

Only the choicest wood of a semitranslucent variety is used, coated with special linseed-oil paint. The warp is four-ply twisted long-staple peeler yarn, woven 144 strands to the foot. Fittings consist of Hartshorn spring rollers of special construction, woven pull-cords, bronze guide wires and heavy brackets.

Types

"Fyneart-Woodweb" Shades are made in two types, the spring roller for installation in interiors, and the rope-and-ring for exposed openings. The spring roller type may be installed with any type of window sash, including skylights.

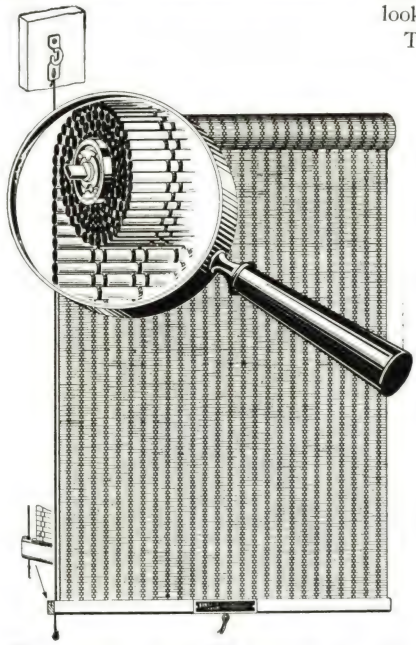
Sizes

They are made in widths from 18 inches to 10 feet and in any desired length. Each shade is custom-made for the project for which it is intended and arrives, complete with all fittings, ready for installation.

Washable—Durable—Sanitary

"Fyneart-Woodweb" Shades will give satisfactory service for from four to ten years longer than the average window shades. They can be washed with soap and water as often as necessary—yet do not lose their beauty or finish. Guide cords keep "Fyneart-Woodweb" Shades from flapping in the wind and prevent edges from getting frayed. Their smooth, oil paint finish discourages dust from settling on them and helps maintain cleanliness. This feature is of particular importance to hospitals and other public institutions.

FYNEART WOODWEB
REG. U.S. PATENT OFFICE
WINDOW SHADES



Spring-roller Type "Fyneart-Woodweb" Shades with Guide Cords or Wires to Insure Even Rolling Up and to Prevent Flapping

For Office Buildings, Apartment Houses, Hotels, Clubrooms, Schools, Sunrooms, Hospitals and Residences

Good light, proper ventilation and tasteful use of color—these are the three factors that interest every architect and every builder of today. No designer of public buildings can afford to overlook them.

Too little attention has been paid to window shades in the past. This was because there was little choice in the matter of styles and colors.

Briefly, this is what "Fyneart-Woodweb" Shades do—they let in the correct amount of sunlight—but remove the glare; because of their open-work construction, the air flows right through them. They also come in a great variety of colors.

Actual tests, conducted by impartial parties, demonstrated that rooms equipped with "Fyneart-Woodweb" Shades are 15° cooler in hot weather than rooms equipped with ordinary window shades.

Savings

Particular attention is called to the use of "Fyneart" Woodweb Ventilating shades in preference to awnings, especially on casement windows, thereby saving the annual cost of hanging awnings, dismounting them, storage, continual replacements caused by storms, etc., and eliminating a fire hazard.

Write and tell us of your particular requirements and we will put our experience at your disposal without obligation.



In the Schoolroom
Sun's glare absorbed by "Fyneart-Woodweb" Shades



In the Sun Parlor
Privacy and comfort obtained with "Fyneart-Woodweb" Shades



In the Bedroom
Plenty of ventilation assured with "Fyneart-Woodweb" Shades

WALTER B. GILBERT & CO.

Manufacturers of "Pullman" Ventilators

YORK, PA.

REPRESENTATIVES IN PRINCIPAL CITIES

Products

PULLMAN-ERIE SASH VENTILATORS; PULLMAN SASH VENTILATORS.

Also Pullman Window Ventilators; Pullman Roof Ventilators; Dampers and Bases.

TRADE MARK

Reg. U. S. Pat. Off.

Pullman-Erie Sash Ventilators

Description—These consist of two parts as illustrated and are furnished complete with wood screws for mounting on the bottom sash rail after opening is provided.



Inside View of Pullman-Erie Sash Ventilator

Specification Data—Pullman-Erie Sash Ventilators are made in two sizes, namely No. 1 and No. 2.

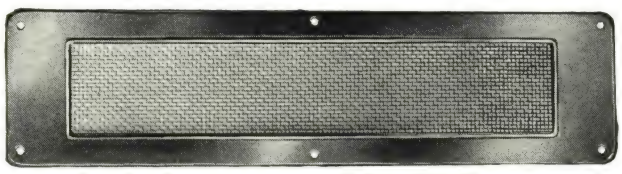
No. 1 size requires opening 1⅜ in. high x 7 in. wide and is 2 in. high x 9 in. wide over all, and sash must be at least 1¼ in. thick.

No. 2 size requires opening 1¾ in. high x 9 in. wide and is 2¾ in. high x 10¾ in. wide over all and sash must be at least 1½ in. thick.

Inside shutter can be opened to any one of four positions from full open to closed, and is held in position by a simple spring arrangement which is part of the ventilator.

Made completely of heavy brass, including screen, and are regularly finished in brush brass and lacquered.

All standard hardware finishes can be furnished on order.



Outside View of Pullman-Erie Sash Ventilator

A FEW RECENT INSTALLATIONS OF PULLMAN-ERIE SASH VENTILATORS

Building	Location	Architect
Abington Hospital	Abington, Pa.	Tilden, Register & Pepper
Children's Hospital	Cincinnati, Ohio	Elzner & Anderson
Woodrow Wilson School	No. Arlington, N. J.	James S. Pigott
Jewish Hospital	Philadelphia, Pa.	Horace Castor
Lenox Hill Hospital	New York, N. Y.	York & Sawyer
McMillan Hospital	St. Louis, Mo.	Jamieson & Spearl

Pullman Sash Ventilators

Description — These consist of two parts, i.e., an inside diffusion box and an outside hood.

The outside hoods are made in two styles which are called "Standard" and "Louvre." Inside box is same in both cases.

The opening required is cut in the bottom sash rail at the mill where the sash are made, and the ventilators are screwed fast to the sash after the same are in place.



View of Pullman Sash Ventilator with Standard Hood

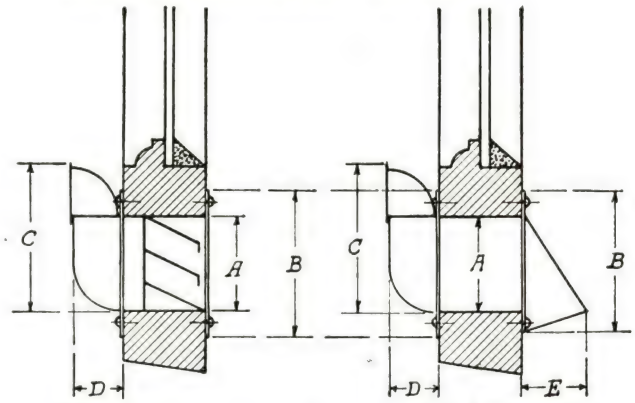
Specification Data—Pullman Sash Ventilators are regularly made with inside diffusion boxes of sheet brass with brushed brass finish and lacquered all over.

Fitted with hinged shutters to stay in any position from full open to closed.

Outside hoods, "Standard" and "Louvre," are made of sheet steel and finished in rubber finish black lacquer.

Fitted with 16-mesh bronze screen cloth.

Screws for mounting are furnished.



With Louvre Hood — With Standard Hood

Cross Sections of Bottom Sash Rail Fitted with Pullman Sash Ventilators

STANDARD SIZES OF PULLMAN SASH VENTILATORS

Nominal sizes, height and width, in.	A	B	C	D	E	Sash openings, height and width, in.
2 x12	2	3⅛	3¼	1	1⅜	2⅛x12⅛
2½x16	2½	3¾	4¼	1⅝	1⅞	2⅝x16⅛
3 x15	3	4⅛	5	1⅞	2¼	3⅛x15⅛
4 x18	4	5¼	6	2⅛	2⅝	4¼x18¼

Special sizes and finishes to order.

A FEW RECENT INSTALLATIONS OF PULLMAN SASH VENTILATORS

Building	Location	Architect
Whidden Memorial Hospital	Everett, Mass.	Kendall, Taylor & Co.
Bryn Mawr Hospital	Bryn Mawr, Pa.	Zantzinger, Borie & Medary
Episcopal Hospital	Philadelphia, Pa.	Stewardson & Page
Levering Hospital	Hannibal, Mo.	La Beaume & Klein
Grade School	Kalispell, Mont.	Fred A. Brinkman
Bronx Hospital	Bronx, N. Y.	Louis Allen Abramson

ESTABLISHED 1893

IDEAL VENTILATOR CO.

ORIGINATORS AND PATENTEES OF GLASS WINDOW VENTILATORS

Manufacturers of the Ideal Window Ventilator

FACTORY AND HOME OFFICE
160 Atlantic Avenue, PROVIDENCE, R. I.

IDEAL WOODEN FRAME AND GLASS WINDOW VENTILATORS

Ventilate the Ideal Way

Deflectors of the Ideal type are especially adaptable to schoolrooms and various large buildings where many persons work or congregate, and have been recommended by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.

Window ventilation has proven extremely satisfactory, not only as to economy of installation and upkeep, but through effective operation by permitting regulation of incoming air by simply raising or lowering bottom sash to meet various requirements of occupants of rooms or offices.



Patent No. 1660972

Trade-Mark Registered U. S. Pat. Off.

Ideal Ventilators

Ideal Ventilators are not an experiment. They have been manufactured and distributed for the past 38 years by this organization. Recommended by leading architects, engineers, contractors and boards of education in the United States. Their efficiency is not confined to offices and factories, but they have found high favor in schools, hospitals, homes and countless public buildings.

They are easily installed and do not interfere with screens, shades or draperies.

The ventilator complete consists of two parts: the ventilator proper and a pair of metal adjustable or stationary brackets.

The ventilators slide into these metal brackets from which they are instantly removable for cleaning or other purposes.

Wooden Frame Ventilators — Light, strong and made of the finest materials obtainable. Woods are selected, well seasoned and kiln dried. This is a guarantee against premature warpage. Glass is "A" quality window and is encased in a wooden frame 11½ ins. high and made as wide as the window in which it is to be used.

Wooden frame ventilators are furnished in regular stock finishes as follows:

Light oak	Weathered oak	Enameled white
Golden oak	Walnut finish	Light cream
Flemish oak	Mahogany finish	Dark cream
Green oak		Pearl gray

Special finishes to order.

Note: *Brackets are described on the following page.*

Plate Glass Ventilators—A style much in demand. The unframed, clear plate glass presents a neat unobstructed window. Ideal glass is "A" quality, ¼ in. thick and furnished any width desired.

The brackets are in the New Ideal Anti-rattle type in adjustable and stationary types as described on the following page. Brackets only are supplied where the purchaser finds it more economical to purchase the glass from his local dealer.



Installation in Office of Commissioner of Health, State of Massachusetts, State House, Boston, Mass.
State house completely equipped with Ideal Ventilators



Installation in New York Central Building, New York, N. Y.
Ideal Ventilators selected as standard equipment for this building

IDEAL VENTILATOR BRACKETS

Ideal Ventilator Brackets are furnished in three types:

(1) Adjustable brackets for framed ventilators.

(2) The New Anti-rattle adjustable brackets for plate glass ventilators.

(3) The New Anti-rattle stationary brackets for plate glass ventilators.

Ideal brackets are neatly constructed of steel or brass and present a compact installation.

Supplied in a variety of standard and special finishes to insure harmonious blending with interior decorations and equipment.

Adjustable Brackets for Framed Ventilators

These brackets are designed for wooden or metal framed ventilators only. They will accommodate frames 11½ ins. high, can be adjusted to set parallel with the window or at an angle of 30 degrees and permit instant removal of ventilator for cleaning.

Brackets are furnished in steel or brass. Steel brackets are copper plated and oxidized. Brass brackets are nickel plated or dull finished.

The New Anti-rattle Brackets for Plate Glass Ventilators

The New Ideal Brackets (Patent No. 1660972) are for plate glass ventilators only and are designed to eliminate the annoyance of the ventilator rattling against the metal brackets. All clamps on anti-rattle brackets are made of brass, properly tempered to allow for bending so that any thickness of panel can be used and held firmly. Should glass become broken, the brass clamps act as holders to prevent panels being dislodged. These brackets have been selected as the standard equipment for the Empire State Building, New York City.

Features—Ideal Brackets are suitable for any thickness of glass ventilator.

No sharp edges to scratch or chip glass.

Reduce liabilities from broken glass falling on the passer-by.

Thoroughly tested and adopted for some of the largest buildings in the country.

Brackets furnished with or without glass ventilator, thereby permitting the purchaser to procure the glass from local dealer, eliminating boxing and transportation charges.

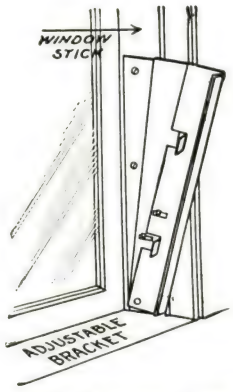
Stationary Type—Stationary type brackets are designed to accommodate panels exactly 12 ins. high and to set at an angle of 30 degrees.

Brackets are made of steel with sprayed lacquer finish. Stock colors are white, black, brown, Brewster green, maroon and cream. Special colors to order.

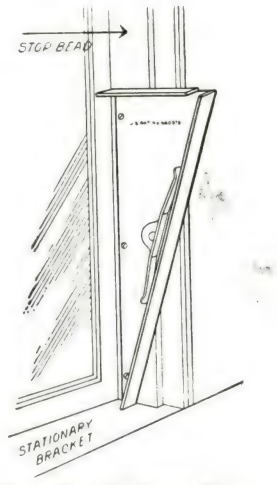
Adjustable Type—Adjustable type brackets are designed to accommodate panels 11¼ ins. high and can be adjusted to set parallel wtih the window sash or at angle of about 30 degrees.

Brackets are made of either steel or brass.

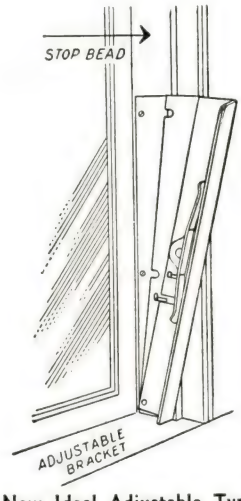
Steel brackets are heavily copper plated and oxidized, or bronze plated. Brass brackets have satin finish.



Ideal Adjustable Type Bracket for Framed Ventilators



New Ideal Stationary Type Bracket for Plate Glass Ventilators



New Ideal Adjustable Type Bracket for Plate Glass Ventilators

A PARTIAL LIST OF IDEAL INSTALLATIONS

New York, N. Y.

Empire State Building
Columbia University
Department of Health
Graybar Electric Co.
Manhattan College
National Biscuit Co.
New York Central Terminal
New York Edison Co.
New York University
Rockefeller Institute
Westinghouse Companies
U. S. Weather Bureau

Boston, Mass.

New England Telephone Co.
State House
Y. M. C. A.
General Electric Co.
Standard Oil Co.
Gulf Refining Co.

Boston, Mass. (Continued)

Boston Street Railway
Statler Building
Babson Statistical Organization
Otis Elevator Co.

Providence, R. I.

State House
City Hall
Brown University
Public Schools
Brown & Sharpe Mfg. Co.
Turks Head Bldg.
Nicholson File Co.
Gorham Mfg. Co.
New Industrial Trust Bldg.
R. I. Hospital
Homeopathic Hospital
St. Joseph's Hospital

THE V-W VENTILATOR COMPANY

ADams 3054

V-W Built-in and Window Ventilators
473 East Broad Street, COLUMBUS, OHIO

For our page on Floor Clips, see Manufacturers' Index

V-W Built-in Ventilators

Patented R-Shaped Vertical Louvers—V-W Ventilators have the patented R-shaped vertical louvers that admit a free flow of fresh air at all times without draft, dirt, rain or snow.

The outside section is built right into the lower, upper, or both sash rails of the window. Sliding shutter on inside controls ventilation. Standard opening sizes are 12x2 and 18x2 in., with other sizes made to meet any specifications when ordered in quantities.

No Drafts, Dirt, Rain or Snow—By twice checking the air as it passes through the R-shaped louvers, V-W Ventilators break up currents no matter how strong the wind may blow. Note in the diagram the double deflection and expansion of air which so thoroughly stops drafts.



Diagram of R-shaped Louvers

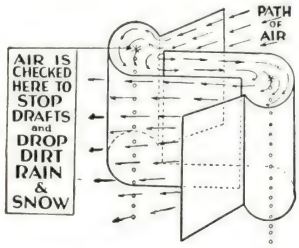


Diagram of Air Travel

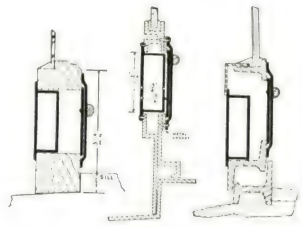
As the air expands after entering the narrow openings of the "R," particles in the air are dropped. This expansion occurs twice before the cleansed air enters the room.

Tests on railway cars, always difficult to ventilate without soot, have demonstrated satisfactorily, the efficiency of V-W Built-in Ventilators.

Admits Fresh Air—V-W Louvers open in two directions, actually causing a flow of fresh air no matter from what angle the wind may blow. Scientific tests by A. I. Brown, Professor of Heating and Ventilating at the Ohio State University, have proven that the V-W vertical louvered ventilator takes in three times the amount of air taken in by horizontal louvered ventilators when the wind is blowing at 45° angle to window. Even when wind is blowing at most unfavorable angle, namely, parallel to the window, V-W Ventilators are still efficient.

Efficiency Plus Beauty—The great efficiency of V-W Ventilators has not in any way interfered with their beauty. The solid bronze shutter of modern design will enhance the appearance of any window.

Uses—Wood and metal windows and doors, and walls of buildings, railway cars, busses and cabin planes are the main uses of these ventilators. They have been installed in almost every type of window—wood, solid-section metal and hollow metal double-hung and wood and metal casements. The drawings show cross sections through sash-rails of wood window (left), metal solid-section double-hung window (center) and steel casement window (right).



Full size, complete details can be furnished of any desired type of installation.

FRESH AIR
TRADE V-W MARK VENTILATOR THE V-W VENTILATOR CO. COLUMBUS, O.
EVERYWHERE

Some Installations

Building and Location	Architect
Palmer Memorial Hospital, New England Deaconess Association, Boston, Mass.	Ernest W. Dearing
Residence, Haverill, Mass.	Frost & Raymond
Mt. Sinai Hospital, New York, N. Y.	Kohn, Butler & Stein
Emergency Hospital, Washington, D. C.	Appleton P. Clark, Jr.
Erie Railroad Cars	
H. I. Potts Residence, Philadelphia, Pa.	Addison H. Savery
Braun Baking Company, Pittsburgh, Pa.	McCormick Company, Inc.
Ohio State Office Building, Columbus, Ohio	Harry Hake
Women's and Children's Hospital, Toledo, Ohio	Harry W. Wachter
Longview Hospital, Cincinnati, Ohio	T. Ralph Ridley
Pure Milk Company, Evansville, Ind.	McCormick Company, Inc.
Memorial Hospital, Belle Fourche, S. D.	Beuttler & Arnold
Decorah Hospital, Decorah, Iowa	Charles Altfillisch
St. Paul's Hospital, Vancouver, B. C.	Gardner & Mercer
Bank of Montreal Branches, Vancouver and Victoria, B. C.	Honeyman & Curtis

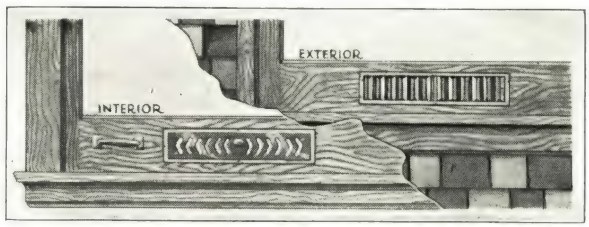
Suggested Specification—The lower rail of each bottom sash (and the upper rail of each top sash) shall be provided with one 18x2-in. V-W Type S (two 12x2 V-W Type R) Built-in Ventilator, containing V-W patented R-shaped vertical louvers, manufactured by The V-W Ventilator Company, Columbus, Ohio, installation to include V-W shutter on the inside of window. Sash-rails shall be constructed to accommodate ventilators.

Note: One 12x2-in. ventilator fits window 22 in. wide (or more).

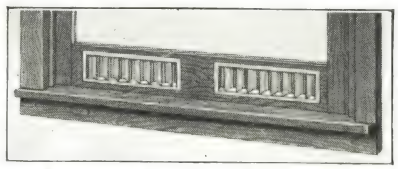
One 18x2-in. ventilator fits window 28 in. wide (or more).

Two 12x2-in. ventilators fit window 36 in. wide (or more).

Two 18x2-in. ventilators fit window 48 in. wide (or more).



Interior and Exterior Views Showing One Type S Installed



Exterior of Two Type R Ventilators Installed

V-W BUILT-IN VENTILATORS

*Type	Size, in.	Capacity per hr., 20-mile wind	Price list
R	12x2	350 cu. ft.	$3.00
R	18x2	525 cu. ft.	4.00
S	18x2	525 cu. ft.	4.25

*Type R opens in one direction, Type S in two.

V-W Window Ventilators

The V-W Window Ventilator also contains the patented R-shaped vertical louvers that are so efficient in admitting fresh air without draft, dirt, rain or snow.

This ventilator is held in the outer window channel by a patented expanding spring that permits the window to operate independently. It can be installed in less than a minute without tools and is just as easily removed. Sizes to fit all windows.

VENTILATE EVERY WINDOW EVERYWHERE
WITHOUT DRAFT, DIRT RAIN or SNOW

"Whichever way the wind doth blow, some heart is glad to have it so"

THE AIROLITE COMPANY

Manufacturers of Natural Air Ventilating Equipment

MARIETTA, OHIO

CHICAGO, ILL., 1314 Builders Building, 228 No. La Salle Street—Telephone, Franklin 8259
NEW YORK, N. Y., 280 Madison Avenue—Telephone, Caledonia 5-6841
AGENCIES IN ALL PRINCIPAL CITIES

"AIROLITE" VENTILATING LOUVERS

Description

"Airolite" is the original patented metal door panel, with adjustable or stationary steel louvers, for cross ventilation throughout hotels, apartments, schools, theaters, hospitals, dormitories and all such buildings.

They can be placed in wood, kalamein or steel doors or in any transom space or wall in new or old buildings.

They are complete in one unit ready for installation when shipped.

Finish — "Airolite" Louvers are finished with two coats of baked enamel, in any solid color to harmonize with doors and trim.

Sizes—"Airolite" Louvers are furnished in any size desired and are either 1″ or 1⅜″ thick. In 1¾″ doors the 1″ louvers are installed with ⅜″ mould on each side without mould overlapping the face of door.

Hardware—All hardware is solid brass.



Corridor View "Airolite" Ventilating Louvers, Androy Hotel, Superior, Wis.

Advantages

(1) Permit proper ventilation of rooms at all times.

(2) Shut out glare of corridor lights.

(3) Deflect air currents upward, eliminating direct drafts.

(4) Keep out intruders and prohibit view of interior of rooms from corridor.

(5) Louvers can be easily adjusted to control air currents.

(6) More easily operated and cost less than the old style transoms.

(7) Permit lower ceilings, effecting saving in building costs.

(8) Can be installed easily by carpenter or handy man.

(9) May be placed in old or new doors, upper or lower panels.

(10) Do not get out of order.

(11) Improve the appearance of doors, rooms and corridors.

(12) May be installed in doors of bathrooms, storage rooms and wherever ventilation is necessary or desired.

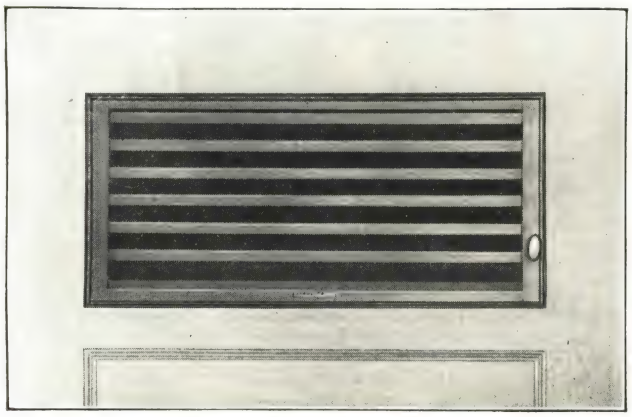
TYPES OF LOUVERS

"Airolite" Type "A" Louvers

Type "A" Louvers are easily adjusted by a brass knob and cam, positive in operation, locking them either open or closed.

They cannot be opened or closed from the outside or by slamming the door.

They permit proper ventilation at all times and reduce building costs by permitting lower ceiling construction.

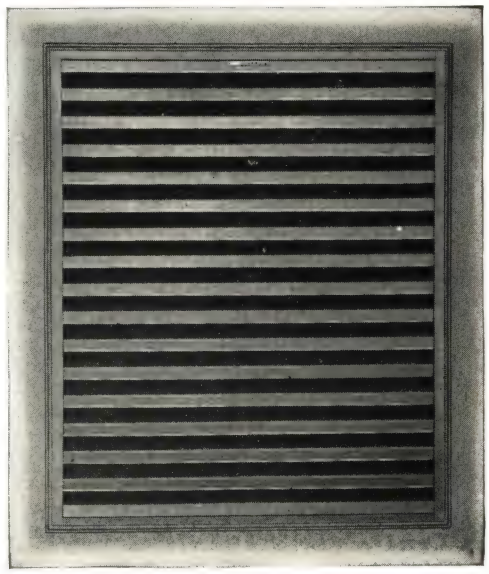


"Airolite" Type "A" Louver

"Airolite" Stationary Louvers

These louvers can be installed either right side up or upside down, depending on where placed. They are particularly adapted for office buildings, and for ventilating toilets, closets, attics, pantries and "In-A-Wall" bed closets. Ideal for infirmaries, institutions for the feeble-minded, hospital wards, grills and air shafts.

Right: "Airolite" Stationary Louver



"Airolite" New Type "A" Louvers

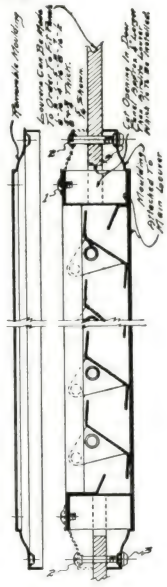
These louvers are specially designed for use in old or new single panel doors. They are 1⅜" thick and equipped with steel moulding. They may be installed in wood or metal doors without cutting the permanent moulding on the doors, thus making it unnecessary to build a cross bar or rail into the door below the louver.

These louvers can be furnished for any size opening and the steel moulding made to fit any panel measuring from ⅛" to ¾" in thickness.

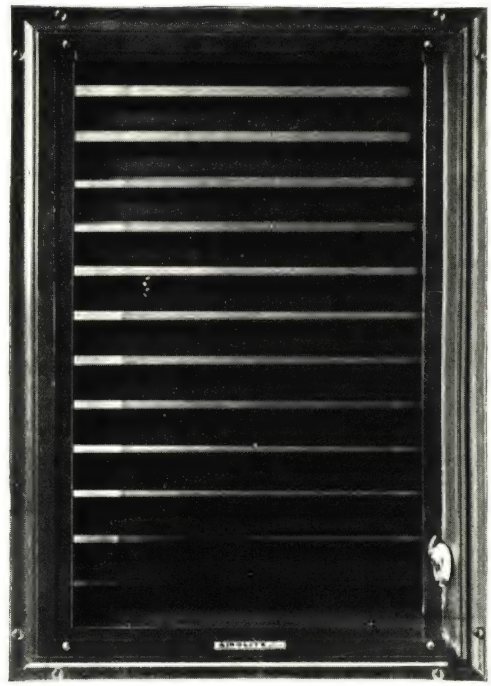
The steel moulding is welded to the louver on the corridor side. The louver is installed from the corridor side, and the moulding which is furnished detached, is installed with machine screws on the room side.

The steel moulding is furnished with all screw holes pierced, ready for installation.

For complete details ask for Drawing No. 570.



"Airolite" New Type "A" Detail



"Airolite" New Type "A" Louver with Steel Moulding on Room and Corridor Sides

INSTRUCTIONS FOR INSTALLING

The opening should be ⅛" larger both in width and height than the louver or transom which is to be installed.

The details below show how Adjustable and Stationary Louvers, 1" and 1⅜" thick, are installed in doors 1⅜" and 1¾" thick.

The moulding or beading on the corridor side of the door should be permanently attached by the door manufacturer.

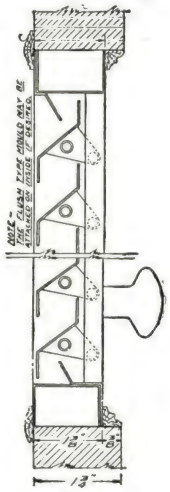
On the room side the moulding should be fastened temporarily.

After the doors are hung, preferably after they are finished and hardware attached, the louvers should be installed. Lift out the moulding on the room side, place the louver in the opening and fasten the moulding permanently in place.

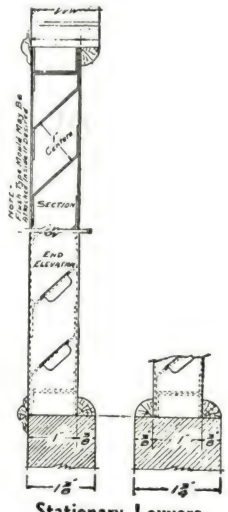
If desired, screws will be furnished for fastening louvers into doors, without extra charge.



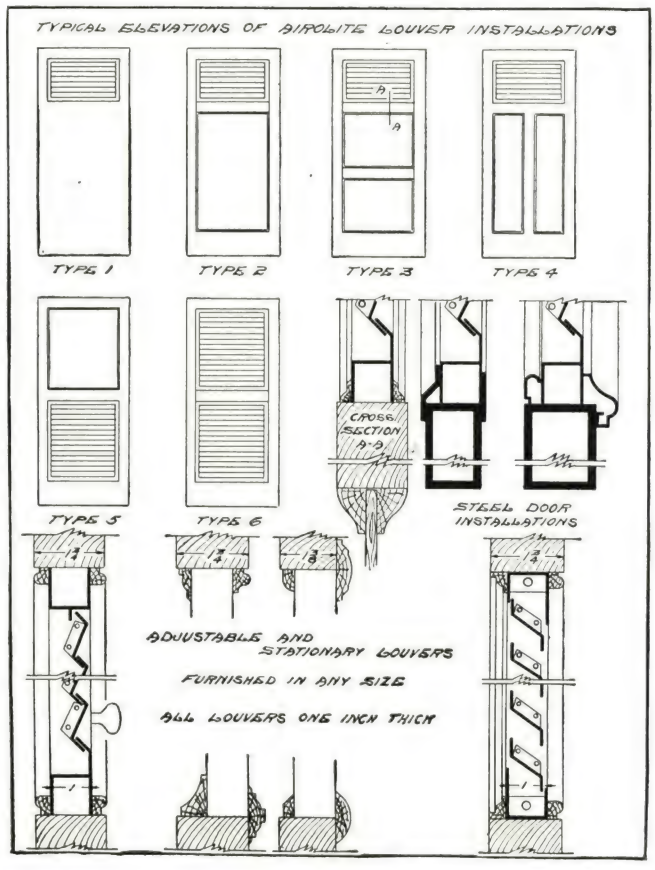
Closed
1-in. panel



Open
1⅜-in. panel



Stationary Louvers
Installed in 1⅜ or 1¾-in. doors



"AIROLITE" TRANSOMS

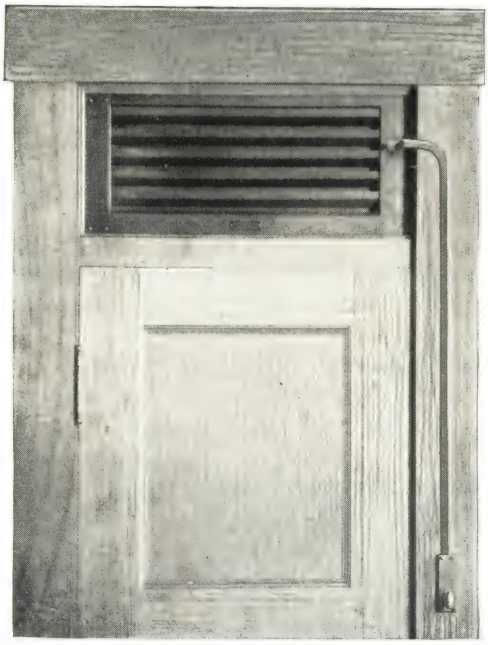
The "Airolite" Transom is replacing the old style transom in hotels, apartments, schools, theatres, hospitals, dormitories and all such buildings where ventilation and privacy are essential.

It is furnished in practically any size desired.

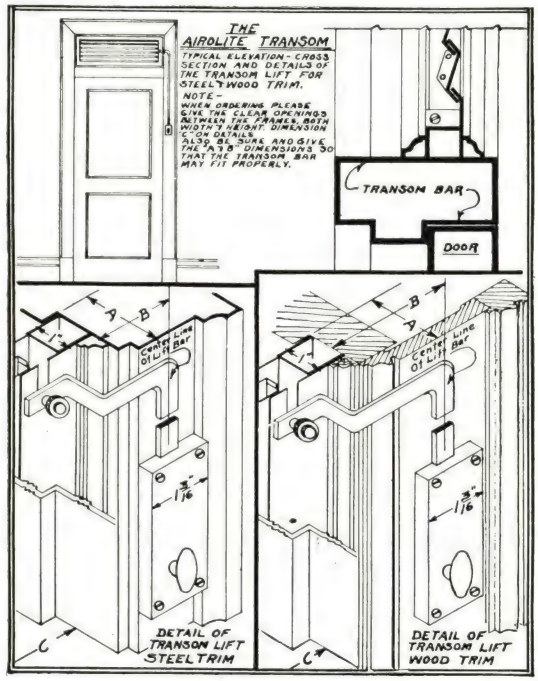
Transom lift rods are made from ½"x¼" steel rod, formed to fit door trim. To make the proper bends on lift rods, dimensions "A" and "B" must be furnished.

The "Airolite" Transom may be installed in place of the old-style transom, affording such advantages as shutting out corridor lights, operating more easily with less possibility of getting out of order. There is no upkeep due to glass breakage or unsatisfactory operation of adjustment rod.

"Airolite" transoms prevent prowlers from looking into rooms, and sneak thieves from crawling through transom openings.



"Airolite" Transom and Lift



Detail "Airolite" Transom

SUGGESTED SPECIFICATIONS FOR "AIROLITE" LOUVERS AND TRANSOMS

Transoms are installed with moulding in the same manner as louvers. (See preceding page.)

(For insertion in Carpentry section.)

(1) The [Carpenter] [Contractor] shall furnish and install where indicated on the drawings, in each corridor and partition door an "Airolite" ..... as manufactured by THE AIROLITE COMPANY, Marietta, Ohio.

(2) "Airolite" ..... shall be furnished in high grade baked enamel ..... solid color, not grained; they shall be equipped with operating device in solid brass hardware.

(3) The [Carpenter] [Contractor] shall furnish all moulding and other work required for installation.

SOME INSTALLATIONS OF "AIROLITE" LOUVERS AND TRANSOMS

A partial list of recent installations showing number of units installed:

Pierre Hotel, New York, N. Y.	284
Hotel St. Paul, Los Angeles, Calif.	150
Webster Hall Hotel, Pittsburgh, Pa.	688
Shore Manor Apartments, Chicago, Ill.	113
St. Mary's Hospital, Minneapolis, Minn.	221
Keystone Athletic Club, Pittsburgh, Pa.	244
Purdue University, Lafayette, Ind.	152
St. Moritz Hotel, New York, N. Y.	734
Medical Arts Building, Austin, Tex.	709
Y. M. C. A., San Francisco, Calif.	439
Westward Ho Hotel, Phoenix, Ariz.	334
Saranac Apartments, 5541 Everett Avenue, Chicago, Ill.	146
Manoir Richelieu Hotel, Pointe-au-Pic, Murray Bay, Que.	394
Nurses' Home, Johns Hopkins Hospital, Baltimore, Md.	235
Coronado Apartments, Chicago, Ill.	121
Aurora-Leland Hotel, Aurora, Ill.	235
Lincoln-Belmont Y. W. C. A., Chicago, Ill.	237
Commodore Perry Hotel, Toledo, Ohio	578
Salvation Army, Territorial Hdqts., New York, N. Y.	403
Biltmore Hotel, Oklahoma City, Okla.	774
Clinton Square Hotel, Joliet, Ill.	185
Central Hotel, Ft. Lauderdale, Fla.	140
Hillman Hospital, Birmingham, Ala.	335
Tudor City Apts., 304 E. 41st Street, New York, N. Y.	541
Victor Lawson Y. M. C. A., Chicago, Ill.	717
El Jardin Hotel, Brownsville, Tex.	169
Michigan Sanitarium and Benevolent Association, Battle Creek, Mich.	634
Fairgrounds Park Hotel, St. Louis, Mo.	231
Fairfax Apartments, Philadelphia, Pa.	251
Hilton Phillips Hotel, Shawnee, Okla.	156
Huntington Hall Hotel, Philadelphia, Pa.	251
Hotel Houston, Washington, D. C.	140
Dixie Hotel, New York, N. Y.	617
Karcher Hotel, Waukegan, Ill.	163
Lord Nelson Hotel, Halifax, N. S.	200
Plaza Hotel, Corpus Christi, Tex.	200
Pittsburgher Hotel, Pittsburgh, Pa.	484
Redmont Hotel, Birmingham, Ala.	229
Hotel Ritz Carlton, Boston, Mass.	120
Savarin Hotel, Detroit, Mich.	585
Sanger Apartment, Dallas, Tex.	168

THE AMERICAN TRANSOM COMPANY, INC.

Steel Door Transoms and Ventilators

2525 Ridge Avenue
PHILADELPHIA, PA.

Products

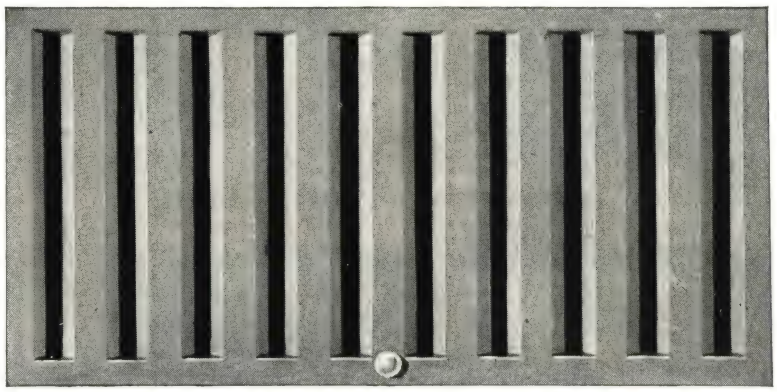
IN-A-PANEL TRANSOM.
IN-A-DOOR TRANSOM.
OV-A-DOOR TRANSOM.
FIXED LOUVRE VENTILATORS.

In-a-Panel Transom

The new In-a-Panel Transom provides cross ventilation without draft through the door panel. Either open or closed, it is not possible to see directly into the room or the corridor.

The knob is pushed in to close or pulled out to open the transom.

The In-a-Panel Transom is the result of years of experiment to produce a door ventilator that permitted free ventilation through the louvres without sacrificing privacy. This is accomplished by the ingenious arrangement of the leaves of the internal shutter which is simple and substantial in construction.

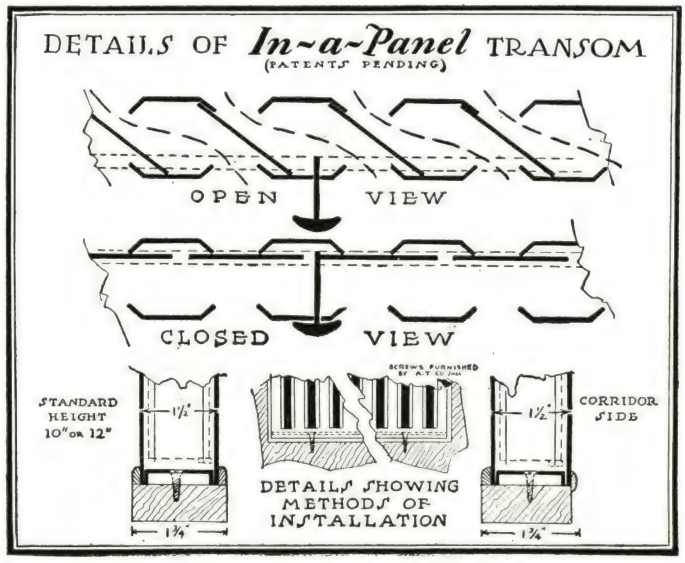


In-a-Panel Transom, Room Side

Size — In-a-Panel Transom is made for opening 10 or 12 in. high. The width is determined by the dimension between the stiles of the door.

Finish — The In-a-Panel Transom is furnished in plain baked enamel finish. The operating knob is solid brass.

Installation—Installation is easy because the In-a-Panel Transom is a complete self-contained unit.



Sectional Details of In-a-Panel Transom

In-a-Door Transom

This type, the In-a-Door Transom, has also been successfully installed in a large number of hotels, hospitals, etc. It consists of a metal ventilator with vertical fixed louvres in plain baked enamel finish. A hinged laminated wood panel to match the door is also furnished to shut off ventilation and sound. The necessary butts, screws, flush catch, etc., are included.

The standard height is 12 in., the width being determined by the dimension between the stiles of the door.

Ov-a-Door Transom

Can be furnished in any size to fit the usual transom opening over the door. Consists of a horizontal metal louvre in plain baked enamel finish with a hinged laminated wood closure panel to shut off ventilation and sound. This closure panel is also supplied with an ordinary transom operator for opening and closing.

The Ov-a-Door Transom excludes reflection of corridor lights into the room and assures absolute privacy.

Fixed Louvre Ventilators

For toilet doors and closet doors, Fixed Louvre Ventilators can be furnished in any width or height.

These louvres are the horizontal type as supplied with the Ov-a-Door Transom.

These metal louvres can be used in X-ray dark-doors, photographic dark-doors, etc., and can be made in any size to fit openings in walls, partitions, doors, etc.

ESTABLISHED 1911

ELLISON BRONZE COMPANY, INC.

VENTILATOR DIVISION

Manufacturing the Ellison Louvre Ventilator

JAMESTOWN, N. Y.

For Representatives, see our page on Ornamental Metal Work

For our pages on Cast and Hollow Bronze Products, Welded Bronze and Aluminum Doors, see Manufacturers' Index

Ellison Louvre Ventilators (Patent Pending)

The Ellison Louvre Ventilator is a ventilating panel which is the result of long experience and a great deal of study on the part of its makers. We claim it is, in every way, superior to any other similar device on the market—in design, appearance, simplicity, strength, effectiveness, ease of installation and operation.

Its frame is made of 18-gauge cold rolled steel, sturdily welded; louvres of the same material, 16 gauge. The public side, or outside, is rigid, reinforced and immovable; the private side is adjustable.

Ellison Louvre Ventilators find a wide use in the doors, transoms or windows of bedrooms, in apartments, clubs, dormitories, homes, hotels, hospitals and sanatoriums; in offices, theater dressing rooms, staterooms in ships, pullman car compartments, etc.

Appearance

The illustration shows a typical installation. You will immediately notice its simplicity and attractiveness.

Operation and Installation

The Ellison Louvre Ventilator provides the maximum of ventilation without draft. It can be opened or closed fully or partly, and regulated to suit every requirement. It is absolutely sightproof, lightproof and thiefproof; it is perfectly quiet in operation and cannot rattle under any condition. It muffles sound, even when open.

Its strength is such that heavy blows or strong pressure will not harm it; it cannot be distorted in handling or installing and repeated painting will not interfere with its operation. It has no pockets or crevices in which dust and dirt can collect and it is easily kept clean. None of its parts can be removed, preventing pilfering.

It can be equipped with a fly screen at small additional cost.

It can be made stationary, if desired.

It can be installed by any one familiar with the use of a screwdriver. Because of its great rigidity, it cannot be twisted or racked out of shape by the opening in which installed and will operate freely under all conditions.





Sizes

Ellison Louvre Ventilators are 1⅜ in. thick; standard size is 24 in. wide by 10¼ in. high. They are, however, made in various sizes to suit requirements. Heights must be in full inches plus ¼ in., viz.: 8¼ in., 9¼ in., 10¼ in., etc.

Specifications

(1) All doors, transoms, etc., where so indicated on plans, are to be equipped with Louvre Ventilators as shown, equal in appearance, construction and ventilating area to the Ellison Louvre Ventilator, as manufactured by the Ellison Bronze Company, Inc., Jamestown, N. Y.

(2) These Louvre Ventilators are to be made of cold rolled steel, frames of 18 gauge and louvres of 16 gauge; to be 1⅜ in. thick, height and width to be as called for on plans. Operating handle to be of polished cast bronze.

(3) Finish to consist of one coat of baked on primer, ready for painting and finishing.

(4) This contractor is to furnish the Louvre Ventilators complete, ready for painting and installation, including the necessary screws for attaching. Finish mouldings are to be furnished and installed by another contractor, specified under another heading, who will also install the louvre ventilators.

Samples

We will gladly loan samples to any responsible firm or individual for inspection and comparison. Literature and prices on request.

VAN ZILE VENTILATING CORPORATION

Manufacturers of Adjustable Ventilators for Use in Doors and Transoms

280 Madison Avenue, NEW YORK, N. Y.

THE VENTADOOR

The Ventilator with the One-piece Sliding Shutter

The glazed transom is substantially a thing of the past, except where the transmission of light is a necessity to meet some particular lighting condition. Usually a transom is primarily for ventilation with light transmission often regarded as an unavoidable objection.

An accompanying objection to the transmission of light is the possibility of vision which often affords inspection of an apartment by thieves to be followed by robbery made possible by access through the transom. Other objections to the glazed transom include the more or less complicated hardware devices which are unsightly and sometimes difficult to operate. Expense in connection with transoms is also an important item as hereinafter explained.

Lastly, but almost equal in importance to any of the objections mentioned, is the fact that glazed hinged or pivoted transoms are essentially ugly. They are utilitarian devices which, in the common rectangular form over an apartment or office door, have never been structurally or architecturally attractive. They have simply been tolerated in the past as a necessary evil for which there was no satisfactory alternative.



The Ventadoor does away with all of these objections at one stroke. It makes a virtue out of necessity in every instance.

Development of the Ventadoor

Mr. Van Zile, who conceived and perfected the Ventadoor, had for his object the creation of a device which would not only serve its fundamental requirement—ventilation—but which would, in addition, be attractive in design. After a study of various forms of shutters, louvres, and grilles, the vertical slat-and-shutter form with a filleted or reeded ornament stamped on the face of the slat was selected as serving both the purposes of utility and attractiveness in design. That he succeeded in his efforts has been attested by the extensive favor accorded by architects and owners to the Ventadoor over a period of 10 years. It is at once pleasing in appearance and efficient in function.

Suggestions for Use

When used in place of a transom, the Ventadoor is usually placed in the upper part of a door in a panel formed by the rails and stiles of the door.

When a maximum of ventilation is desired, Ventadoors may be placed in both the upper and lower parts of a door or a series of Ventadoors may be arranged in doors having several horizontal panels, or horizontal narrow metal framing and mouldings may be used to separate the Ventadoors.

In toilet doors in public buildings the Ventadoor is most serviceable when placed in the lower portion of the door.

The use of Ventadoors in doors to bedrooms instead of transoms over doors is approved by the Tenement House Department of New York City.

Ventadoors may be used to special advantage in hospitals, clubs, office buildings, apartment houses, dormitories and institutional buildings, and wherever else a ventilating device is required which provides any of the features described under the heading of "Features of Excellence."

Architects are invited to consult us.

Features of Excellence

The important respects in which the Ventadoor excels may be placed under headings, as follows:

Ventilation—In selecting a ventilator, it will be obvious that the one which will operate when conditions are the most unfavorable is the one which will give the best results at all times. Temperature conditions may change in such a manner that the movement of air near a door may at times be up and at times down and with the absence of draft movement, ventilation by gravity due to difference in temperature between upper and lower air strata, must be depended upon. It is evident that the Ventadoor with its vertical ventilating openings will operate equally well whether the movement of air is upward or downward. What the occupant of a room desires from a ventilator is air. If he cannot get it from the most comfortable angle he will take it whence it naturally comes—but primarily he *wants air*. The Ventadoor gives him air in quantities subject to adjustment.

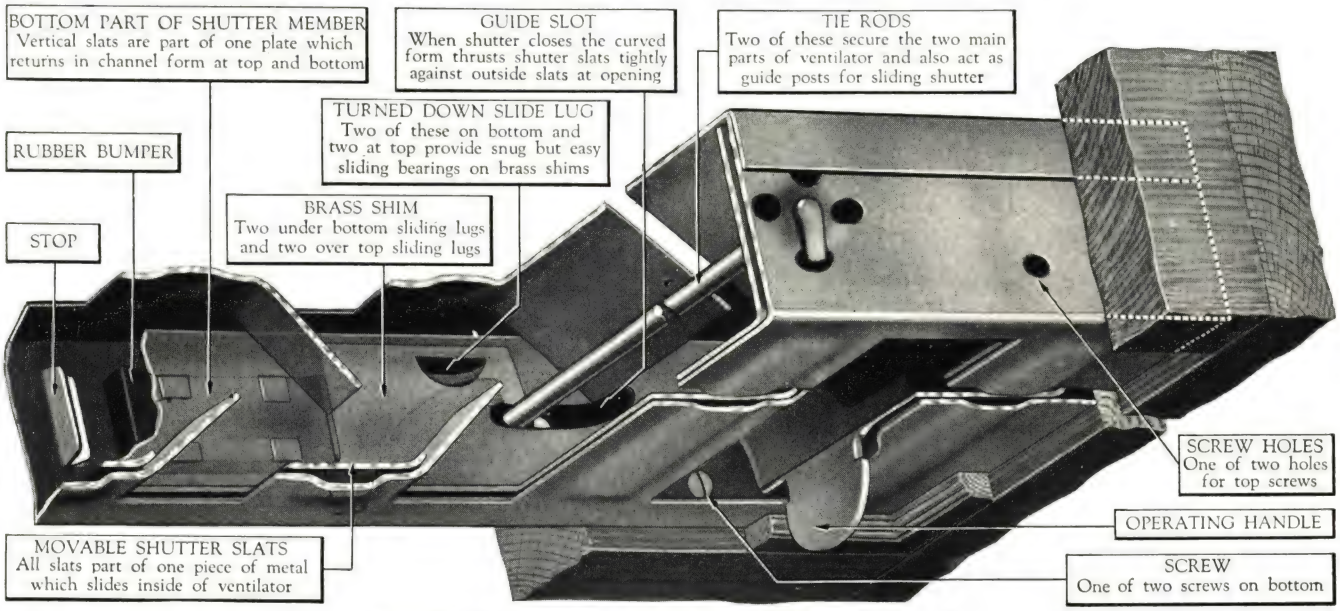
Privacy—This quality includes the preclusion of vision, the exclusion of light, either by direct passage or by reflection from surfaces of the ventilator; and soundproofness. The Ventadoor meets all such requirements of privacy in an extraordinary degree. From no angle whatever can sight penetrate the Ventadoor either through the ventilating slots or through any crevice or joint.

Light cannot pass through any part of the Ventadoor either directly or by any system of reflection from any of its surfaces. In this respect it excels to a remarkable degree. Only close inspection very near the device would reveal the presence of even a strong light behind a Ventadoor.

The Ventadoor is unusually resistant to the passage of sound as may be well imagined from a glance at the "silencer" form of construction.

Security—The Ventadoor is most resistant to damage either by any attempt at forcible entry or from any ordinary accident which might be incidental to room use. All fastenings are inaccessible from the outside. Three thicknesses of metal interpose resistance between one side of a Ventadoor and the other.

Noiselessness—A door ventilator must be noiseless when subject to vibration or slamming of a door and it must not rattle or be otherwise noisy when operated. The Ventadoor is designed particularly to be free from noise under all conditions of use. The Pullman Company selected the Ventadoor for installation in the compartment doors of their "Presidential" series of sleeping cars because they considered them to be most efficient and quiet.



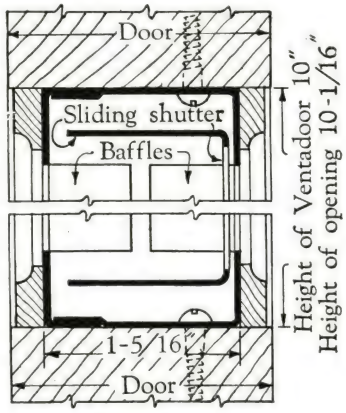
Broken Phantom View of Ventadoor Installed in a Door Panel

Most of the construction of the Ventadoor is absolutely stationary. The only movable part—the shutter—is in one piece. When open it stands free from contact with the face metal and when closed is wedged tightly on both sides in close contact with metal surface in front and behind. The enclosure is essentially one piece. It cannot rattle. The Ventadoor is the only ventilator of its kind with but a single movable unit. All the ventilating slots are closed by the slats of the one-piece shutter.

In operating the shutter, rubber bumpers are provided to deaden the sound at the extremes of movement where a stop is provided.

Economy—The Ventadoor by reason of its simplicity of construction and standardized methods of manufacture is inexpensive. When it replaces a transom, an actual saving in cost may be effected by the omission of the transom sash, frame, trim, and hardware.

It frequently happens that the use of the Ventadoor permits lower story heights with a consequent saving in the cost of the building. In this case the cost of the Ventadoor disappears as a comparative factor.



Vertical Section
Showing Integral Shutter

Construction

What has already been said will indicate that in the construction of the Ventadoor neither study nor expense has been spared in producing a quality product which will adequately meet all the demands which could reasonably be expected from it. The various parts and their arrangement may be fully visualized by a glance at the accompanying illustration and the notes in connection therewith.

Installation and Dimensions

The Company furnishes only the Ventadoor units with setting screws for fixing in place. Any mouldings needed or desired must be provided by others.

The Ventadoor is made in but one height to a single unit. It is 10 inches high. It may be made in any length. Openings should be designed accordingly. All Ventadoors are $1\frac{5}{16}$ in. thick.

Installation is made by fixing with four screws, two at the top and two at the bottom. The screws are not visible after driving.

Mouldings may be applied around the unit as desired.

Installation is most advantageous in doors $1\frac{3}{4}$ in. thick but, with proper mouldings, the Ventadoor may be placed in doors or partitions of any thickness.

Ordinarily wood screws are provided, but for metal doors or metal partitions with metal backs machine screws are furnished.

Finishes

Ventadoors are furnished with one-color coat of enamel (of any selected color intended for the final finish) or we will, when absolutely necessary, provide a priming coat baked on for finishing on the job by the painter. However, we do not recommend this latter procedure because of the danger of careless workmanship in painting which may not only mar the appearance of the Ventadoor but may also interfere with its efficient operation. *We much prefer to provide the finished enamel to match a selected sample.*

Where Ventadoors are to be placed in metal doors and it is required that Ventadoors be finished with grained finish at the factory, we recommend that delivery of Ventadoors be made to the manufacturer of the doors. In this case the Ventadoors should be specified to have a baked-on priming coat by us, of selected color, and the final coats and graining to be applied by the door maker. *We would again suggest, however, that our enamel finish be used in all cases,* conveying the frank impression that the Ventadoor is purely a metal equipment unit not requiring any imitation finish.

A FEW TYPICAL VENTADOOR INSTALLATIONS

University of Montreal, Montreal, Canada
Lakeside Hospital Group, Cleveland, Ohio
Life Science Building and International Hall, University of California, Berkeley
Savoy Plaza, New York, N. Y.
U. S. Veterans' Hospital, Palo Alto, Calif.
Navy Central Y. M. C. A., Philadelphia, Pa.
Ocean Forest Hotel, Myrtle Beach, S. C.
Social Science Building, University of Chicago, Chicago, Ill.
Chateau Crillon, Philadelphia, Pa.
Paxton Hotel, Omaha, Neb.
The Baker Hotel, Mineral Wells, Tex.
Northwestern Y. M. C. A., Detroit, Mich.
Y. M. C. A. Building, Cincinnati, Ohio
Mayflower Hotel, Washington, D. C.
Hotel Edison, New York, N. Y.
Women's Dormitory, Ames, Iowa
Tudor City Unit No. 9, New York, N. Y.
Knickerbocker Hotel, New York, N. Y.
Ramona Hotel, Sacramento, Calif.
International House, Columbia University, New York, N. Y.
Majestic Hotel, Newark, N. J.

VENTILATING WITH PANELOUVRE

MANUFACTURED BY
THE VENTILOUVRE COMPANY, INC.
280 Madison Avenue
NEW YORK, N. Y.

BRANCH OFFICES
CHICAGO, ILL., 228 North La Salle St. BOSTON, MASS., 53 Devonshire Street
REPRESENTATIVES IN PRINCIPAL CITIES

Uses of Panelouvre

Panelouvre is a patented metal ventilator, with adjustable or stationary inverted "V" steel louvres.

Panelouvre can be placed in wood or steel bucks, in wooden partitions, or brick walls, as desired.

Panelouvre can be used as interior or exterior door, wall or transom intake or exhaust panel and for cross ventilation throughout the following:

- Apartments
- Academies
- Automats
- Banks
- Boats
- Telephone booths
- Clinics
- Courthouses
- Churches
- Colleges
- Convents
- Clubs
- Dark rooms (X-ray, photographer's)
- Depots
- Dormitories
- Farmhouses
- Garages
- Gymnasiums
- Halls
- Homes
- Hospitals
- Hotels
- Institutions
- Jails
- Libraries
- Lodges
- Lofts
- Museums
- Mausoleums
- Doctors' offices
- Office buildings
- Pools
- Power stations
- Railroads
- Restaurants
- Rectories
- Reformatories
- Residences
- Schools
- Stadiums
- Staterooms
- Steel sash (windows)
- Stores
- Subways
- Substations
- Sanatoriums
- Seminaries
- Tennis courts
- Theatres
- Universities
- Y.M.C.A. buildings
- Y.W.C.A. buildings
- Warehouses

Detailed list of installations by local territory can be furnished on request

Sizes and Finish of Panelouvre

Sizes—Furnished in any fraction of an inch in width. Heights, due to design, must be held to multiples of 1 in. plus $\frac{3}{8}$ in.—for example $6\frac{3}{8}$, $7\frac{3}{8}$, $8\frac{3}{8}$, etc., and up as far as may be necessary. Thickness, $1\frac{1}{2}$ in.

Finish—Panelouvres are furnished with two coats of baked enamel, plain solid color or grained, to harmonize with the trim.

The operating mechanism is solid brass.

Adjustable Panelouvre Model D, 1½ In. Thick

Adjustable panelouvres for doors, walls, etc., are furnished as a complete unit. They should be installed in wood doors after the doors are hung and all overhead work, such as plastering, has been finished. In steel doors, the installation should be made when the doors are being fabricated.

The adjustable louvres for doors are furnished in the following models:

Model D-1—With metal moulding for room side only.

Model D-2—No metal moulding furnished.

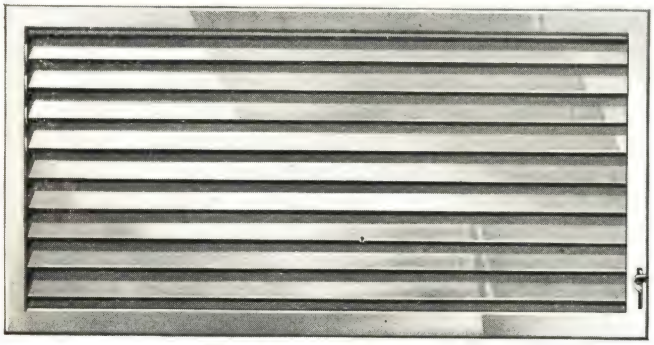
Model D-3—With metal moulding both sides, for attaching to doors $1\frac{3}{8}$, $1\frac{1}{2}$ and $1\frac{3}{4}$ in. thick.

Model D-4—With metal moulding both sides, for attaching to center door panels from $\frac{1}{16}$ to $\frac{7}{8}$ in., inclusive.

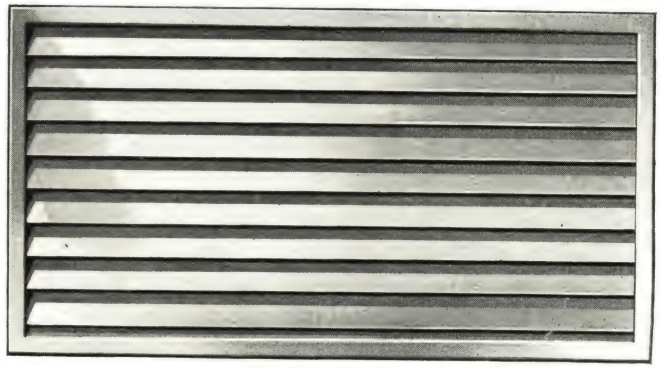
Stationary Panelouvre Model S, 1½ In. Thick

These are furnished as complete units, and are exactly the same as the Adjustable D Models, except that operating hardware is eliminated. The stationary models are known as S-1, S-2, S-3 and S-4.

Because of the added strength of the inverted "V" louvre blades, stationary panelouvres are particularly adaptable for cross ventilation of office buildings, janitor closets, toilet rooms of schools, powerhouses, air shafts, clothes closets of residences, institutions, etc.



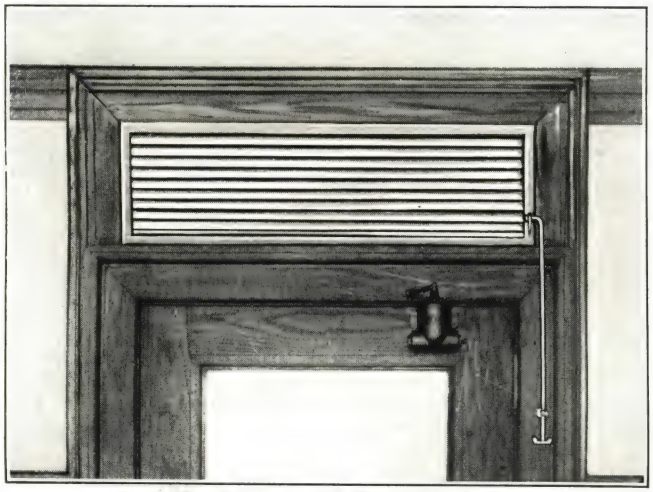
Type D-1 Adjustable Panelouvre



Type S-1 Panelouvre

Transom Panelouvre—Model T

Panelouvre transoms are recommended in preference to the old-fashioned glass or wood panel transoms in hotels, apartments, institutions, dormitories, etc., where cross ventilation with privacy is essential and it is not practical to install the panelouvre in the door.



Panelouvre Transom with Operating Hardware

They maintain the streamlines of the corridors, thus enhancing the artistic effect that is so essential. Unlike old-fashioned transoms, they are easily operated, cannot get out of order, and require no maintenance.

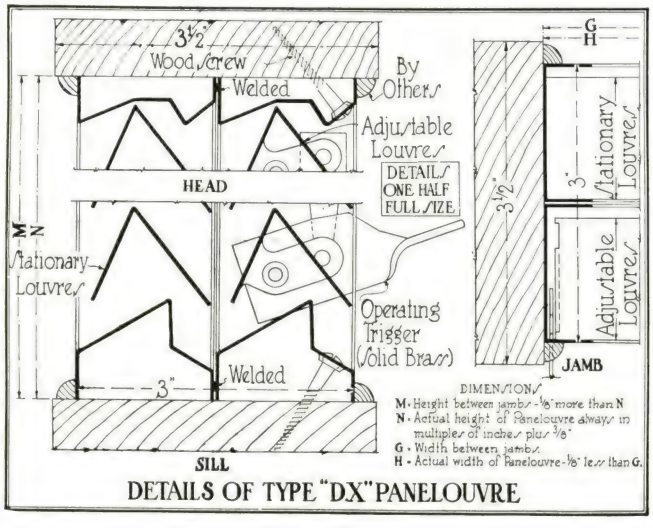
Being lightproof and sightproof they eliminate the annoying glare of corridor lights which result when old style transoms are opened for ventilation and, in addition, effectively bar intruders.

Panelouvre transoms may be used in either steel or wood bucks.

Model DX Panelouvre for Ventilating Dark Rooms

Model "DX" Panelouvres are used extensively for cross ventilation in x-ray rooms, photographic dark rooms, and similar places, due to their affording maximum controllable air circulation, and absolute freedom from direct or reflected light rays. Hence, the most sensitive paper may be used without fogging.

These louvres can be furnished lead coated if desired, or in baked enamel finish of whatever shade needed.



DETAILS OF TYPE "DX" PANELOUVRE

Summer Door Model SD Panelouvre

This is simply an enlarged Model "D" Panelouvre and is light, sight and burglarproof. The upper and lower halves operate independently, locking themselves so they cannot be operated from the outside.

The use of this model for clubs, dormitories, hotels, porches, etc., requires one door and one set of hardware only.

A narrower jamb may also be used, all of which is much more economical than using a solid door plus an auxiliary wood slat door.

Sizes—The minimum height is 36⅜ ins. Other heights run in multiples of inches plus ⅜ in.—like 37⅜ ins., 38⅜ ins., etc. In width, it can be supplied in any fraction of an inch up to and including 40 ins.



Type SD Panelouvre in a Summer Hotel

Louvres—Inverted "V" shape, made of 18-gauge cold rolled steel. Assembled on 1-in. centers with ½ in. between bottom edges, they have light and vision, prevent drafts, and afford maximum air delivery. When closed they form a flush panel on room side. They lock themselves and cannot be opened or closed from the outside. Rattles are impossible as they are under tension at all times.

Frame—All frame members are of 18-gauge cold rolled steel channel, ½x½x½ in. Top and bottom members are specially designed and inverted to prevent dust collecting, with countersunk screwholes through which screws are fastened into the door rails. Corners are drawn and spot-welded, and both faces of frame are flush.

Moulding—Cover moulds, whether for one or both sides, are of 18-gauge cold rolled steel. The room moulding overlaps the frame on each side ½ in., thus forming a stop for the frame. All corners are mitred, with the room side usually an integral part of the frame. These metal cover moulds greatly enhance the appearance of the installation.

Operating Hardware

A solid brass operating trigger opens or closes the Panelouvre by a cam motion.

Adjustment is easy and positive, with no possibility of getting out of order, and any degree of opening desired can be had.

The operating trigger can be located in any one of the four corners of the room side—or if adjustability is desired from the outside also, an operating trigger can be placed on both the room and corridor face.

Installation Instructions

Provide opening 1/8 in. larger than Panelouvre in both width and height.

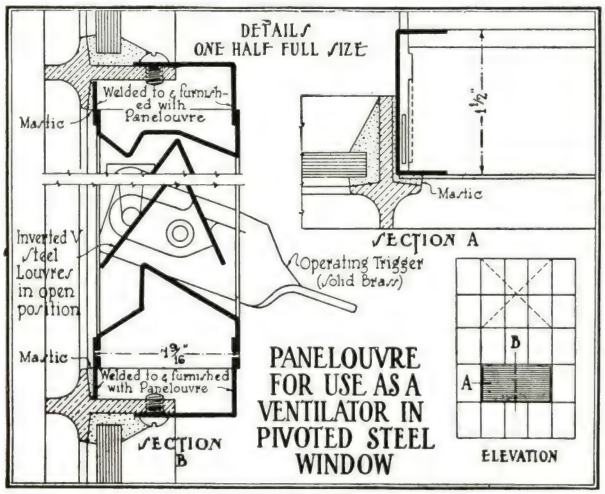
Insert Panelouvre and fasten with screws supplied with order through top and bottom frame. Attach wood or metal cover moulds as detailed.

Panelouvres can be installed in wood or steel bucks, or in new or existing constructions.

Model PW Panelouvres—For Pivoted and Projected Windows

Details of this model for use in steel sash in factories and other types of buildings are shown below. This model fastens directly to the muntin bars in place of the glass pane.

Set in mastic cement it becomes watertight. It is also weatherproof whether open or closed.



Other Models

Due to the fact that Panelouvres are made in many different models to suit existing conditions, it is impossible to illustrate all the various types here.

Among these are the Models "A" and "B" door and wall fire louvres with fusible links and weights for closing in the event of fire.

Also Model "DO" for exterior doors, which is equipped with screen, cane grille and steel enclosing panel for cold weather.

Model "TS" designed for use as a fresh air intake in exterior walls in front of radiators, etc. Complete details will be supplied on request.

Panelouvre Installations

Panelouvres are furnishing economic and satisfactory service in a wide range of new and existing buildings, constituting practically every type of construction. A list of recent installations will gladly be furnished without charge if requested.

Suggested Specifications

(Insert in Carpentry Section if wood doors are used, or Hollow Metal Door Section if hollow metal doors are used.)

(1) The (contractor) shall furnish and install as shown on plans, Panelouvres as manufactured by THE VENTILOUVRE COMPANY, INC., New York, N. Y., with (adjustable or stationary) "V" type louvre blades.

(2) Panelouvres shall be finished in two coats of baked enamel, harmonizing with color sample to be submitted by contractor. All samples of finish shall be approved by the architect.

(3) Hardware for adjustable Panelouvres shall be solid brass, buffed and polished.

(4) Metal mouldings as detailed shall be furnished by the manufacturer. (If wood mouldings are used they should be furnished by the contractor.)

Some Advantages of Panelouvres

(1) Has largest ventilating capacity.

(2) Is lightproof and sightproof, assuring utmost privacy.

(3) Deflects air currents, thus eliminating drafts.

(4) Operates easily without loss of motion.

(5) Is burglarproof and fire resisting.

(6) Costs less than old style transoms, and is foolproof.

(7) Makes lower ceilings and same door height per floor practical, effecting saving in building costs.

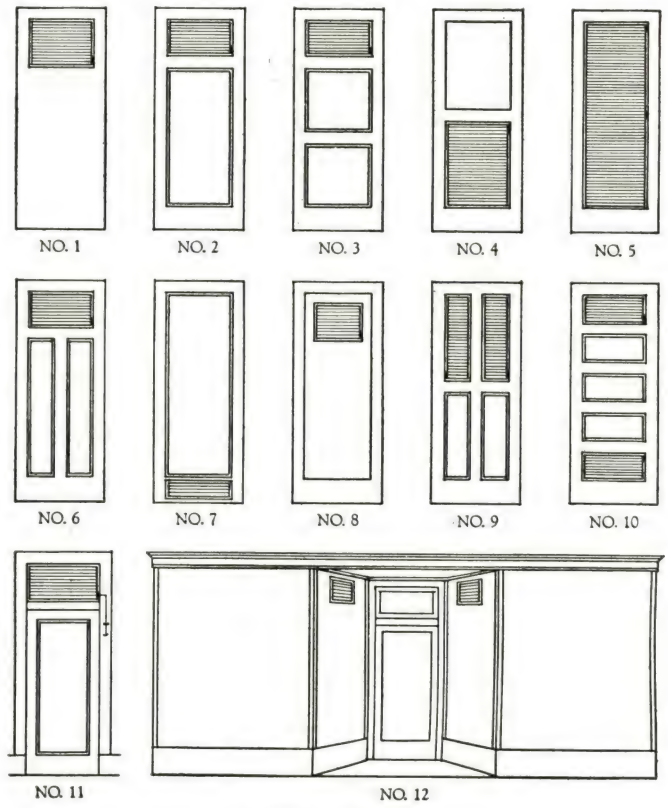
(8) Easily and quickly installed by any carpenter in doors, transom or wall space, either new or existing construction.

(9) Furnished with metal mouldings if desired, having mitred corners.

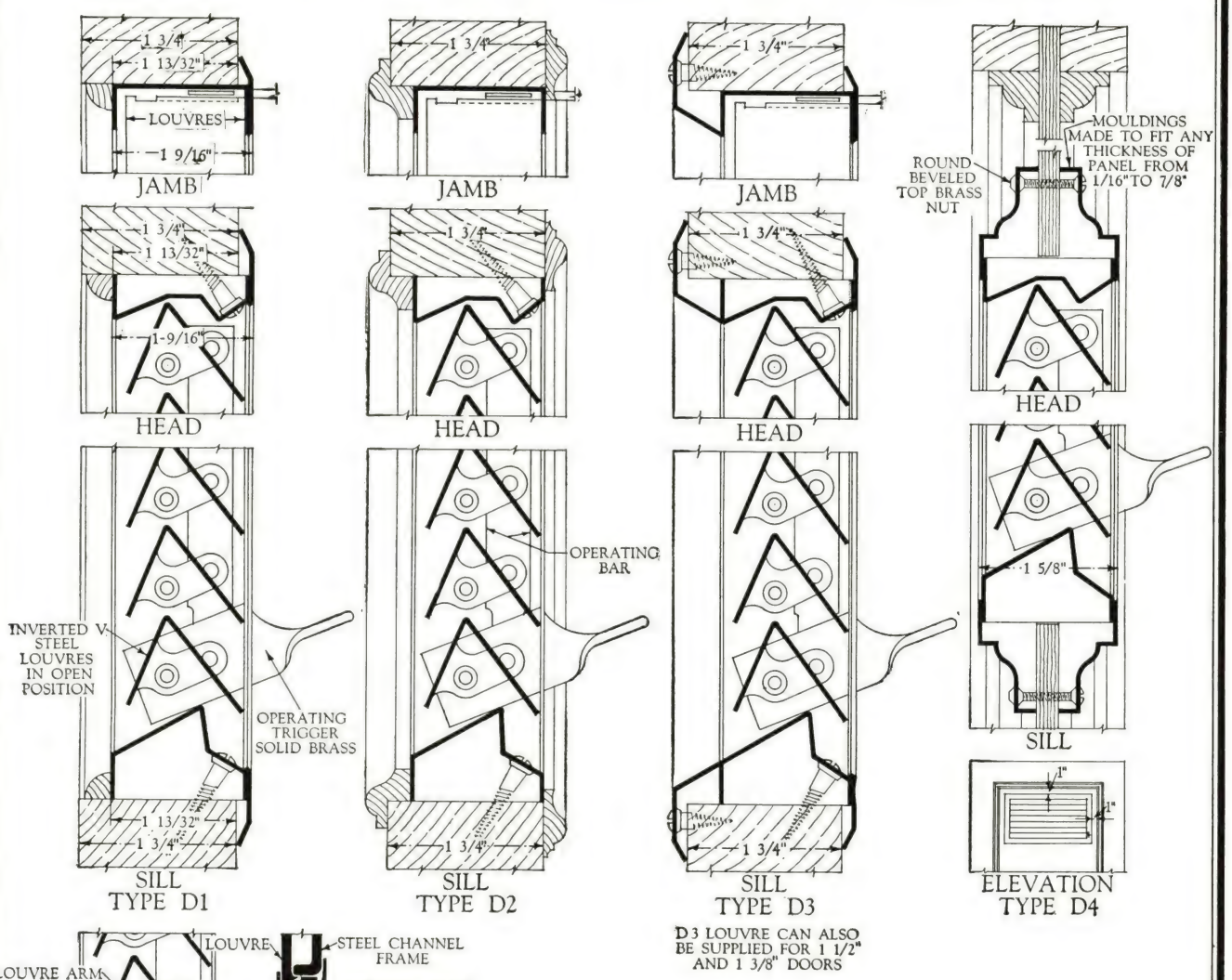
(10) Cannot rattle or get out of working order.

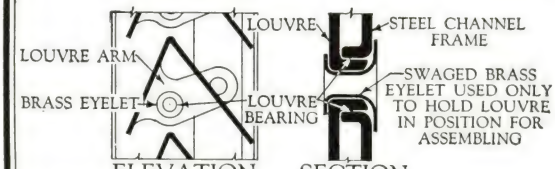
(11) Can be furnished in wide range of sizes and in any metal required.

(12) Designed to stand exceptionally harsh usage such as might be expected in schools, etc.



Typical Elevations

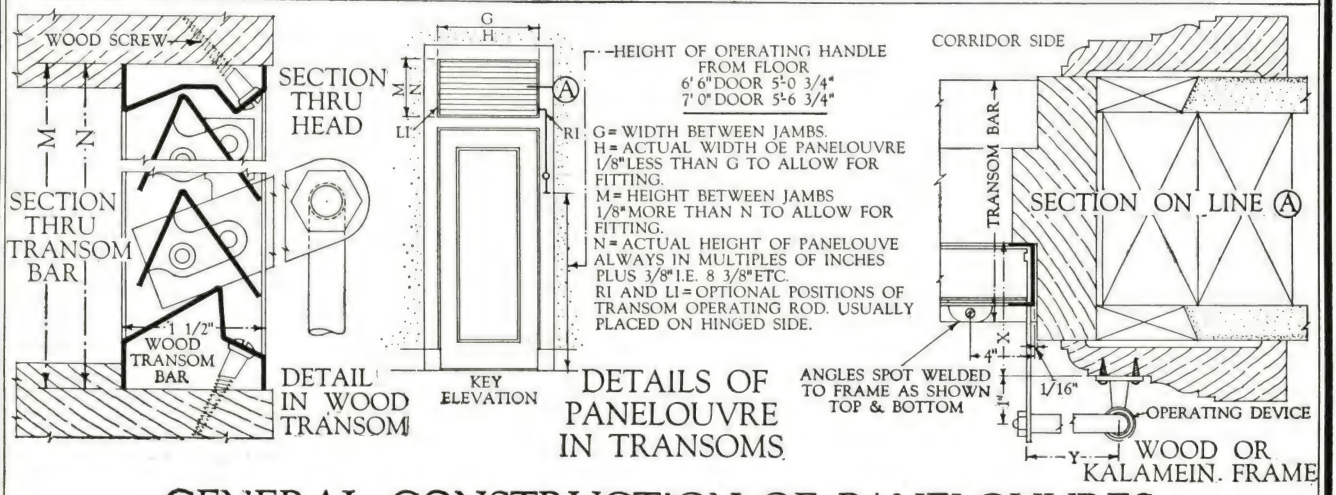




OUR SPECIAL METHOD OF SECURING THE LOUVRES ASSURES LONG LIFE AS WELL AS PREVENTING THE LOUVRES FROM BEING FORCED OUT OF POSITION

LOUVRE BEARING AT FRAME

DETAILS OF PANELOUVRE IN DOORS



DETAILS OF PANELOUVRE IN TRANSOMS

GENERAL CONSTRUCTION OF PANELOUVRES

J. C. DEAGAN, INC.

Manufacturers of Tower Chimes

TELEPHONE
Lakeview 4364

MAIN OFFICE AND FACTORY
Deagan Building, 1770 Berteau Avenue, CHICAGO, ILL.

LOS ANGELES OFFICE: 1306 Fuller Avenue—Telephone, Gladstone 1002

NEW YORK OFFICE: 101 Park Avenue—Telephone, AShland 4-1413

Products

J. C. DEAGAN, INC., is the originator and the largest builder of electrically operated TUBULAR BELL TOWER CHIMES.

ELECTRIC DOOR CHIMES.

Also manufacturers of Scientific Tuning Devices (used in the U. S. Bureau of Standards, Washington, D. C.), Percussion Musical Instruments for hand-playing and organ use, Altar Chimes, etc.

DEAGAN
ESTABLISHED 1880

Growing Importance of Tower Chimes

While the cultural and inspirational value of Tower Chimes has been recognized for centuries, it is only in recent years that users have begun to appreciate their importance from an *investment* standpoint. *Churchmen* have found the automatically played daily concerts a powerful aid in increasing and holding membership. Owners of *office buildings* have discovered in chimes a means of quickly gaining the renown that prospective tenants like to associate with their address, while to *cemetery officials* the mellow music has become a "voice" almost magical in its effectiveness—a "voice" perfectly in keeping with the peaceful surroundings—that draws hundreds of visitors who would otherwise be unaware of the cemetery's advantages.

Service to Architects

In view of the facts contained in the foregoing paragraph, architects planning churches, public buildings, office structures, college buildings, country estates or cemetery improvements are urged to consult the Service Bureau of J. C. DEAGAN, INC., for important information on the operation and installation of Tower Chimes. Although Deagan Chimes, immune to the elements, may be installed in almost any structure, it is obvious that for best results certain principles should be observed. These principles, involving the design of louvers, size of openings, size of scuttles, wiring information, etc., will gladly be explained in detail on request. Even if impossible to consider Tower Chimes as part of the original plan, it is sound economy to provide for their possible installation later.

DEAGAN TUBULAR BELL TOWER CHIMES

Advantages of Tubular Bell Tower Chimes

(1) A degree of tuning accuracy never before attainable; (2) uniformity of volume and tonal characteristics throughout the entire register; (3) beauty of tone; (4) carrying power equal to or exceeding that of any chimes on which musical selections are played.



The Deagan Electric Player

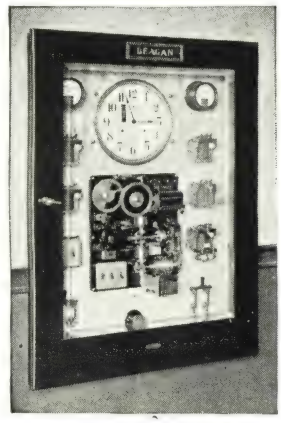
Located at any desired distance from the chimes, it reproduces with absolute fidelity the expertly played program of master chimers

Automatically or Hand Played

As the Deagan Patented Damper (see following page) is one of the greatest of all improvements in the design of Tower Chimes, so, we claim, is the Deagan Automatic Player unquestionably the greatest of all improvements in operating methods. Through this device the fear that the Tower Chimes will be infrequently or inexpertly played is completely removed.

The function of the Deagan Electric Player is to reproduce with absolute and unvarying fidelity the expression, technique and fine tempo shadings of expert hand-playing. A library of hand-recorded reproducing rolls, containing music for all occasions, places at the "command" of the man in charge of the chimes, 365 days a year, the "services" of a master chimer.

The electric player may be started either by a convenient push button, located at any desired distance from the chimes, or by a master clock set to play either a single piece or an entire program, automatically, at any desired hour. The electric player starts the chimes automatically, plays them exactly as a master chimer would play them, and automatically shuts them off when the desired program has been concluded. Thus, the donor of Tower Chimes,, installing them as a memorial, may arrange, if desired, that the favorite hymn of the departed one be played automatically and unfailingly at a certain hour each day.



Deagan Westminster Chiming Device Mounted in Wall







Through automatically played Tower Chimes the church becomes, even more intimately than before, a part of community life. The morning program, twilight concert and 9 o'clock curfew are eagerly awaited daily events



Master Clock

By merely setting the selector the electric player may be made to start the chimes automatically at any desired hour, and to shut them off automatically when the desired program has been concluded



Deagan Tower Chimes Played Direct from Organ Console

Other Playing Methods

In addition to automatic playing, Deagan Tower Chimes may be played (1) from an electric keyboard, (2) direct from organ console and (3) from Deagan time-marking devices such as Westminster or "Praise" Peal, Automatic Angelus, etc.



Deagan Electric Tower Chime Action
Length, 42 in.

Time-marking Devices

The Deagan Westminster Chiming Device automatically sounds the Westminster Peal at the conclusion of each quarter hour with the correct number of hour strokes on the fourth quarter. The "Praise" Peal, designed for Catholic churches, is a copyrighted version of "Holy God, We Praise Thy Name," especially adapted to time-marking purposes.

Because Deagan Time-marking Peals are automatically shut off when other playing methods are in use, there is no danger of conflict with the electric player or keyboard operation. Where it is desired to silence the chimes during the night the device can be set to "shut off" at any hour and set to "cut in" automatically in the morning.

Deagan Electric Damper (Patented)

This, one of the greatest inventions in Tower Chimes history, automatically silences each tone at the precise instant the next one is sounded, causing the melody to stand out clear and distinct. It is entirely different in principle from the piano damper which stops the tone when the key or pedal is released. The Deagan Tower Chime Damper does not silence the chime tone until the succeeding key at the keyboard is depressed.

This ingenious and altogether unique principle of operation entirely eliminates all intermingling or "running together" of tones—a defect in chimes which is the usual cause for the frequent popular belief that certain chimes are "out of tune." A separate damper is placed under each chime as shown in the illustration.



Deagan Patented Damper Shown Pressing Against and Silencing One Chime as Other Is Sounded

Deagan Electric Tower Chime Action (Patented)

The Deagan Patented Tower Chime Action is marvelously efficient. When any key of the keyboard is depressed, the plunger of the corresponding action is propelled forward electrically and delivers against the chime a mighty blow, far more powerful than would be possible with any hand-operated mechanism. With lightning-like rapidity the plunger is automatically returned to its original position, ready for the next stroke. Despite the great strength of the forward blow very little current is consumed.

A weatherproof hood makes Deagan Tower Chime Actions absolutely impervious to climatic conditions.

Weight and Space Required

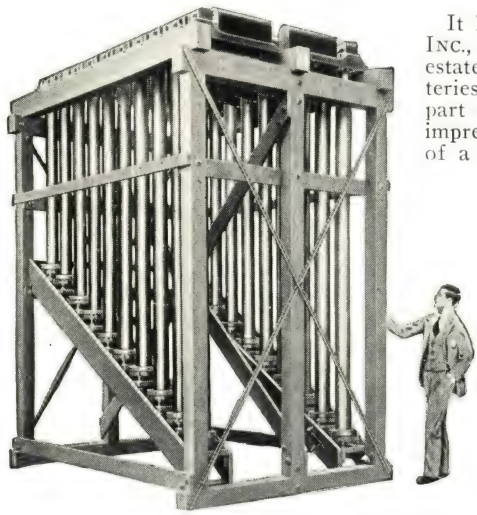
Special strengthening of belfry or roof is very seldom required for Deagan Tower Chimes. Volume of tone is secured without excessive tonnage. Each chime is suspended by a cable which allows every ounce of metal to vibrate. A complete set of 25 tones installed ready for playing weighs approximately 14,000 lbs.

Installation

Deagan Tower Chimes are installed by our own erectors, thus insuring perfect results.

Hundreds of Satisfied Users

It has been the privilege of J. C. Deagan, Inc., to serve hundreds of churches, country estates, war memorials, universities, cemeteries, office and public buildings in every part of the United States and Canada. An impressive portfolio containing the expressions of a few users will be mailed on request.



Twenty-tone Set Deagan Tower Chimes Mounted on Rack



The Deagan Electric Keyboard
Placed wherever desired and permits the playing of the chimes independent of organ or electric player

DEAGAN DOOR CHIMES

Deagan Door Chimes replace the disturbing harshness of the doorbell and buzzer with the medieval charm of cathedral chimes. They consist essentially of a series of two, three, four or five tones, together with the mechanism by which they are operated. Attractive in appearance as well as in sound, they fit with grace into the decorative scheme of any room.

Operation is from alternating-current lighting circuit, through a transformer provided by the manufacturer.

When the button of the bell system is pushed, whether it be by a slight tap or with sustained pressure, each of the chimes sends forth its musical refrain. The mechanism is so designed that the chimes are sounded in a different sequence each time, thus producing a pleasing variety of "melodies." The tone of the chimes is mellow, charming and richly musical in character.



Installation of Deagan Door Chimes is very simple. In most cases the present doorbell wiring system is utilized. In all cases the chimes may be installed by any local electrician.

McSHANE BELL FOUNDRY CO.

ESTABLISHED 1856
BY HENRY McSHANE

MAIN OFFICE AND FOUNDRY
Hartford Avenue and B. & O. R. R.
BALTIMORE, MD.

INCORPORATED 1904

Products

BELLS, PEALS, WESTMINSTER CHIMES, BELL CHIMES, CARILLONS and TUBULAR CHIMES for chapels, churches, schools, public buildings and all other tower installations.

We also cast Ship Bells and Fire Alarm Bells.

All bells cast from genuine bell metal. Tubes of bronze composition.

Equipment

Single Bells and Peals—Furnished with complete mountings, for ringing by hand, but where desired, and at extra cost, electric device can be furnished to ring or toll the bell or sound the Angelus. Swinging effect produced. Operated by series of push buttons.

Westminster Chimes—Operated electrically by automatic clock. Sounds appropriate Westminster changes on quarter hours and hours in their turn. Standard equipment.

Bell Chimes and Tubular Chimes—Operated by standard McShane Electric Chiming Action. Consists of keyboard, relay and operating units, which is standard equipment. Pressure on key establishes contact through relay with operating unit which strikes clapper against bell. Instantaneous action. At extra cost, may also be operated in similar manner direct from organ console.

Where automatic playing is desired we furnish at extra cost, McShane Player-Roll Attachment which operates through a mechanism very similar to player piano. Insert roll, push button to start, complete automatic action follows. Automatic clock for starting player-roll attachment at specified time, may likewise be had at additional cost.

Alternating Current Required—All electric operating devices require 220-volt, 60-cycle, alternating current. Current consumption low. No generators required.



Church Bell

DETAIL SPECIFICATIONS OF CHURCH BELLS AND MOUNTINGS

Bell			Mountings	
Tone	Weight, lb.	Diameter, in.	Outside measurements of frame, ft.—in. x ft.—in.	Diameter of wheel, ft.—in.
D	300	25	3 — 4 x 2 — 8	2 —10
C#	400	27	3 — 4 x 2 — 10	3 — 6
C	500	29	4 — 0 x 2 — 10	4 — 4
B	600	31	4 — 0 x 2 — 10	4 — 4
Bb	700	33	4 — 5 x 3 — 3	4 — 9
A	800	34	4 — 5 x 3 — 3	4 — 9
C#	1000	36	4 — 9 x 3 — 4	5 — 6
G	1200	38	4 — 9 x 3 — 7	5 — 6
F#	1500	41	5 — 0 x 3 — 10	6 — 3
F	1800	44	5 — 4 x 4 — 0	6 — 3
E	2000	46	5 — 8 x 4 — 6	7 — 0
Eb	2500	50	6 — 1 x 4 — 6	7 — 0
D	3000	54	6 — 8 x 5 — 0	7 — 6
C#	3400	55	6 — 8 x 5 — 0	7 — 6
C	4200	59	7 — 0 x 6 — 0	8 — 0
B	5000	62	7 — 6 x 6 — 0	8 — 0
Bb	6200	66	7 — 6 x 6 — 0	8 — 6
A	7000	72	8 — 0 x 7 — 0	8 — 6

Cast Bells

Of best copper and imported tin composition. Scientifically attuned to McShane System of Equal Temperment by skilled musicians. Noted for richness of tone. Provide maximum volume and carrying power. Cast in weights from 100 lbs. upward. Embody exclusive features. Long term guarantee against crackage by regular usage. More than 50,000 now in service. Equipped for swinging or mounted stationary, as desired. Easy action; minimum vibration. Substantially mounted. Peals and chimes mounted in frames built to conform to tower conditions. Complete catalogue on request.

Tubular Chimes

Satisfying substitute for cast bell chimes. Mellow, sweet tone. Good carrying power. Tubes of bronze composition suspended from framework. Range in size from 5 to 10 ft. long and 12 to 14 ins. in circumference. Tubes are struck by hammers at upper end. Vibration confined to tubes. Ideally suited for towers not especially designed for bells. Complete catalogue on request.

All Orders Subject to Approval

All orders for McShane Bells, Tubes and Chimes accepted subject to approval of purchaser.

Architectural Service

We will gladly co-operate with architects, making recommendations for tower construction and appropriate installations. We invite correspondence on all matters pertaining to bells and chimes.



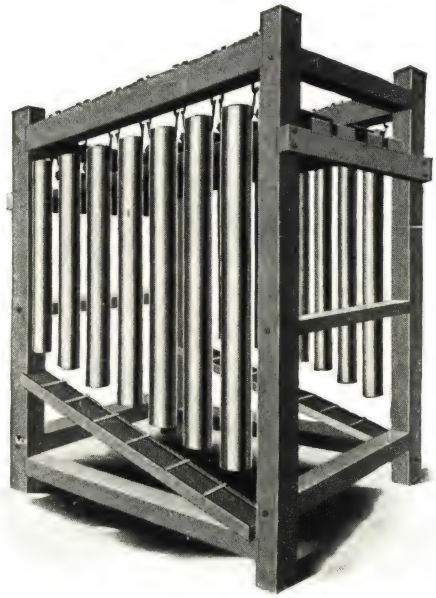
Keyboard



Chime Bells



Westminster Clock Chimes



McShane Tubular Tower Chimes

Showing frame and tubes assembled. Standard sets: 10 to 20 tones. Over-all dimensions, 8 ft. square, 12 ft. high

MENEELY BELL CO.

220 Broadway
NEW YORK, N. Y.
TELEPHONE COrtlandt 7-1749

22-28 River Street
TROY, N. Y.
TELEPHONE Troy 525

Bells

Church, Chime, Peal, Angelus, School, Tower Clock, Westminster, Fire Alarm, Fog Signal, Ship, Farm, and other Bells.

The accompanying illustrations show a few of the principal bells manufactured by this company.

WEIGHTS, TONES AND SIZES OF CHURCH BELLS

Bell			Mountings		
Weight, lbs.	Medium tone	Diameter, in.	Size of frame outside ft.	in. ft.	in.	Diameter of wheel ft.	in.
400	D	27	3	5x3	5	4	4
450	C sharp	28	3	5x3	5	4	4
500	C	29	3	5x3	5	4	4
600	B	31	3	8x3	11	4	9
700	B	33	3	11x4	2	4	9
800	B flat	34	3	11x4	2	5	6
900	A	36	4	2x4	6	5	9
1000	A	37	4	2x4	6	5	9
1200	A flat	39	4	9x4	9	6	3
1500	G	42	4	10x4	10	6	6
1800	F sharp	45	5	5x5	7	7	0
2000	F	46	5	5x5	7	7	0
2500	E	50	5	5x5	9	7	6
3000	E flat	53	6	2x6	6	8	0
3500	D	56	6	2x6	6	8	6
4000	C sharp	58	6	6x6	9	8	6
4500	C	61	6	6x6	9	9	0
5000	C	63	7	0x7	0	9	0
6000	B	67	7	0x7	0	9	6
7000	B flat	69	7	6x8	5	9	6

Electrically Operated Chimes

Electrically equipped chimes played by church organist from small keyboard placed near organ console.



Peal Bells



Tower Clock Bell



Chime Bells



Church Bell



School Bell

ESTABLISHED BY ANDREW MENEELY IN 1826

INCORPORATED 1908

THE OLD MENEELY BELL FOUNDRY

MENEELY & COMPANY (INC.)

WATERVLIET, N. Y.

Meneely Bells Are Scientifically Made to Insure Definite Tone Harmony

Between 1890 and 1895 we made the important discovery that the tone elements of bells could be accurately and absolutely determined with the aid of specially designed instruments, and that such bells, when intended for musical sets (chimes, peals and carillons) could be musically harmonized in themselves and with each other by mechanical processes and methods of testing. The results thus obtained are embodied in our bells.

While this is the oldest bell foundry in the country, it is the most modern in its practices, mechanical equipment and scientific and special appliances necessary for the best workmanship and the definite determination of exact musical results.



Typical Church Bell

SIZES OF MENEELY BELLS

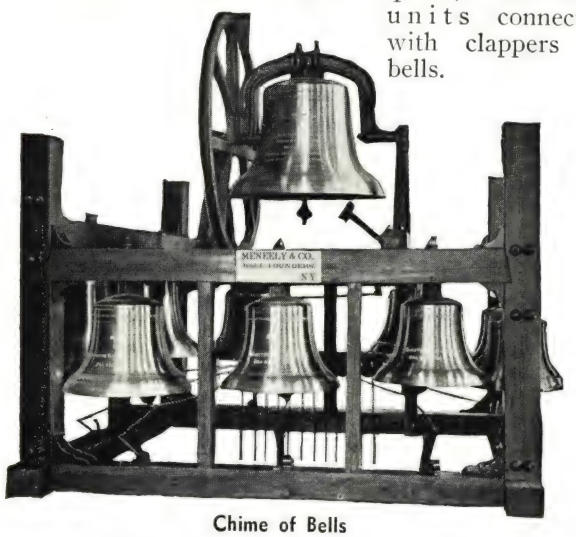
Bell			Mountings	
Weight, lb.	Tone	Diam., in.	Size of frame outside	Diam. of wheel
400	E♭	27	3′6″ by 3′5″	4′
500	D	28	3′6″ by 3′5″	4′
600	D♭	30	3′6″ by 3′9″	4′4″
700	C	32	3′6″ by 3′9″	4′4″
800	B	34	4′5″ by 4′1″	5′6″
900	B♭	36	4′5″ by 4′5″	5′6″
1050	A	38	4′5″ by 4′5″	5′6″
1250	A♭	40	4′10″ by 4′9″	6′3″
1600	G	42	5′3″ by 5′0″	6′3″
1800	F#	46	5′8″ by 5′5″	7′
2100	F	48	5′8″ by 5′5″	7′
2500	E	50	5′8″ by 5′5″	7′
3000	E♭	54	6′6″ by 6′3″	7′6″
3500	D	56	6′6″ by 6′3″	7′6″
4200	C#	60	7′8″ by 7′4″	8′
5000	C	64	7′8″ by 7′4″	8′
6000	B	68	8′0″ by 7′8″	9′
7200	B♭	72	8′0″ by 7′8″	10′

Chimes

A chime consists of 10 to 16 bells corresponding to eight notes of diatonic scale with two or more semitones interposed and one or more bells above the octave.

Electric Chiming Device

Chimes electrically equipped are played from small keyboard placed near organ console. Electric equipment consists of keyboard, contact panel, and electric units connected with clappers of bells.



Chime of Bells

Carillons

A carillon consists of at least 23 bells corresponding to the full chromatic scale, all full tones and semitones, throughout two or more octaves.



Carillon of Bells

A Few Well-known Installations of the Famous Meneely & Co. Bells

The Washington Memorial Chapel, Valley Forge, Pa.	Carillon	Mission Church, Roxbury, Boston, Mass.	Chime
Cornell University Library, Ithaca, N. Y.	Chime	St. Paul's Cathedral, Buffalo, N. Y.	Chime
Greater University of Rochester, Rochester, N. Y.	Chime	Church of the Epiphany, Washington, D. C.	Chime
Connecticut Agricultural College, Storrs, Conn.	Carillon	Church of Bethesda-by-the-Sea, Palm Beach, Fla.	Chime
Trinity Reformed Church, Philadelphia, Pa.	Carillon	State Teachers College Campanile, Cedar Falls, Iowa	Chime
St. Michael's Episcopal Church, New York, N. Y.	Chime	St. James' Episcopal Church, Danbury, Conn.	Carillon
St. Peter's Cathedral, Erie, Pa.	Chime	St. Andrew's Episcopal Church, New York, N. Y.	Chime
University of Washington, Seattle, Wash.	Chime	St. Simeon's Episcopal Church, Philadelphia, Pa.	Chime

THE I. T. VERDIN CO.

Manufacturers of Automatic Bell Ringers and Motor Driven Tower Clocks

123-125 Broadway
CINCINNATI, OHIO

BRANCH OFFICES
NEW YORK, N. Y., 305 Broadway
LOS ANGELES, CAL., 4541 East 1st Street

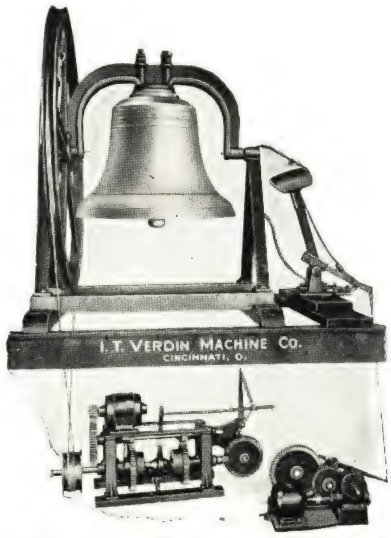
VERDIN AUTOMATIC BELL RINGER

The Verdin system of automatic bell ringing is in use by many of the largest churches and colleges in the United States.

This company specializes in the manufacture and installation of church and school bell ringers; automatic electric bell ringers; swinging electric bell ringers; stationary electric bell ringers for any purpose, such as fire bells, chimes, etc.; Angelus ringers, manual and clock controlled; tollers for funerals; Westminster chime strikers.

Special bell ringers can be constructed for any requirement and information on same will be gladly given.

Verdin electric bell ringers are used for the ringing and tolling of large bells, either clock-controlled or manually controlled from a switch.



Bell with Verdin Automatic Bell Ringer Attached
Also shows the toller connected to bell hammer

Advantages of Verdin Ringers

Electric bell ringers may be applied to old bells that have been installed for many years, or on new bells as may be required. With Verdin equipment no ropes are required to dangle from or through the ceiling.

The control switches may be placed in one or more places as desired, such as the rectory or in the sacristy or the vestibule, so that the bells may be operated without having to enter the church building, or in any location within the church.

The equipment is troubleproof and requires no attention other than that the machinery should be oiled about three times a year.

Due to the use of small motors, consumption of electric current is negligible.

Guarantee

All Verdin equipment is guaranteed against original defects and, furthermore, the equipment is guaranteed to function as represented for a period of five years.

Sizes and Types

No. 1. Bell Ringer will ring bells up to 600 lbs., using ¼ to ½ hp. motor. Dimensions are 45 ins. long, 14 ins. wide, 27 ins. high.

No. 2 Bell Ringer will ring bells up to 2000 lbs., using ⅓ to ½ hp. motor. Dimensions are 50 ins. long, 14 ins. wide, 27 ins. high.

No. 3 Bell Ringer will ring bells up to 4000 lbs., using ½ to 1 hp. motor. Dimensions are 52 ins. long, 15 ins. wide, 30 ins. high.

No. 4 Bell Ringer will ring bells up to 7000 lbs., using 1 to 2 hp. motor and may be arranged to ring larger bells if necessary. Dimensions are 58 ins. long, 14 ins. wide, 30 ins. high.

Angelus and Toller for striking bells up to 7000 lbs. using ¼ hp. motor. Dimensions are 30 ins. long, 14 ins. wide, 16 ins. high.

Complete clock controlled Angelus Striker, striking bells up to 7000 lbs. using ¼ hp. motor. Dimensions 44 ins. long, 16 ins. wide, 23 ins. high.

AUTOMATIC MOTOR WOUND TOWER CLOCKS WITH MOTOR DRIVEN STRIKERS

Verdin Automatic Motor Wound, Motor Striking Tower Clocks, as furnished, represent most practical and efficient installations. The arrangement eliminates use of long cable runs and the tremendous weight used on the old types of clocks. It also eliminates any interruption of the operation of the clock, due to the fact that the time mechanism is operated with a minimum amount of weight, is automatically motor wound, and keeps the clock in operation for a period of eight hours should the power be interrupted. The striking motors operate hour, half hour, chime and Angelus strike, of any type or description. The power used is negligible, and any of these operations are automatically cut out for the period when striking is not desired.

Old installations of any type may be remodeled to use this arrangement.

Verdin Tower Clocks are guaranteed free from material and mechanical defects for a period of five years, and for their timekeeping accuracy. The finest of material is used throughout. These are products developed through the manufacturing of clocks over a period of eighty-seven years.

Consult us regarding any type of installation, from the smallest to the largest. Our experts are at your service.

SPECIALIZED EQUIPMENT

STUDIOS OF DAPRATO STATUARY COMPANY

MAIN OFFICE AND DISPLAY ROOM
762-770 West Adams Street
CHICAGO, ILL.

BRANCH DISPLAY ROOMS
NEW YORK, N. Y., 53 Barclay Street
MONTREAL, QUE., 3 Notre Dame Street, E.
ALTAR AND STATUARY STUDIOS: CHICAGO, ILL.
STAINED GLASS WINDOW STUDIOS: NEW YORK, N. Y.
MARBLE STUDIOS: PIETRASANTA, ITALY

Ecclesiastical Artists and Craftsmen

The DAPRATO STATUARY COMPANY are designers, sculptors, and makers of ECCLESIASTICAL PRODUCTS, such as: Altars, Altar Railings, and Pulpits of Marble, Scagliola and Rigalico; Statues of Marble, Bronze and Stone; Stations of the Cross; Cemetery Groups; Cemetery Memorials; Stained Glass Windows; Sounding Boards; Baptismal Fonts; Sanctuary Lamps; Electroliers; Monuments; Oil Paintings; Mosaics; Special Modeling and Sculpturing; Public Address Systems, etc.

The Daprato studios, which have been established for 71 years, are today among the largest of their kind. They maintain a staff of artists, modelers and sculptors of exceptional skill and ability.

The Daprato Library of Ecclesiastical Art, which they believe is the most extensive of its kind, enables them to certify to the liturgical, historical and architectural correctness of their productions.

The DAPRATO STATUARY COMPANY will gladly assist in the execution of monumental projects as well as in the execution of smaller projects where the financial resources are necessarily limited.

Original designs of architects for the creation of new forms in architectural embellishment in the form of special statuary, relief work or ornamental effects will be faithfully and correctly executed.

Correspondence invited.

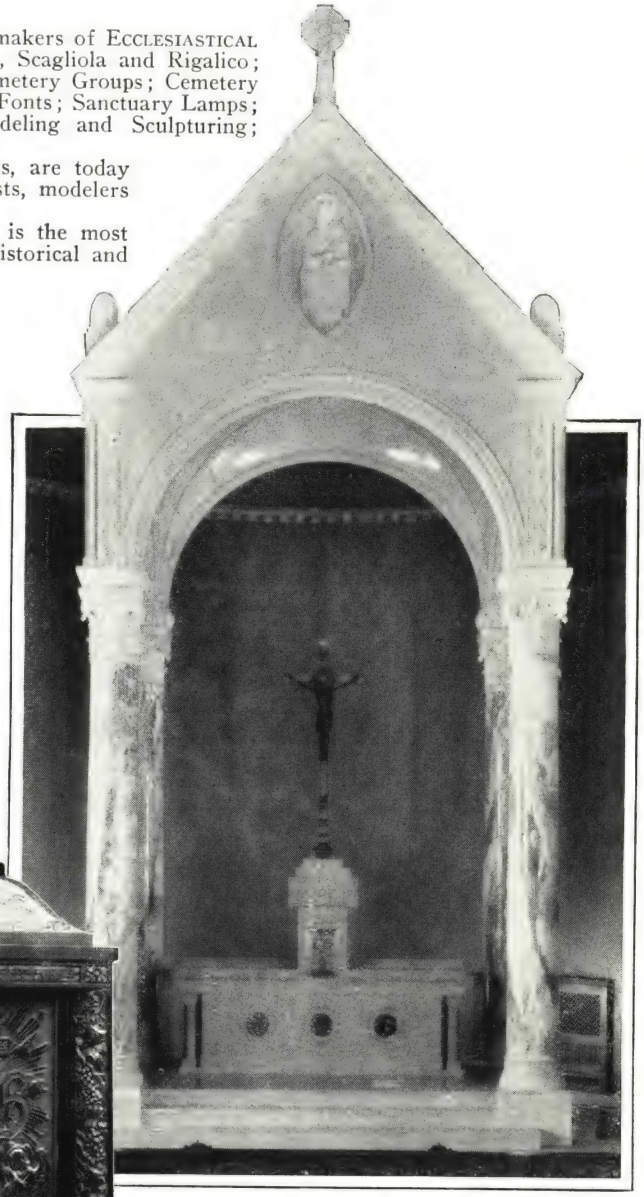


Left:
Daprato Stained Glass Windows Leave No Doubt as to the Artistry of Their Execution

Below:
Free-standing Daprato Tabernacle

Specify Daprato Treasury-Lock Tabernacles as the most fitting enrichment for beautiful altars





Marble Altar, St. John's Church, Des Moines, Iowa
MAGINNIS & WALSH, Architects, Boston, Mass.

Examples of Superlative Marble Work Produced by Daprato Studios in Collaboration with Architects

CHICAGO, ILL.—St. Ambrose Church, Zachary Davis, Architect
St. Margaret's Church, Charles J. Wallace, Architect
CICERO, ILL.—St. Mary's Church, E. Brielmaier Sons, Architects
Queen of Heaven Church, Joe W. McCarthy, Architect
DES MOINES, IOWA—St. John's Church, Maginnis & Walsh, Architects
NEWARK, N. J.—Sacred Heart Church, Neil J. Convery, Architect
ELMHURST, N. Y.—St. Bartholomew Church, Murphy & Lehman, Architects
ELIZABETH, N. J.—Sacred Heart Church, Frederick J. Schwartz, Architect
HACKENSACK, N. J.—Holy Trinity Church, Raphael Hume, Architect
DETROIT, MICH.—Marygrove College, D. A. Bohlen & Sons, Architects
PALM BEACH, FLA.—St. Edward's Church, Mortimer D. Metcalf, Architect
PASADENA, CAL.—St. Andrew's Church, Ross Montgomery, Architect
PHILADELPHIA, PA.—Ascension Church, Hoffman & Henon, Architect
ST. LOUIS, MO.—Chapel Perpetual Adoration, Hellmuth & Hellmuth, Architects

PUTNAM & COMPANY

Manufacturers of Ladders

32 Howard Street, NEW YORK, N. Y.

FACTORY: BROOKLYN, N. Y.

A Complete Line of Residence, Office and Industrial Ladders

PUTNAM & COMPANY have been manufacturing high class ladders for 30 years. With their well-founded and practically unlimited experience, they are in a position to furnish stock or special types to fit any condition or according to specifications. In this catalogue, they present to the architect many stock types in rolling, step, extension, straight, shelf, sectional and trestle ladders. No problem is too difficult—no request too special.

Only the best selected, thoroughly seasoned and dried oak and birch woods are used, except in the General Service Ladders which are made of spruce only.

The steps are let into the sides and screwed into end wood with long round head screws. No nails are used.

Putnam ladders are first sanded smooth; then filled and varnished; and finally rubbed down. They may be finished to match any woodwork at a slight increase in price.

Putnam Ladder No. 1

This is an outstanding ladder where durability, strength and safety are to be considered. With all its weight being on the floor, it can be placed with perfect safety on the lightest possible shelving.

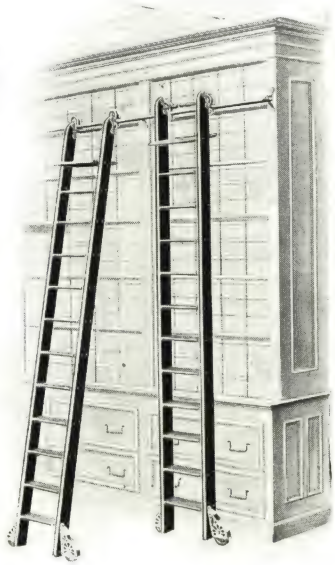
The top is equipped with stamped steel frames carrying die cast wheels which run on polished oak guide poles or a steel track. The bottom is equipped with large rubber tired wheels which run on the floor. No track on the floor is required, as the No. 1 Ladder will run in any position. When not in use it may be pushed back close to the shelving, taking up no room whatever.

Unless otherwise ordered, No. 1 Ladder is furnished 16 ins. outside. It is available in straight and bent types.

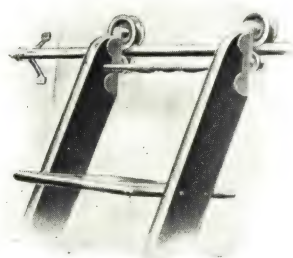
Straight Type

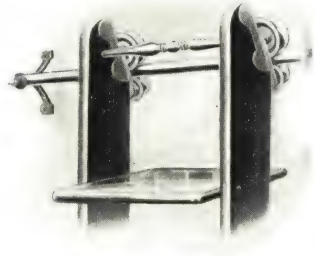
This type has a particular use where space is limited and it is necessary to place the ladder against the shelving when not in operation. The view below includes dotted lines which show the ladder in the vertical position. It will roll in this position as well as when extended.











Close-up of Putnam Ladder No. 1 Showing Position of Top Brackets When in Use and When Ladder Is Pushed Back

Bent Type

This type operates and is mounted the same as the straight type, but is made with a bend wherever necessary to clear a ledge or projection in the shelving.

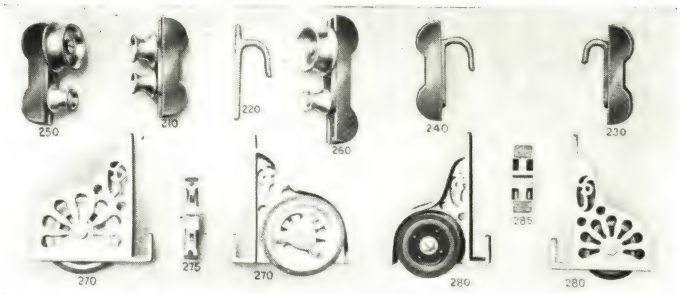
Both types may be equipped with small adjustable shelves for convenience in handling stock.

How to Order No. 1 Ladder

The information necessary to the manufacturer when an order is received is as follows: entire length of each run of shelving, with the number of uprights; distance from shelf, to which track is to be fastened to the floor. Also state style of shelving, whether box or spindle. The above information is necessary in determining the kind of brackets to be used.

If a bent ladder is required, state distance from floor to ledge, depth of ledge, and distance from ledge to shelf to which the track is to be fastened.

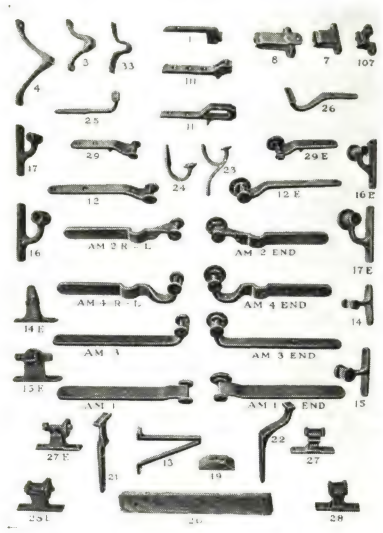
No. 1 Ladder Fixtures



Description of Parts

No. 210—Top stamped steel fixture with die cast wheels for No. 1 round steel track, $\frac{1}{8}$-in. diam.
No. 220—Hook for hook-off ladder.
No. 230—Hook slide for No. 1 steel track.
No. 240—Hook slide for No. 2 steel track.
No. 250—Regular top stamped steel fixture with die cast wheels for $1\frac{3}{8}$-in. track.
No. 270—Regular bottom stamped steel fixtures with rubber tired wheels.
No. 275—Section of rubber tired metal wheel.
No. 280—Bottom stamped steel fixture with canvas wheel.
No. 285—Section of canvas wheel.

No. 1 Ladder Track Brackets



Description of Parts

No. 1—Bracket for top of moulding.
No. 3—Bracket for uprights, 2-in. projection.
No. 4—Bracket for uprights, 3-in projection.
No. 7—Bracket for edge of shelving, 2-in. projection.
No. 107—Bracket for edge of shelving, $1\frac{1}{2}$-in. projection.
No. 8—Bracket for edge of shelving, 3-in. projection.
No. 11—Bracket for top of cornice, 2-in. projection.
No. 111—Bracket for top of cornice, 1-in. projection.
No. 12—Bracket for shelf, No. 2 steel track.
No. 13—Bracket extension for No. 12 bracket.
No. 14—Upright bracket for No. 1 steel track.
No. 15—Upright bracket for No. 2 steel track.
No. 16—Upright bracket for No. 1 steel track for hook fixture.
No. 17—Upright bracket for No. 2 steel track for hook fixture.
No. 19—Wood block for edge of shelf.
No. 20—Wood block for top of fixture.
No. 21—Straight hand rail bracket.
No. 22—Offset hand rail bracket.
No. 23—Bracket for upright, used with hook fixture.
No. 24—Bracket for upright, used with hook fixture.
No. 25—Bracket for top of shelf, used with hook fixture.
No. 26—Bracket for top of shelf, used with hook fixture.
No. 27—Bracket for edge of shelf for No. 1 steel track.
No. 28—Bracket for edge of shelf for No. 2 steel track.
No. 29—Bracket for shelf for No. 1 steel track.

Special malleable brackets for No. 2 round steel track:

AM1	AM2R&L	AM3	AM4E
AM1E	AM2E	AM3E	AM4R&L

Note: The letter E after a number denotes end bracket for same.

Several Other Types of Putnam Ladders

Putnam Ceiling Ladder No. 2

This ladder is a necessary and practical device for reaching high shelving in stores, stockrooms, libraries, etc. It makes the highest shelf as available and as valuable as the lowest.

Suspension at top is by means of two 4-wheel ball bearing carriages rolling in a hollow steel track bracketed to the ceiling. Bottom is equipped with large rubber tired wheels which run on the floor.

Unless otherwise ordered, the outside dimension is 14 ins.



Putnam Bent Shelf Ladder No. 3

This is a smooth working ladder which will give unusual satisfaction when operated on strongly built shelving. All the weight is on the uprights to which the top steel rail is attached. Rubber guide rolls run against the counter ledge, at which point the ladder is bent.

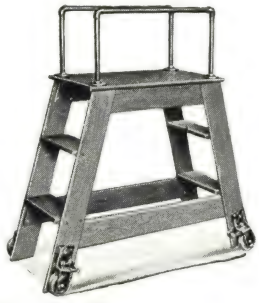
Unless otherwise ordered, the outside dimension of this ladder is 16 ins.



Putnam No-Slip Automatic "A" Ladder No. 5

This is an automatic safety ladder built in a special "A" shape. It is rolled to its point of use and when stepped on, the wheels roll out, and permit the legs of the ladder to rest on the floor, thereby preventing rolling while in use. equipped with leg rails at top.

Made in all sizes, of all woods.



Putnam Stock Board Ladder No. 6

A convenient ladder for posting quotations on stock boards and for other similar uses. It runs on four rubber tired or canvas wheels mounted in regular bottom stamped steel fixtures, and is equipped with a hand rail at top.

This ladder is not carried in stock—made to order only, of all woods and finishes.



Putnam Perfect Library Step Ladder No. 11



Absolutely non-collapsible when in use. It is not only serviceable but, because of its excellent cabinet work, may be used as a piece of furniture in the form of a table or stand.





Putnam Folding Office Ladder No. 10

Made of oak in all finishes; made of birch in mahogany or walnut finish. One size, 28 ins. high.



Putnam Handy Steps

Particularly suitable for residence and office. Made in oak or beech, finished in mahogany or walnut.



No. 19

No. 19—A strong substantial ladder step carefully made by cabinet makers. Available in one size only—24 ins. high.

No. 29—A very strong stool, made to withstand rough usage. Available in one size only—16 ins. high.



No. 29

Putnam De Luxe Ladder No. 12

The De Luxe Ladder was designed for those who wish something better than the usual grade of step ladder. Made in a cabinet shop of hardwood, and finely finished in oak, walnut or mahogany, this ladder combines all the desirable features of strength, durability and appearance due to the materials used and the workmanship employed.



Putnam General Service Spruce Ladders

Only a few of this grade of ladders are shown. Many more types are available.

A wide range of Putnam specialties is also available, some of which are: blocks, scaffolding, extension planks, safety jacks, ladder shoes and spikes, window poles, wheelbarrows, etc.

Putnam "Safety First" Ladder

A strong, sturdy ladder that will stand any abuse or heavy work that a mechanic may give it. Manufactured from 1¼-in. clear spruce, well braced, every step reinforced with truss rods. All parts are heavily riveted, back or legs with 1x2-in. flat bars, hinges and spreaders with 1¼-in. iron.

Made in 6, 8, 10, 12, 14, 16, and 20-ft. lengths.



Putnam Platform Ladder No. 28

Has a platform enclosed by rails on three sides to prevent falling. Constructed of spruce and reinforced with truss rods under every step and with malleable braces under every second step and under every second bar in back.

Made in platform heights of 6, 8, 10, 12, 14, 16, 18, and 20 ft., weighing, respectively, 39, 52, 65, 78, 91, 104, 117, and 130 lbs.



Champion Extension Ladder

Manufactured from clear white spruce with 1⅜x3-in. side rails. Rungs are hand-split and hand-shaved from straight grained oak or ash. Equipped with malleable automatic spring locks, hand-forged guide irons, large rope and pulley complete. Two guide irons each are placed on the top of the lower section and on the bottom of the sliding section.

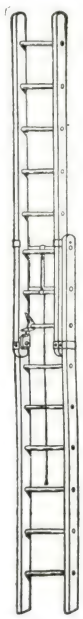
Putnam Extension Trestle No. 24

Manufactured from clear white spruce with white ash bars. This trestle is built simple, plain and strong and the extension can be raised or lowered from the floor. The extension feature makes its use very elastic.

Made in heights of 6, 8, 10, 12, 14, and 16 ft., which extend to respective heights of 9, 13, 16, 20, 24, and 28 ft.



No. 24



Champion

STEEL AND BRONZE

INTERIOR EQUIPMENT

FOR

BANKS, PUBLIC BUILDINGS

LIBRARIES AND HOSPITALS

ART METAL CONSTRUCTION COMPANY •

JAMESTOWN, NEW YORK, U. S. A. AND LONDON, ENGLAND

ART METAL BUILT-TO-ORDER WORK

Art Metal maintains a large engineering force for the designing and detailing of interior equipment in steel, bronze and other metals. The following list will convey some idea of what can be furnished in Art Metal. We shall be pleased to submit designs and estimates on anything in interior furnishings.

BANK EQUIPMENT—Pages 3 to 7

- Counter Fronts
- Counter Screens
- Counters
- Check Desks
- Wickets and Grilles
- Sign Plates
- Currency Guards
- Currency Cages
- Coin Guards
- Coin Trays
- Partitions
- Wainscoting
- Rails and Gates
- Doors
- Cage Partition
- Coupon and Phone Booths
- Sorting Racks
- Coin Trucks
- Book Trucks
- Omnibuses
- Entrance, Vestibule, Elevator and Interior Doors in Bronze or Steel

PUBLIC BUILDING EQUIPMENT—Pages 8 and 9

- Ballot Boxes
- Jury Wheels
- Counters
- Counter Screens
- Document Files
- Roller Shelves
- Office Partition
- Entrance, Vestibule, Elevator and Interior Doors in Bronze or Steel

LIBRARY EQUIPMENT—Pages 10-24

- Bracket Stacks
- Standard Stacks
- Floors
- Stairs
- Railing
- Delivery Counters
- Book Lifts
- Window Guards
- Magazine and Newspaper Racks
- Book Trucks
- Folio Cases
- Library Tables
- Herbarium Cases
- Insect Cases
- Museum Cases
- Flag Cases
- Film Cases
- Entrance, Vestibule, Elevator and Interior Doors in Bronze or Steel

HOSPITAL EQUIPMENT—Pages 25-27

- Laboratories Fixtures
- X-Ray Viewing and Storage Cabinets
- Instrument Cabinets
- Special Gown Cabinets
- Blanket Warmers
- Lockers
- Storage Shelving
- Kitchen Equipments, including Monel Metal Sinks, Drain Boards, and Cabinets
- Utensil Cabinets and Racks
- Toy Cabinets
- Suction and Pressure Gauge Cabinets
- Solution Warming Cabinets
- Titration Tables
- Bed Pan Racks
- Dressers
- Rubber Sheet Cabinets
- Towel Warmers
- Drying Racks and Cabinets
- Fire Extinguisher Cabinets
- Narcotic, Ether and Medicine Cabinets
- Partitions
- Entrance, Vestibule, Elevator and Interior Doors

HOLLOW METAL DOORS AND TRIM—See Manufacturers' Index

- Base Mouldings
- Buck
- Casings
- Cornice Moulding
- Doors, Fire
- Dumbwaiter Enclosures
- Doors, Hollow Metal in Bronze and Steel
- Elevator Enclosures
- Jambs
- Picture Mouldings
- Scribe Mouldings
- Trim, Hollow Metal
- Wire Moulding

SECTIONAL METAL OFFICE PARTITIONS—See Manufacturers' Index

- Cornice Height
- Vertical Unit Type Railings
- Grille
- Wickets

ARCHITECTURAL BRONZE—See Manufacturers' Index

- Bronze Wickets
- Bronze Grilles
- Bronze Counter Screen
- Bronze Tablets
- Bronze Doors (Cast)
- Bronze Doors (Etched)
- Bronze Doors (Welded)
- Bronze Spandrels

MISCELLANEOUS

- Book Cases
- Bulletin Boards
- Omnibuses
- Revolving Cases
- Stamp Cases
- Plan Cases
- Desks
- Filing Cabinets
- Fire Safes
- Shelving
- Map Racks
- Lockers
- Directors' Tables
- Mailing Tables
- Wardrobes
- Tote Boxes
- Film Cases
- Laboratory Equipment
- Kitchen Equipment
- Bins
- Factory Storage Racks
- Factory Equipment, Foremen's Desks, etc.

ART METAL CONSTRUCTION COMPANY

GENERAL OFFICES AND FACTORIES

JAMESTOWN, N. Y.

BRANCH OFFICES

ALBANY, N. Y., 100 State Street
BALTIMORE, MD., 124 West Fayette Street
BIRMINGHAM, ALA., 1825 Comer Building
BOSTON, MASS., 94 Federal Street
CHICAGO, ILL., 173 West Madison Street
CINCINNATI, OHIO, 503 Duttenhofer Building
CLEVELAND, OHIO, 901-902 National City Bank Building
DALLAS, TEX., 1704 Republic Bank Building
DETROIT, MICH., 1408 David Stott Building
HARTFORD, CONN., 75 Pearl Street
INDIANAPOLIS, IND., 3536 Meridian Street
JACKSONVILLE, FLA., 519 Barnett Natl. Bank Building
KANSAS CITY, MO., 110 Scarritt Building
LOS ANGELES, CALIF., 608 Builders Exchange Building
MEMPHIS, TENN., 1759 Glenview Ave.
MINNEAPOLIS, MINN., 1441 Northwestern Natl. Bank Building
NEW YORK, N. Y., 369 Broadway
25 West 43rd Street
PHILADELPHIA, PA., Ninth and Sansom Streets
PITTSBURGH, PA., 315 Oliver Building
PORTLAND, ME., 33 Exchange Street
SEATTLE, WASH., 310 Columbia Street
ST. LOUIS, MO., 620-622 Arcade Building
ST. PAUL, MINN., 310 Cedar Street
SYRACUSE, N. Y., 119 Niven Street
WASHINGTON, D. C., 301 Southern Building
LONDON, ENGLAND, 199-203 Buckingham Palace Road

ART METAL EQUIPMENT FOR BANKS

Specialists in Bank Equipment

For over forty years ART METAL CONSTRUCTION COMPANY has assisted architects, bankers and public officials in arranging and decorating banks and buildings. Practically every city in America does its banking in one or more institutions in which the steel equipment and bronze grilles, doorways and furniture were produced by the ART METAL CONSTRUCTION COMPANY. One bank in every four has Art Metal furnishings. This vast experience of the Art Metal engineers and designers in building metal equipment for bank interiors is available to every architect.

Art Metal equipment for banks includes the following: Bronze entrance and vestibule doors; elevator enclosures; check desks, counter screens; wicket and vault grilles; cage partitions; bank counters, filing equipment; bookkeeping desks; savings ledger desks; desks for officers' use; coupon booths, etc.

BANK SCREENS AND COUNTERS

Counter Screens

The ART METAL CONSTRUCTION COMPANY has produced every style of bank equipment for every size and kind of bank from the large metropolitan banking institutions to the modest rooms of banks in small communities all over the country.

While the style of this equipment is largely one of individual taste the modern trend is away from the high, massive screen towards the low one which gives a more open, airy effect, enhancing the architectural design and decorative details of the banking room. In some instances the screen above the counter is entirely eliminated. Art Metal counter screens are composite fixtures built with metal or marble front, harmonizing in material and finish with the architectural scheme.

When desired, ART METAL CONSTRUCTION COMPANY will handle the entire work including the marble base although they prefer to do only the metal work, placing it on marble or other base after it has been finished by others.

A Type of Counter for Every Need

ART METAL CONSTRUCTION COMPANY makes two general types of counters: the usual flat or slope top counters and the counter provided with a metal roll top which can be readily closed, protecting everything on the counter when the teller is temporarily absent. The space below the counter may be left open or may be fitted with drawers, cupboards, roller shelves or any style of filing devices, which can be covered with doors or curtains if desired. Both types of counter with different bases are shown in detail on page 4 and illustrated on page 5.

Teller's Cages

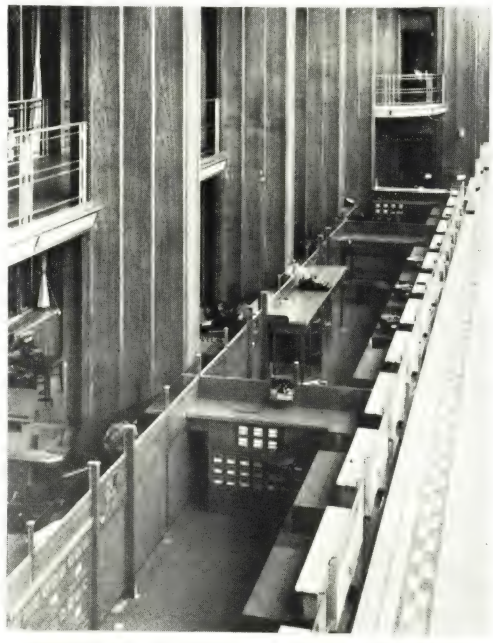
The open effect of the low screens is in keeping with the modern practice towards the elimination of cages. Sometimes the tellers' desks are separated by counters which provide additional working space. Where cages are desired there are many types. They may be of metal panels as high as the counter with glass or rails above. A metal lattice or a perforated metal grille may be used in the lower portion to afford ventilation. A few types are illustrated on pages 4 and 5 but variations are almost endless.

Co-operation with Architects Insures Individuality

Working from blue prints of the floor plans, Art Metal engineers will be glad to submit modern layouts of counter equipment and cages for the most efficient conduct of the work of the bank. This is done after consultation with the architect and banking officials and a determination of the particular requirements.

Architectural individuality is obtained by Art Metal designers working with the architect and carefully modelling the details from his designs. All work is individually prepared and carefully executed for each important contract. Bronze is finished with cutting tools, chisels, files and gravers. Often the natural skin of the metal solidified in contact with the mould is preserved. Then again it is carved and chased, beaten, wrought and embossed.

It has been our good fortune to visualize in bronze and steel the designs of the most eminent architects. The interior of an Art Metal bank is remembered for its genuineness, dignity and all-pervading refinements.



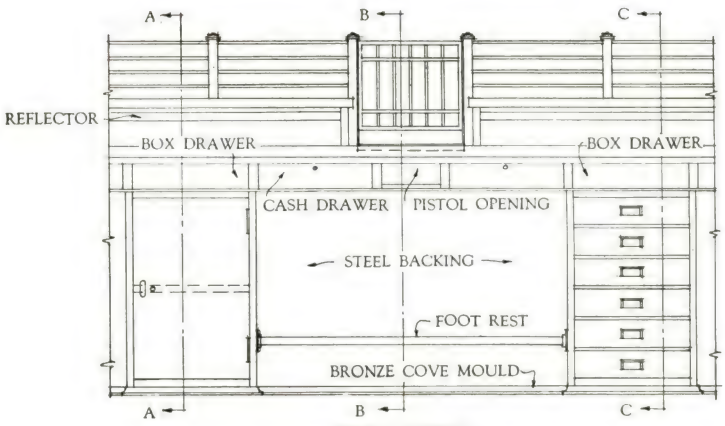
CENTRAL NATIONAL BANK, BATTLE CREEK, MICH.

One side of banking room from balcony showing Art Metal Equipment

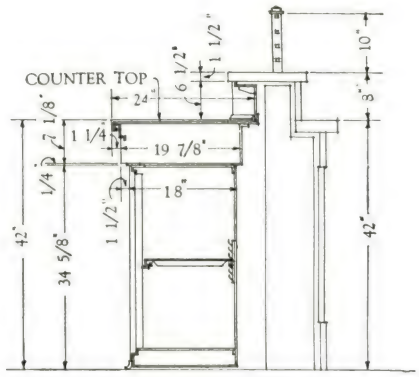
Bronze and Aluminum Produced by Skilled Artisans Using Modern Equipment

ART METAL CONSTRUCTION COMPANY has unsurpassed facilities for the production of wrought or ornamental cast bronze work of highest quality. The uniform quality of Art Metal bronze is insured by the most modern equipment and by constant laboratory tests.

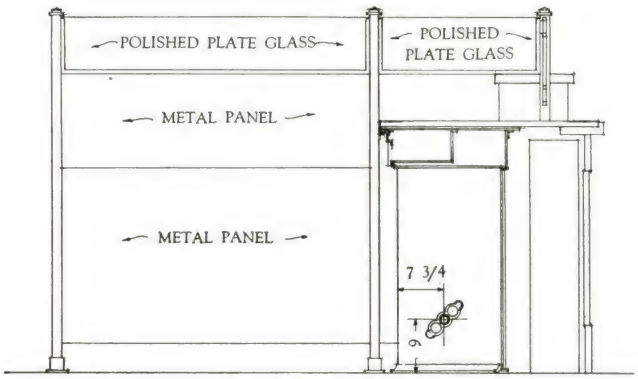
ART METAL BANK COUNTERS



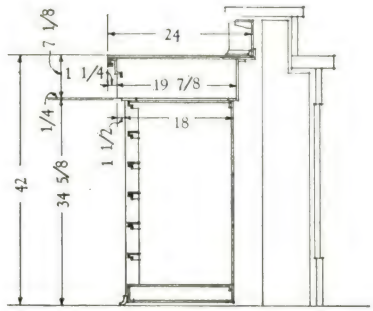
ELEVATION



SECTION A A

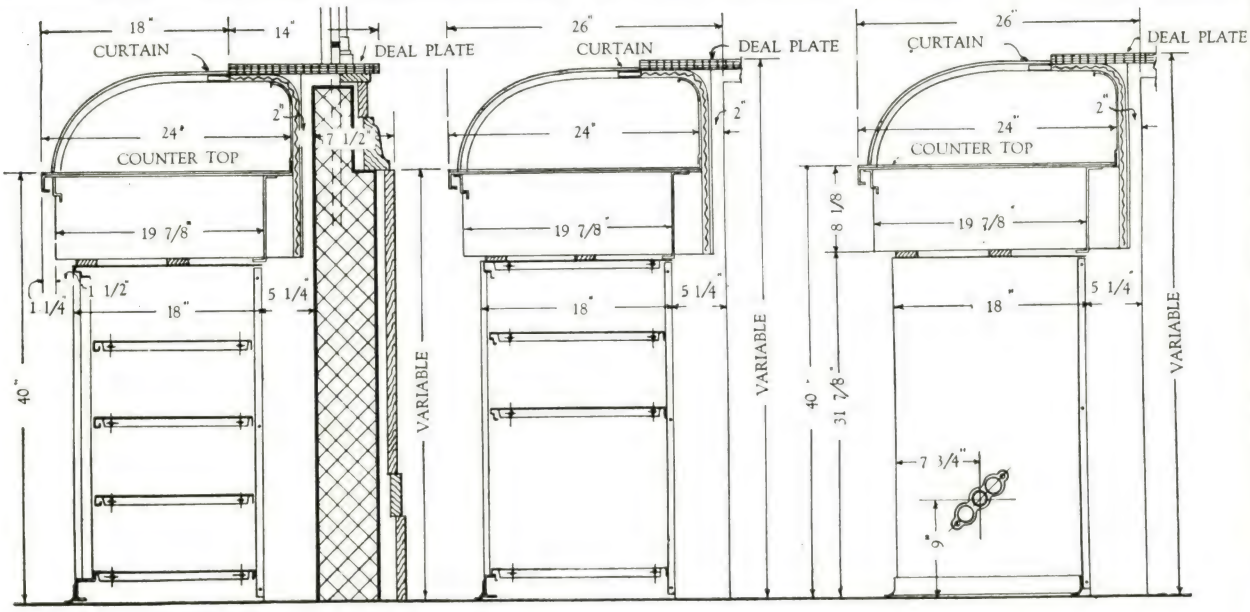


SECTION B B



SECTION CC

DETAILS OF TYPICAL COUNTER AND CAGE PARTITION



CUPBOARDS DRAWERS LEG SPACE

DETAILS OF TYPICAL COUNTER WITH ROLL TOP

COUNTERS AND TELLERS' CAGES

Special Designs

Most of the work of the ART METAL CONSTRUCTION COMPANY consists of executing the details of the architects' special designs. This individuality lends dignity and refinement to any bank installation.

Stock Designs

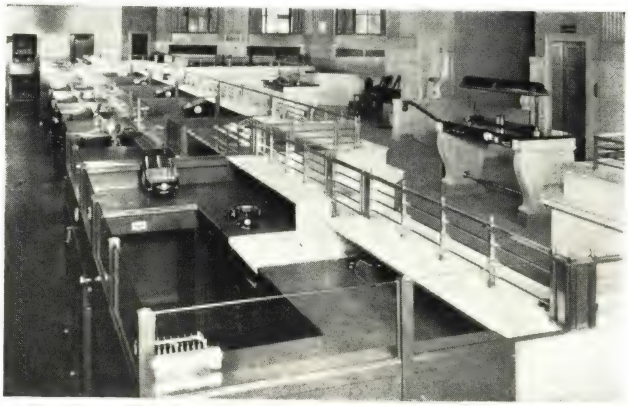
Where cost is a consideration ART METAL CONSTRUCTION COMPANY has a wide range of stock designs which may be combined to produce a most attractive interior effect at a minimum of expense.



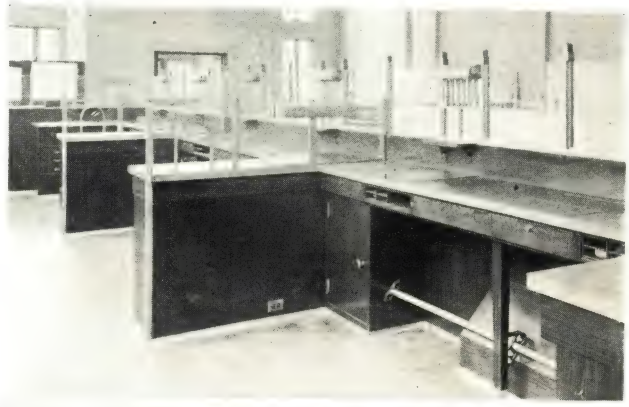
STRAIGHT COUNTER WITH MEDIUM HEIGHT SCREEN
Union and Peoples National Bank, Jackson, Mich.
ALBERT KAHN, INC., Architects



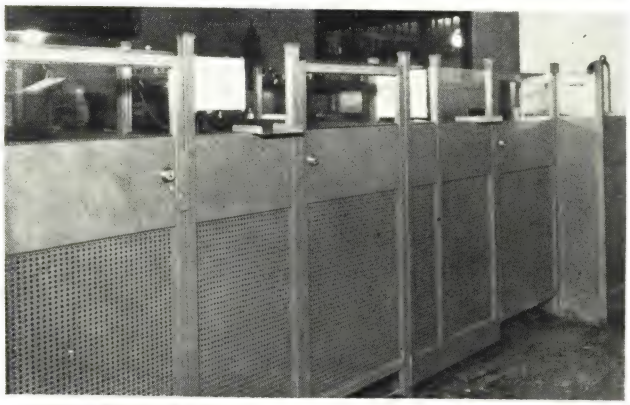
ROLL TOP TELLER'S COUNTER
Northwestern National Bank, Minneapolis, Minn.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



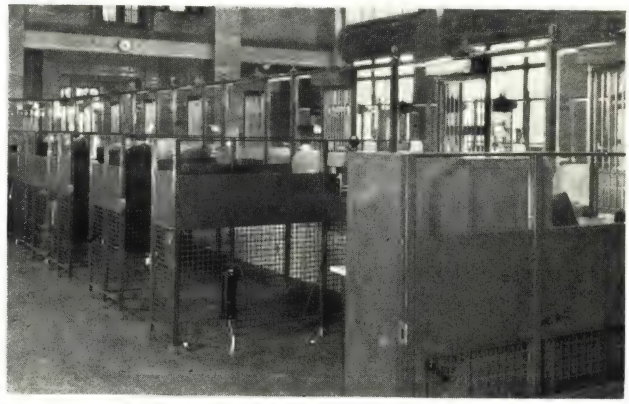
REAR COUNTER AND CAGE PARTITIONS WITH NEW TYPE LOW FRIENDLY SCREEN
Monongahela National Bank, Pittsburgh, Pa.
EDWARD STOTZ, Architect



STEEL COUNTERS—BRONZE TOP SCREEN—AND DOUBLE INSULATED STEEL PARTITIONS
First National Bank, Salem, Ohio
THE OWSLEY CO., Architects



LOW TYPE REAR PARTITION WITH PERFORATED STEEL PANELS
Bank of Kalamazoo, Kalamazoo, Mich.
WEARY & ALFORD, Architects



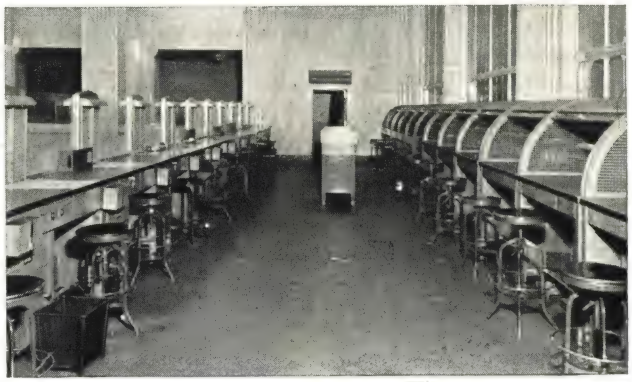
LOW CAGE WITH GLASS AND MESH PANELS BELOW
Logan Trust Co., New Kensington, Pa.
P. R. L. HOGNER, Architect

SPECIAL EQUIPMENT FOR BANKS

ART METAL CONSTRUCTION COMPANY builds steel equipment which includes every item used in a bank, office or public building, from desk tray and waste basket to officers' desks and fire resisting record safes. In filing devices, all forms and sizes to take every standard size record in use are manufactured.

Any requirement in desks, vault trucks, steel safes and filing devices which cannot be filled from stock can be met in our facilities for built-to-order work.

On this page are illustrated some of the special equipment designed and built by Art Metal to facilitate the rapid and efficient handling of the large volume of work in some of the largest banks in the country. Art Metal engineers will gladly consult with architects and bank officials regarding special equipment which will assist them in handling their problems most efficiently.



VENTILATED MONEY COUNTING DESKS
Foreman-State National Bank, Chicago, Ill.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



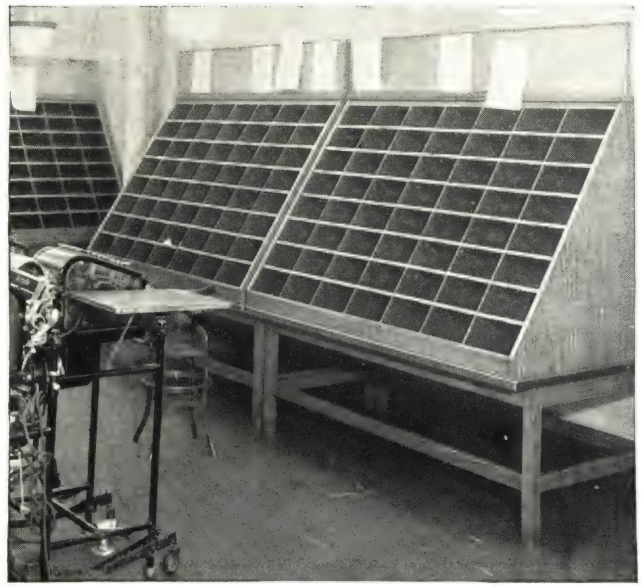
BOOKKEEPING DESKS WITH STATIONARY STORAGE BINS AT ENDS
Chase National Bank, New York, N. Y.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



SAVINGS CARD LEDGER DESKS
City National Bank & Trust Co., Battle Creek, Mich.
C. C. HENDERSON, Architect



CHECK SORTING DESKS WITH RELEASES TO PROVIDE FLAT WORKING SURFACE
Chase National Bank, New York, N. Y.
GRAHAM, ANDERSON, PROBST & WHITE, Architects



DOCUMENT SORTING BINS
Foreman-State National Bank, Chicago, Ill.
GRAHAM, ANDERSON, PROBST & WHITE, Architects

SPECIFICATIONS FOR BANK COUNTERS AND EQUIPMENT

Counter Work

Pedestals—See pedestal specifications.

Knee Space Panels—To be made of No. 18 gauge steel with ½ in. adjustment and No. 18 gauge adjustment strip at bottom. Bronze cove mould will be furnished in place of adjustment strip at bottom at extra cost if so desired.

Legs—To be of No. 18 gauge steel formed up square and tapered, with corners welded, or of 2-in. sq. tubing of No. 16 gauge if so desired. Bottom of leg to be fitted with bronze foot of suitable design and equipped with adjustable bolt at bottom.

Front Aprons—To be made of No. 13 gauge steel formed at right angle at top and zee section at bottom for strength and to form strike for drawer. Front to be reinforced by heavy steel bar which extends from end to end of counter and is securely bolted to lower flanges of uprights.

Rear Aprons—To be made of No. 13 gauge steel formed at right angle at top, with knee space panel screwed to bottom.

Drawer Uprights—To be of No. 18 gauge steel flanged all around and securely welded to top, front and rear aprons.

Pistol Openings—To be made with bottom and back in one piece of No. 20 gauge steel.

Top—To be of No. 14 gauge steel, reinforced as necessary, all exposed edges formed into a channel section and all corners rounded to a ⅜-in. radius. Top to be covered with the best grade linoleum .119 in. thick, color green, securely cemented to steel with edges bound by bronze binding secured to top with concealed screws. When deal plates are required, same will be recessed flush with top.

Cupboard and Pedestal (Hinge Doors)—Single Wall Construction

Ends and Backs—Forming shell or jacket with an area of 1,500 sq. in. or less for any one surface when formed up shall be made of No. 18 gauge steel; for larger surfaces No. 16 gauge steel shall be used. Front edges of uprights to be formed into a channel section with a 1 in. flat face. Top and bottom edges to be flanged or stiffened by angles electro-welded to same. Strikes for doors to be formed $\frac{3}{16}$ in. high on return flange of uprights, and perforations for shelf adjustment 1 in. centers to be made in inturned flange. Large ends to be reinforced as necessary.

All pedestals under counters to be built with ½ in. adjustment at bottom and with an 18-gauge steel adjustment strip running all around at floor.

Bronze cove mould will be furnished in place of adjustment strip at bottom at extra cost if so desired.

Bottom Plate—To be made of No. 18 or No. 16 gauge steel, depending on size, to be formed with offset at front for door strike. Bottom plate to form base at front.

Plain Shelves—To be made of No. 18 gauge steel front formed into a box channel section with a ¾-in. flat face, end and back to be flanged down. Bracket adjustment to be used at front. Rear of shelf to be hung on adjustment strips with lugs formed at intervals of 1 in.

Doors—Up to and including 21x36 in. to be made of No. 11 gauge steel. Doors over 36 in. high and up to and including 48 in. high to be made of No. 8 gauge steel. Over 48 in. high, doors to be made of No. 20 gauge steel formed up with stiles and rails ¾ in. thick to be flush outside. Doors over 20x60 in. to be reinforced with channel section. Doors to be hung on heavy wrought hinges.

Door Knobs—To be of solid cast bronze and arranged to operate a steel latch to which up and down bolts are attached when doors are in pairs or are over 18 in. high, thus holding doors securely at top and bottom when locked. When locks are specified Yale locks shall be used and lock bolt is to engage latch on door when in locked position.

Top Plates—To be of such gauge sufficiently reinforced to carry superimposed loads. Both top and bottom plates to be securely welded in place except in large cases where knock-down construction is essential.

Cupboard and Pedestal (Hinge Doors)—Double Wall Construction

Inside Uprights—To be made of No. 20 or No. 18 gauge steel, depending on size, to be flanged at rear and with Z-shape formation at front for additional strength. These uprights to be perforated for adjustment 1 in. on centers. Bracket adjustment to be used at front. Rear of shelf to be hung on adjustment strips with lugs formed at intervals of 1 in.

Drawer Pedestal

Drawer pedestals shall be made with gauges the same and with construction very similar to pedestal construction described above with drawer strikes at proper intervals.

Drawer Construction

Outside Head—To be flat. Edges to be formed into a $\frac{5}{16}$-in. box channel section with back turned flanges at sides and bottom and welded through these flanges to body. Top corners to be oxyacetylene welded to prevent opening of joints and all corners ground to a slight radius to eliminate sharp corners. Outside head with an area up to and including 130 sq. in. to be of No. 22 gauge, no reinforcement; over 130 sq. in. up to and including 198 sq. in., No. 22 gauge reinforced; above 198 sq. in., No. 20 gauge reinforced.

Inside Heads—To be of No. 24 gauge steel, formed or flanged on all edges, to be slipped into place after hardware has been applied. Approximately ½ in. dead air space to be left between heads as a fire resistant.

Bodies—Sides bent up at right angles to bottom with top edges formed into a $\frac{1}{8}$-in. sq. tubing section and rear edges flanged and electro-welded to back. Bodies up to and including 20x4½ in. or equivalent area to be made of No. 24 gauge steel. Above this size No. 22 gauge shall be used.

Backs—To be made of No. 18 gauge steel.

Hardware—To be of design shown on drawings and securely fastened through outside heads. Where drawings so indicate, drawers in standing desks, tables and counters are to be constructed to pull out by reaching under head, eliminating projecting pulls. Where specified, locks shall be recessed into inside head, leaving inside of drawer smooth.

Suspensions—Drawers will be equipped with channel suspension, progressive suspension or Amco suspension, as requested.

ART METAL COUPON BOOTHS

Art Metal Construction Company supplies coupon booths made to special design to fit the space available or assembles them, using standard partition units as illustrated in the partition section. (See Art Metal in the Manufacturers' Index.)



COUPON BOOTHS MADE FROM STOCK PARTITION
Schenectady Savings Bank, Schenectady, N. Y.
Rodman L. Nichols, Architect



COUPON BOOTHS SPECIALLY BUILT
Industrial Trust Co., Pawtucket, R. I.
Thomas M. James Co., Architects

ART METAL EQUIPMENT FOR PUBLIC BUILDINGS

Furnishings for public buildings have long formed an important part of Art Metal production. Throughout the country, government and state buildings, city halls, court houses, county clerks' offices, etc., are completely equipped with Art Metal products.

This equipment includes counters with or without files, cupboards or drawers below, document files, roller shelving for large record books, plan files, safes, desks, etc., down to letter trays and waste baskets.

Constructed of High Grade Steel

Public building equipment is nearly always of steel. This insures long life under the extremely hard wear to which such equipment is subjected and also reduces the hazards of fire.

The sheet steel used in all Art Metal products is a high grade stock especially made for the product. Re-annealed to withstand sharp bending. It is patent leveled, full pickled to remove scale and all impurities, resquared and finally oiled to prevent rusting.

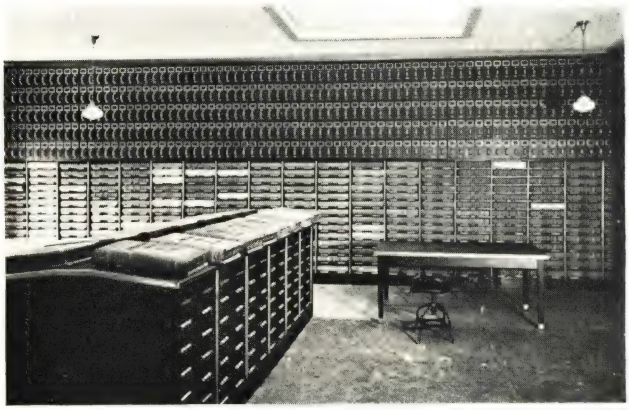
After fabrication the units are carefully filled and finished using slow-baking enamel or lacquers which have been developed through long years of testing and experience. The finish will never chip, flake or peel.

Cooperative Service

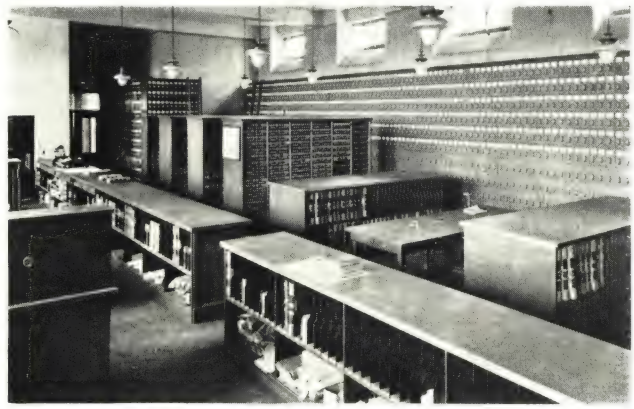
Art Metal engineers will gladly consult with architects and public officials and after ascertaining the requirements, will submit layout to care for the records most efficiently.



TREASURER'S OFFICE, DAVIESS COUNTY COURT HOUSE, WASHINGTON, IND.
Counter with low glass screen, bronze wickets, counter high safe and special counter equipment



RECORD OFFICE, CITY OF NORFOLK, VA.
Document files, roller shelving and table



OFFICE AND RECORD ROOM, PROBATE COURT, HAMILTON COUNTY COURT HOUSE, CINCINNATI, OHIO
Counters, roller shelving, table and desks



CLERK OF COURTS INDEX ROOM, HAMILTON COUNTY COURT HOUSE, CINCINNATI, OHIO
Roller shelving, files and desks



NEW YORK COUNTY COURT HOUSE, NEW YORK, N. Y.
Counter with cupboards and drawers below
Guy Lowell, Architect

SELECTIONS FROM LIST OF ART METAL INSTALLATIONS

Bank Equipment

City	Installation	Architect
	ALABAMA	
Mobile	Merchants National Bank	Warren, Knight & Davis
	CALIFORNIA	
Sacramento	California National Bank	
San Francisco	Bank of California	
	CONNECTICUT	
Bristol	City Deposit & Discount Co.	J. Smith Flannegan
Waterbury	Central Industrial Bank	W. G. Hunt
	DISTRICT OF COLUMBIA	
Washington	Bank of Commerce & Savings	Milburn, Heister & Co.
	FLORIDA	
Miami	Meyer-Kiser Bank	Hampton & Ehmann
	GEORGIA	
Atlanta	First National Bank	Pringle & Smith
	IDAHO	
Boise	First National Bank	Tourtellotte & Jumme
	ILLINOIS	
Chicago	Continental Illinois Bank & Trust Co.	Graham, Anderson Probst & White
Chicago	Federal Reserve Bank	
Chicago	Lincoln Trust & Savings Bank	Hall, Lawrence, Rippel & Radcliffe
	INDIANA	
Fort Wayne	First National Bank	Charles R. Weatherhogg
Indianapolis	Meyer-Kiser Bank	
	KANSAS	
Kansas City	Home State Bank	
	KENTUCKY	
Louisville	Citizens Union National Bank	
	LOUISIANA	
New Orleans	American Bank Building	Moise H. Goldstein
	MAINE	
Portland	Portland Morris Plan Bank	F. W. Cunningham & Sons
	MARYLAND	
Baltimore	Century Trust Co.	Robert L. Harris
Brunswick	Peoples National Bank	
	MASSACHUSETTS	
Boston	Federal Reserve Bank	
Boston	National Shawmut Bank	Thomas M. James Co.
Lawrence	Lawrence Savings Bank	Joseph E. Allen
Lowell	City Institution of Savings	Harry Prescott Graves
Springfield	Union Bank & Trust Co.	M. H. Westhoff
	MICHIGAN	
Detroit	Gurdian Detroit Bank	
Flint	First National Bank	J. W. Cook Corp.
Jackson	Union National Bank	Albert Kahn, Inc.
Saginaw	Bank of Saginaw	Albert Kahn, Inc.
	MINNESOTA	
St. Paul	State Savings Bank	Toltz, King & Day
	MISSISSIPPI	
Jackson	Merchants Bank & Trust Co.	W. C. Hedrick
Meridian	Merchants' & Farmers' Bank	
	MISSOURI	
Kansas City	Federal Reserve Bank	
St. Louis	Federal Reserve Bank	Graham, Anderson Probst & White
St. Louis	Grand National Bank	William B. Ittner
	NEBRASKA	
Omaha	Federal Reserve Bank	Graham, Anderson Probst & White
	NEW JERSEY	
Atlantic City	Marine Trust Company	
Newark	Hudson Trust Company	
	NEW YORK	
Albany	National Commercial Bk. & Trust	York & Sawyer
Buffalo	Federal Reserve Bank	
Buffalo	Marine Trust Company	F. J. & W. A. Kidd
New York	Chase National Bank	Graham, Anderson Probst & White
New York	Equitable Trust Company	Trowbridge & Livingston
New York	Federal Reserve Bank	
Rochester	Mechanics Savings Bank	
	NORTH CAROLINA	
Raleigh	Wachovia Bank & Trust Co.	
	NORTH DAKOTA	
Fargo	First National Bank	Keith & Kurke
	OHIO	
Cincinnati	Provident Sav. Bk. & Tr. Co.	
Cleveland	Federal Reserve Bank	
Columbus	First Citizens Trust Co.	D. Riebel & Sons
Youngstown	Peoples National Bank	Charles W. Bates
	PENNSYLVANIA	
Allentown	Allentown National Bank	Ruhe & Lange
Harrisburg	Union Trust Co.	Walter W. Whitman
Homestead	Monongahela Trust Co.	Hopkins & Dentz
Philadelphia	Toland Trimble Co.	C. A. Ziegler
Pittsburgh	Exchange National Bank	Weary & Alford
Pittsburgh	Union Trust Co.	
Wilkes-Barre	Wyoming National Bank	Thomas A. Foster
	RHODE ISLAND	
Providence	Providence National Bank	Howe & Church
	TENNESSEE	
Chattanooga	Am. Trust & Banking Co.	K. M. Vitzthum & Co., Inc.
Chattanooga	Chattanooga Sav. & Tr. Co.	R. H. Hunt Co.
Memphis	Bank of Commerce & Trust Co.	Hanker & Cairns
	TEXAS	
Dallas	National Bank of Commerce	
Fort Worth	Continental National Bank	
Houston	Federal Reserve Bank	
Houston	Houston National Bank	Wyatt C. Hedrick
San Antonio	Federal Reserve Bank	R. M. & A. B. Ayres
	VIRGINIA	
Norfolk	Trust Co. of Norfolk	
	UTAH	
Salt Lake City	Federal Reserve Bank	
	WASHINGTON	
Seattle	National Bank of Commerce	Doyle & Merriam
Tacoma	National Bank of Tacoma	
	WEST VIRGINIA	
Charleston	Kanawha Valley Bank	Alfred C. Bossom
	CANADA	
Montreal	Royal Bank of Canada	

Public Building Equipment

City	Installation	Architect
	CALIFORNIA	
San Diego	City Surveyor's Office	
Santa Barbara	Santa Barbara County Court House	
	DISTRICT OF COLUMBIA	
Washington	Dept. of Commerce	York & Sawyer
	FLORIDA	
Miami	Dade County Court House	A. Ten Eyck Brown
	GEORGIA	
Atlanta	City Hall	G. Lloyd Preacher & Co.
Carrollton	Carroll County Court House	J. J. Case
	INDIANA	
Bedford	Lawrence County Court House	Walter Scholer
	IOWA	
Waterloo	Black Hawk County Court House	
	KANSAS	
Oberlain	Decatur County Court House	Squires & Rosa
Wichita	Sedgwick County Court House	Ed. Forsbloom
Kansas City	Wyandotte County Court House	
	KENTUCKY	
Louisville	Jefferson County Court House	Brinton B. Davis
	MAINE	
Augusta	Kennebec County Court House	
	MASSACHUSETTS	
Boston	Suffolk County Court House	
E. Cambridge	Middlesex County Court House	Charles R. Greco
Dedham	Norfolk County Court House	
Pittsfield	Berkshire County Court House	
Springfield	State Building	Burton Edw. Geckler
	MARYLAND	
Baltimore	Municipal Office Building	
Towson	Baltimore County Court House	
	NEW JERSEY	
Camden	County Court House & Municipal Building	Edwards & Green
Newark	Essex County Hall of Records	Guilbert & Betelle
	NEW YORK	
Albany	Department of Health Building	Sullivan W. Jones
New York	State Office Building	Wm. E. Haugaard
Buffalo	Erie County Court House	H. J. Cook
New York	New York County Court House	Guy Lowell
New York	New York State Office Building	Wm. E. Haugaard
	NORTH CAROLINA	
Fayetteville	Cumberland County Court House	Harry Barton
	NORTH DAKOTA	
Minot	Ward County Court House	Toltz, King & Day
	OHIO	
Cincinnati	Hamilton County Court House	
Portsmouth	Scioto County Court House	John Scudder Adkins
	PENNSYLVANIA	
Harrisburg	South Office Building No. 2	Gehron & Ross, H. C. Troust Assoc.
Lancaster	Lancaster County Court House	C. Emlen Urban
Norristown	Montgomery County Court House	Rankin and Kellog
Pittsburgh	Allegheny County Court House	Bureau of Architecture
	RHODE ISLAND	
Providence	Rhode Island State Office Bldg.	
	SOUTH CAROLINA	
Gaffney	Sherokee County Court House	M. R. Marsh
	SOUTH DAKOTA	
Redfield	Spink County Court House	Toltz, King & Day
	TENNESSEE	
Bristol	Wise County Court House	

ART METAL EQUIPMENT FOR LIBRARIES

Art Metal Steel Library Equipment is used in a large percentage of the modern libraries in this country as well as many foreign countries.

If the architect wishes to view an installation, the company will be glad to refer him to several in his community. Every state in the country, as well as practically every important city, has many Art Metal installations.

For a partial list, see Art Metal page 24.

The production of a complete line of modern fire-resisting steel equipment for libraries and museums of various kinds is a specialty of this company. The line of products is complete for the equipment of small private or town libraries to the great city libraries, such as the new Free Library of Philadelphia in which over 2,783,000 lb. of Art Metal Steel library equipment was used.

The Art Metal line includes not only the shelving for books but indexing systems, trucks, delivery desks, tables, display cases, magazine racks, metal furniture, iron or bronze railings, stairs and stack floor construction, as well as hollow metal trim and doors for the entire building. No order is too large for the Art Metal factories to handle.

GENERAL DATA ON BOOKSTACKS

Ranges

Depth, single-faced without back..... 9½ in.
Depth, single-faced with back..... 8½ in.
Depth, double-faced without back.....16¼ in.
Height, standard floor to floor.....7 ft. 6 in.

Note: *Height also variable to suit conditions.*

Shelves

Depth, standard stack..... 7½ in.
Depth, standard stack (oversize).....10½ in.
Length, standard stack.....36 to 42 in.
Depth, bracket stack..... 7 in.
Depth, bracket stack (oversize).....10 in.
Length, bracket stack.....36 to 42 in.
Vertical depth, all shelves..... ¾ in.

Main or Corridor Aisles

Width, not less than.....2 ft. 6 in.
Length: Blind at one end.....12 ft.
Open both ends.....18 ft.
Storage for seldom used books, up to.....30 ft.

Stack Stairs

Number of risers for floor to floor height of 7 ft. 6 in.....12
Tread standard.....10 in.
Well length.....8 to 19 ft.
Width of stairs, average.....2 ft. 6 in.
Approximate diameter of spiral stairs.....4 ft. 2 in.

CAPACITY OF 7-IN. DEPTH SHELVES

Class of books	Volumes per ft. of shelf	Class of books	Volumes per ft. of shelf
Bound periodicals*...	5½	Law	6
Circulating	10	Medical*	6½
Economics	9	Public documents	6
Fiction	9	Reference works.....	8
General literature	8	Scientific	7
History	8	Technical	7

*10-in. shelf depth is better suited to these books.

GLOSSARY OF ART METAL EQUIPMENT TERMS

Shelf Compartments

A unit of shelving one shelf wide between supports and extending one tier high. Standard height, 7 ft. 6 in., floor to floor and floor to cornice, but also furnished in heights to suit conditions.

Range

A row of shelf compartments placed end to end. Length is as required but it is advisable to have it in even multiples of the shelf unit adopted. A range may be single or double-faced.

Single-faced Range—A range that is usually placed on side or end walls with or without a back.

Double-faced Range—Two single-faced ranges back to back, with aisles at the front of each.

Tier

A number of ranges one story high placed side by side with aisle space between each.

Bookstack

A series of superimposed self-supporting tiers or an isolated tier.

Each tier is separated by a deck floor which is supported by the tier or tiers beneath.

Standard Bookstack—Consists of a number of removable book shelves supported by vertical shelf supports extending from floor to floor. The supports also extend the full depth of the shelves.

See Art Metal pages 11, 14 and 22.

Bracket Bookstack—Consists of a number of shelving units, each composed of a shelf and end brackets secured to each other as a solid steel unit by the Art Metal No Bolt Process.

The unit is hooked directly into slotted openings in the vertical column which extends the entire height of stack. Brackets extend full depth of shelves.

See Art Metal pages 11, 15 and 16.

ART METAL IN THE FREE LIBRARY OF PHILADELPHIA



1. PEPPER HALL, MAIN READING ROOM
2. RARE BOOK ROOM
3. CHARGING DESK, CIRCULATION DEPARTMENT
4. MAIN BOOK STACK, FOURTH LEVEL

HORACE TRUMBAUER, Architect

ART METAL STACK CONSTRUCTION AND FINISHES

Stack Weights and Strength of Stack Columns

The detail below gives the stack weights and the strength of stack columns. This data will enable the architect to determine structural strength and foundation necessary to carry the total weight when stacks are in use. The calculations are figured on a basis of 7-ft. 6-in. tier heights.

Shelves

Art metal shelves for both the Standard and Bracket Stacks are easily adjusted or removed from one position to another. No tools are required to make this simple change. The method used for each type will be explained in detail later.

The shelving is fixed and rigid when in position, is thin to make for space saving, and is smooth with a straight line surface and finish and no rough edges.

Cornices and Bases

The finish for tops of one story or the upper part of two story ranges may be plain cover plates or a moulded cornice. Plain cover plates flanged on edges provide a neat finish for top of ranges. Ranges can also be provided with cornices and bases using drawn mouldings, as shown on opposite page, when tops of ranges would be protected by steel top plates. Cornices are built up by using formed and drawn members or rolled steel mouldings with ornamental bronze mouldings applied. Height of cornice may vary according to design selected.

Style "A" is a plain end panel with plain formed cover plate.

Style "B" has steel moulding panel on end, steel moulding on base, and drawn steel cornice moulding with applied ornamental bronze bed moulding.

Style "C" has sunken steel panel end trimmed with drawn bronze moulding, bronze cap moulding on base, and drawn steel cornice moulding with applied drawn bronze crown and bed mouldings.

Cornice cover plates are provided for "B" and "C" cornices when cornice or range does not finish against ceiling.

Where an installation is designed to carry additional tiers in the future, cover plates and cornices may be removed and used on the top of new ranges added.

Finishes

Art Metal originated the process of applying enamel finishes to steel furniture. The Art Metal Department of Research has sought continuously for over a third of a century for methods of improving and perfecting Art Metal finishes.

For permanent results, a hard baked enamel properly applied is essential. Equal results cannot be obtained by any air dried paint.

Art metal enamels are required to withstand the most severe bending and hammer tests without flaking or chipping. To withstand these tests the best grades of materials only are used.

The special rolled pickled sheets that are made especially for Art Metal materially assist in obtaining the ideal surface owing to its smooth, close grained texture.

Past experience has determined the proper number of coats and the ideal baking temperature. All ovens are equipped with automatic controls insuring uniform heat.

In the finishing of Art Metal Library Stacks, every exposed part is finished at the factory at Jamestown, and the enamel baked on.

Structural members are given one coat at the factory before shipment, and the finishing coat is applied after the work has been installed.

STRENGTH OF STANDARD AND BRACKET STACK COLUMNS

LOAD INCLUDES TOTAL WEIGHTS OF

BOOKS	25″	PER CUBIC FOOT OF STACK
STACK CONSTRUCTION	5″	PER CUBIC FOOT
MARBLE FLOOR	18″	PER SQUARE FOOT
DECK FRAMING	4″	PER SQUARE FOOT
LIVE LOAD	60″	PER SQUARE FOOT

NOTE: IN CALCULATION OF LIVE FLOOR LOAD ON COLUMNS, FULL LOAD IS FIGURED FOR TOP FLOOR. FOR EACH SUCCEEDING FLOOR A REDUCTION OF 5% IS MADE UNTIL 50% IS REACHED.

STANDARD

COLUMN	3½″×3½″	
LOAD	10550″	
ULTIMATE TESTED STRENGTH	43300″	
COLUMN	4½″×4½″	
LOAD	23380″	
ULTIMATE TESTED STRENGTH	94000″	
COLUMN	2½″×2½″ L	
LOAD	28960″	
ULTIMATE TESTED STRENGTH	148000″	

BRACKET

COLUMN	.05 GA	
LOAD	900″	
ULTIMATE TESTED STRENGTH	13400″	
COLUMN	.0625 GA	
LOAD	4230″	
ULTIMATE TESTED STRENGTH	20400″	
COLUMN	.0938 GA	
LOAD	7450″	
ULTIMATE TESTED STRENGTH	37900″	
COLUMN REINFORCEMENT	.0938 GA ⅛″	
LOAD	13540″	
ULTIMATE TESTED STRENGTH	58900″	
COLUMN REINFORCEMENT	.0938 GA 3/16″	
LOAD	19200″	
ULTIMATE TESTED STRENGTH	79700″	
COLUMN REINFORCEMENT	.0938 GA ¼″	
LOAD	24770″	
ULTIMATE TESTED STRENGTH	105000″	

	STANDARD	BRACKET
1	2580″	2580″
2	4230″	4230″
3	5850″	5850″
4	7450″	7450″
5	9010″	9010″
6	10550″	10550″
7	12060″	12060″
8	13540″	13540″
9	14990″	14990″
10	16410″	16410″
11	17800″	17800″
12	19200″	19200″
13	20590″	20590″
14	21990″	21990″
15	23380″	23380″
16	24770″	24770″
17	26170″	
18	27560″	
19	28960″	
20		

ABOVE FIGURES ARE THE RESPECTIVE LOADS ON EACH INTERMEDIATE COLUMN FOR A 36″ BAY OF 90″ DOUBLE FACED STACK 16″ DEEP PLACED 54″ ON CENTERS.

ART METAL STACK SHELVES AND SHELF SUPPORTS

STANDARD TYPE

The Art Metal Standard Stack Compartment consists of two parts: The one-piece shelf support and the one-piece plate shelf. Both are made of smooth plates of steel, finished with baked-on enamel. There are no cast iron parts.

Shelf supports are U-shaped with a trifoil formation at the front and flanged at the rear for reinforcing.

In the front, the supports have horizontal slots incorporating the Art Metal Lock Shelf feature. These slots engage the projecting bearings or flanges on the ends of each shelf and provide a bearing which keeps the shelf firmly in position.

The supports are also perforated in the rear flange for further shelf support. Into these perforations falls the channel formation on the back of the shelf. By this means of construction and assembly the shelf has solid bearings at the extreme ends. The simplicity of these features is unusual, and any shelf may be easily removed without the use of tools and without disturbing other shelves.

The shelves are formed from single steel plates, shaped at the front and back in the form of a channel. This gives a finished appearance and reinforces the shelf at the same time. The ends of the shelves are also reinforced by shaping in the form of a flange, which also serves to lock the shelf in place.

The shelves will not warp, twist, split, shrink or swell and because of their hard, smooth surface can be readily cleaned. Shelves without perforations are recommended and usually furnished. Perforated shelves, to provide extra ventilation, may be had if desired.

Shelving may be any length required but should be of uniform length, if possible.

There are two kinds of shelf supports: Finished ends which are used at the ends of ranges, and partition or intermediate supports. Each of these is divided into two classes: Double-faced, where ranges have shelves accessible from both sides; and single-faced, where shelves are on one side only. The finished ends are entirely plain and smooth, with rounded edges. Where preferred, they may be paneled.

BRACKET TYPE

The "All Wrought" Bracket Shelf is made of steel, with front and back formed to a box or channel section which, with its smooth steel-plate brackets, makes a solid steel unit without intermediate part between itself and the standard. It is hooked directly into the slotted openings in the standard by stout lugs on the back of the bracket.

Framing for intermediate floors is introduced as in the Art Metal Standard Stack.

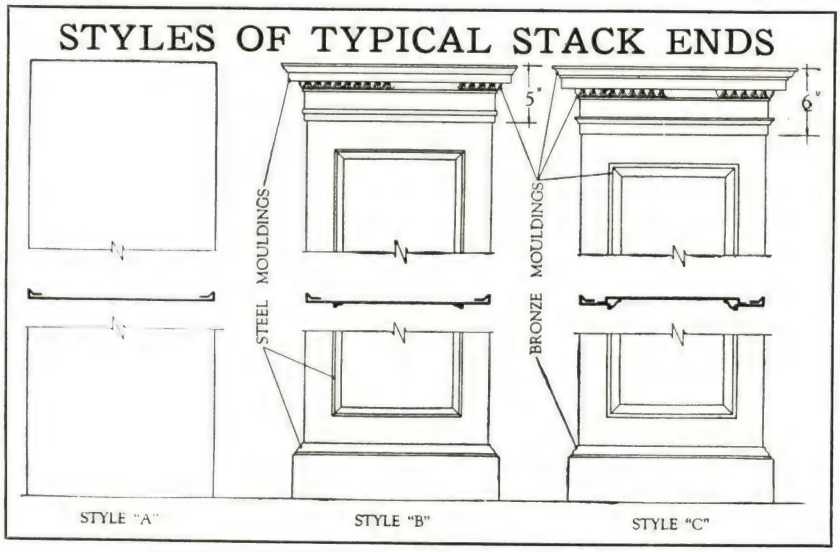
This type of shelving is light and easily handled, or stored, having no cast iron parts liable to breakage. It is entirely smooth, having no sharp openings that would crease or wear books and afford lodgement for dust. It is most durable, being built entirely of steel without loose parts.

This shelving is easily adjusted, being hooked directly into the supporting standard. It can be shifted by anyone without disturbing the books, no tools or spirit level being required for adjustment. Absolutely level shelves are assured by mathematic levels on the supporting standards.

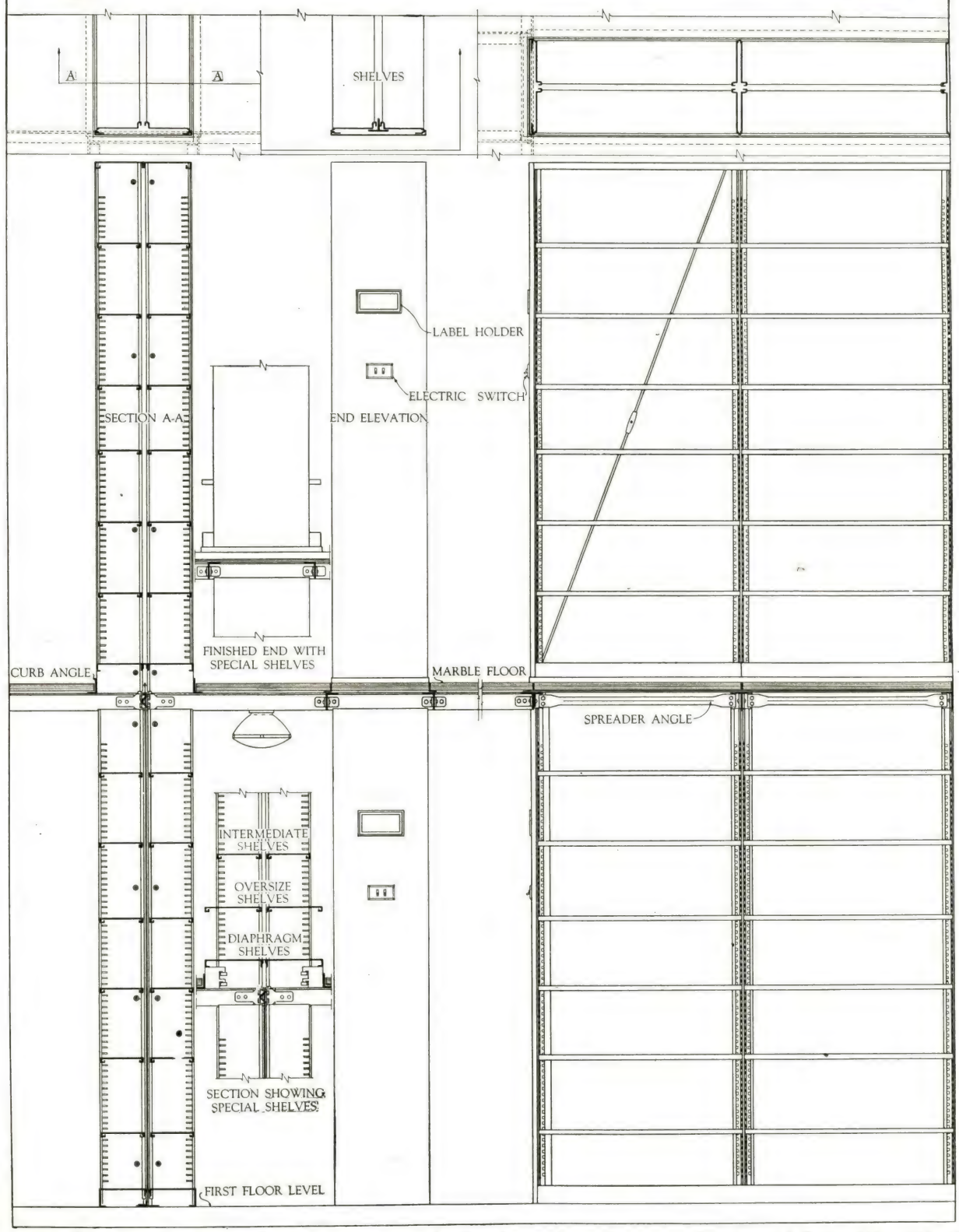
Brackets have flanged edges so that books will not easily straddle them; thus the wear on books through handling at the stack is reduced to a minimum. The brackets are connected to the shelves by the Art Metal patented *no bolt* process.

Ranges have open ends, thus allowing free circulation of air and light.

Solid ends can be provided when it is desired to exclude direct sunlight.



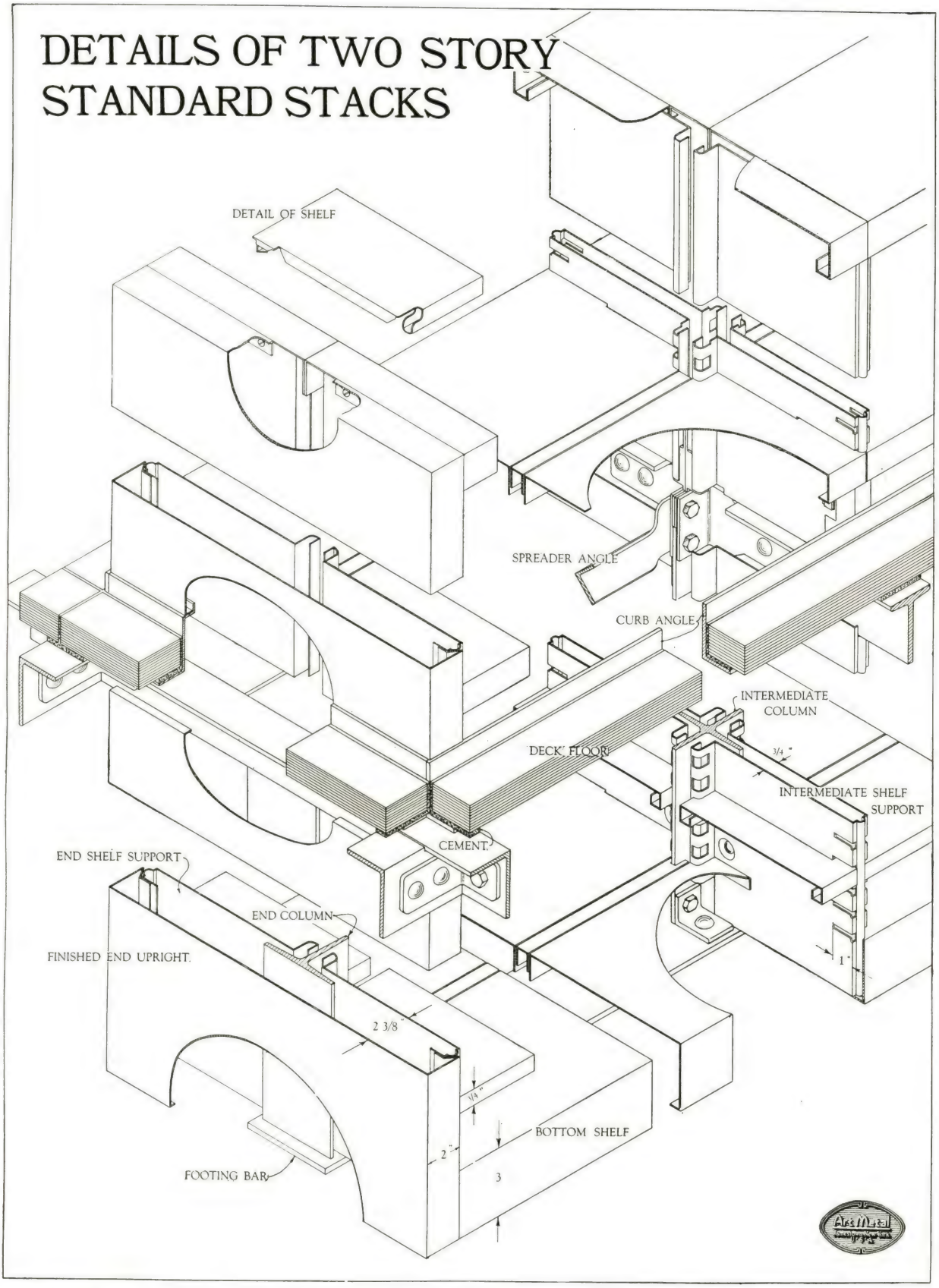
TWO STORY STANDARD STACK



On this page is shown the two story standard stack in elevation and in plan. The elevation at the right shows the method of fastening and bracing. The end view at the center shows the location of label holders, light switches, etc. The sectional view of the left is taken at line A-A on the plan. It shows the curb angle supporting second floor slab while the smaller sectional view shows the application of special shelves for large books, etc. At the top are shown plan views.

Details of construction are shown on the opposite page.

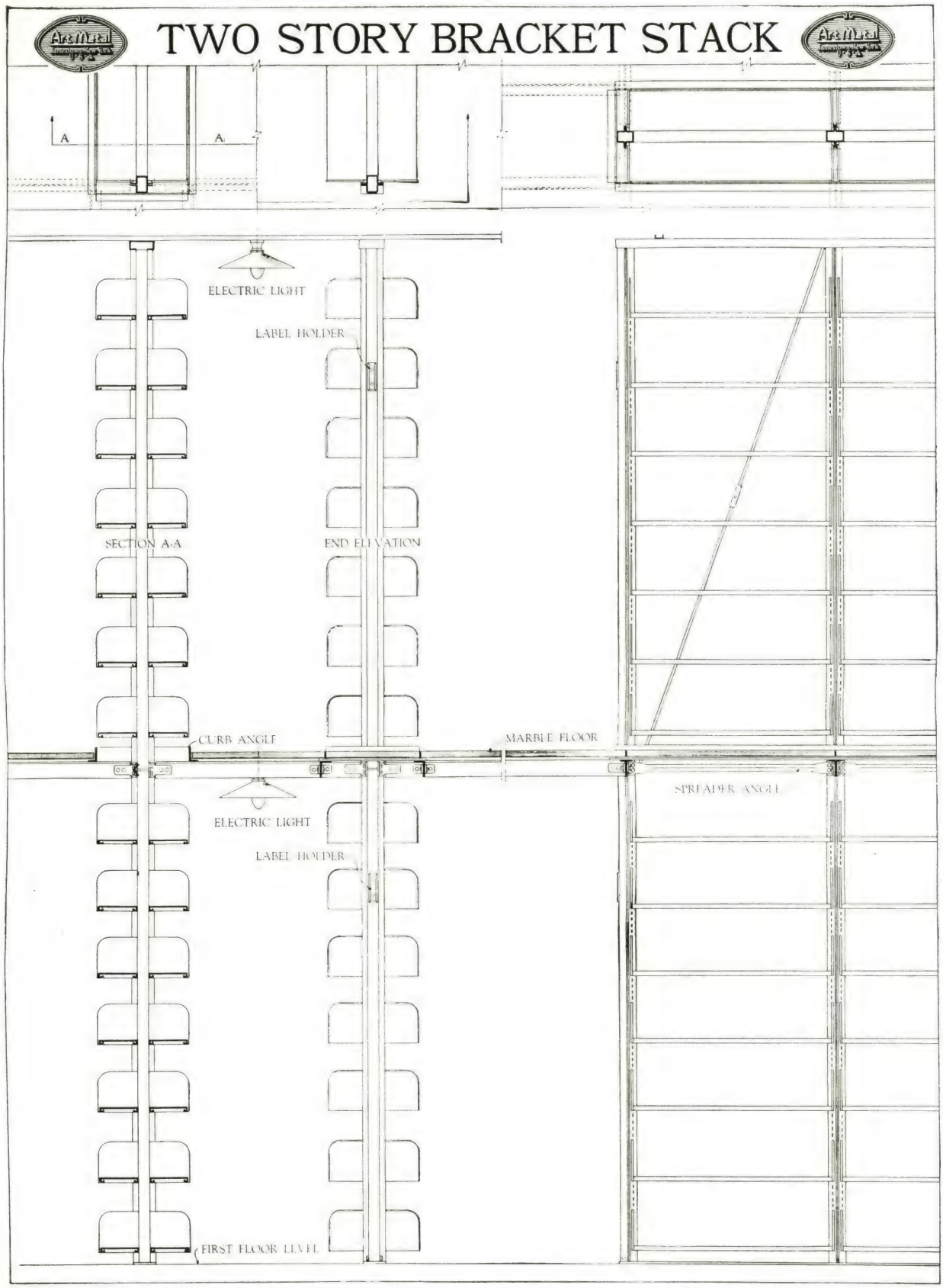
DETAILS OF TWO STORY STANDARD STACKS



On this page are shown the construction details of the two story standard stack.

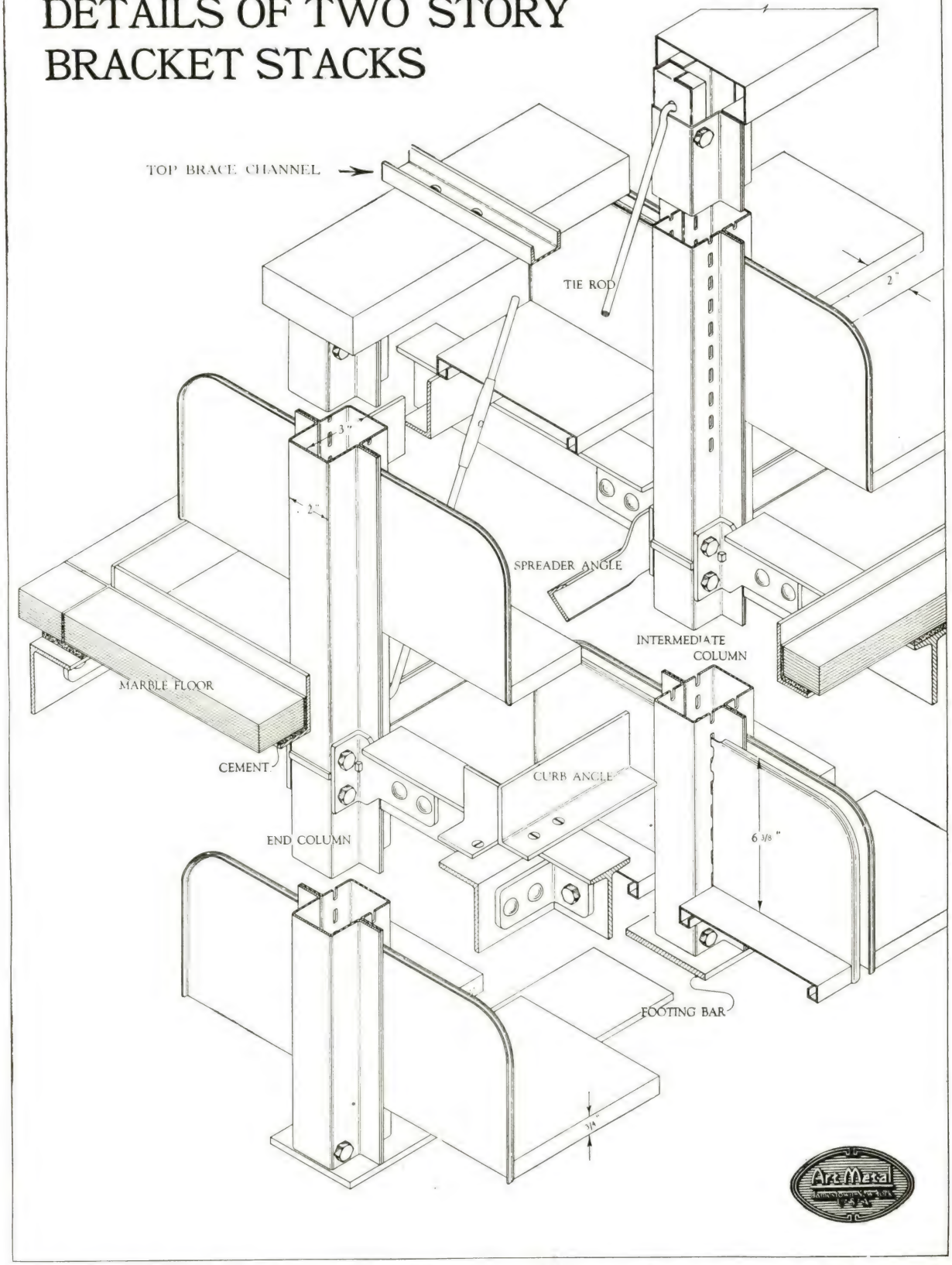
The lower portion of the page shows the first story with the second story above. Note the columns which carry the load of the second story and the curb angles which support the floor slabs. The stack is braced by the spreader angles in both directions and the tie rods to form rigid structure.

TWO STORY BRACKET STACK



On this page is shown the two story bracket stack in elevation and in plan. The front elevation at the right shows the method of fastening and bracing the stack. The end elevation in the center shows the bracket stack ends, location of label holder, etc. The sectional view at the left is taken at line A-A on the plan. It shows the curb angle supporting the second floor slabs. At the top are plan views. Details of construction are shown on the opposite page.

DETAILS OF TWO STORY BRACKET STACKS



On this page are shown the construction details of the two story bracket stack. Note the tubular construction of the columns which extend the full height of the stack and carry the second story load and also form supports for the shelves.

Where the loads require it, reinforcing channels are placed inside the columns as shown on page 12. The stack is braced by the spreader angles in both directions and by tie rods to form a rigid structure.

ART METAL DECK FLOORS

Note: *The bottom floor of a stack room is not included with the deck floors and is usually not a part of the contract for equipment, but is installed by the contractor for the building.*

Between each pair of tiers there should be a deck floor of light structural framing supporting some solid material that is dust and waterproof-concrete, stone or glass.

Art Metal has developed flanged sheet metal pans which can be set on the structural members in the same manner as stone or glass. When in place, the pans are filled with concrete to a smooth, level surface. It is then covered with mastic, rubber tile or treated with a surface hardener.

An entirely new type of concrete deck floor recently developed by ART METAL CONSTRUCTION COMPANY is described below.

When marble is used for deck floors it should be 1¼ in. thick, sound and without pronounced veinings, with both sides sand rubbed. It is set in cement with joints neatly pointed.

Slate, while not frequently used, makes a satisfactory floor aside from its appearance and the fact that it does not reflect light. The under surface is often painted white to help reflect the light. Slate floors should be 1¼ in. thick and set in cement, joints neatly pointed and adjoining slabs leveled.

Glass for floors should be ¾ in. thick with top or floor side sand blasted to obscure the vision and make footing more secure.

It is bedded in a special cement putty with slabs leveled so that there are no projecting edges. In stack rooms having a skylight, glass floors permit light to pass through.

Wood cannot be used to advantage for deck flooring as it multiplies noise, feeds fire, catches dust and dirt, is hard to keep clean, does not reflect light and is generally unsatisfactory.

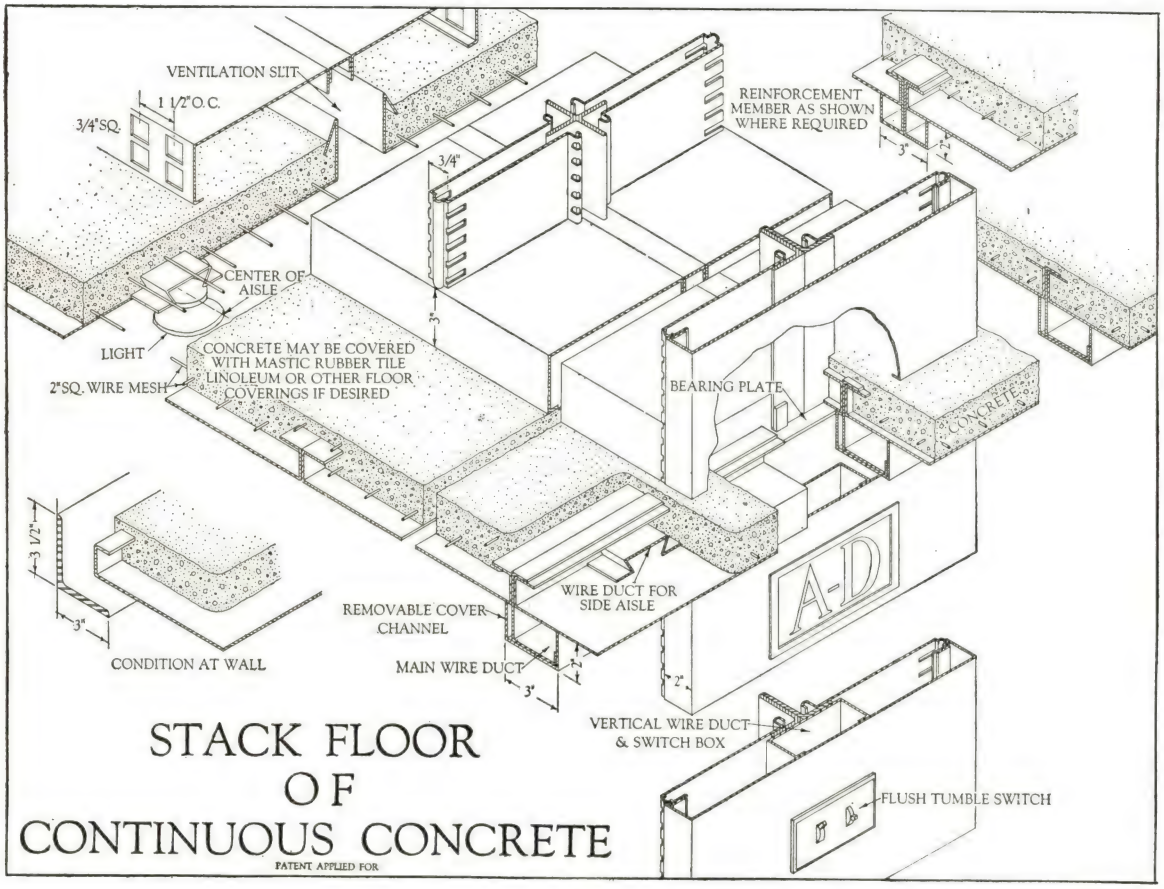
Total thickness of deck floors for ordinary spans up to 48 in. from top of floor to bottom of steel floor beam, is 3½ in. plus the thickness of glass, marble or slate. When alcoves are large enough for reading tables, deck floors need heavier construction.

Along the face of each range there should be a horizontal or vertical deck slit 2 to 3 in. wide or high for ventilation and light. These are protected by a curb angle as illustrated on Art Metal pages 14, 15, 16 and 17.

NEW ART METAL COMBINATION STEEL CEILING AND CONCRETE FLOOR

(Patent applied for)

Art Metal has developed an entirely new type of deck floor construction for use in library stacks which possesses many advantages not found in the older types of construction. The structural members required with stone and glass are eliminated. Instead, steel pans with flanged sides are used. The pans are supported on bearing plates attached to the columns, a wire reinforcement is placed and the pans are filled with concrete 2 in. thick.



The construction details are shown in the drawing on previous page.

Advantages

(1) The under side of the pan forms a smooth ceiling which may be painted or given any desired finish.

(2) The pan acts as a form for the concrete and constitutes the greater part of the reinforcement.

(3) The thickness of the concrete may be reduced without any sacrifice of strength. This reduces the weight of the floor approximately 33⅓%.

(4) The pans act as lateral braces for the stack columns.

(5) The flanged sides of the pans provide a curb which prevent dust or water falling on the shelves below.

(6) The pan supports and forms braces for wires for lights, eliminating the use of conduits.

(7) Adequate ventilation is provided. By means of dampers in the front edge of the bottom shelf, the flow of air may be controlled.

(8) The cost of this construction is generally less than with other types.

ART METAL LIBRARY ACCESSORIES AND GENERAL EQUIPMENT

STACK ACCESSORIES

The list of accessories that can be provided where desired includes label holders for ends of stacks, shelf label holders, range finders, book supports of different types, portable reference shelves, perforated shelves, roller shelves, etc. (See illustration in left-hand column.)

RAILINGS AND STAIRWAYS

Railings for galleries across open ends of stack decks and open stairways should be in keeping with the design of the library interior. Stairs located between the finished backs of two adjacent single-faced ranges are provided with either steel, bronze or wood handrail as desired.

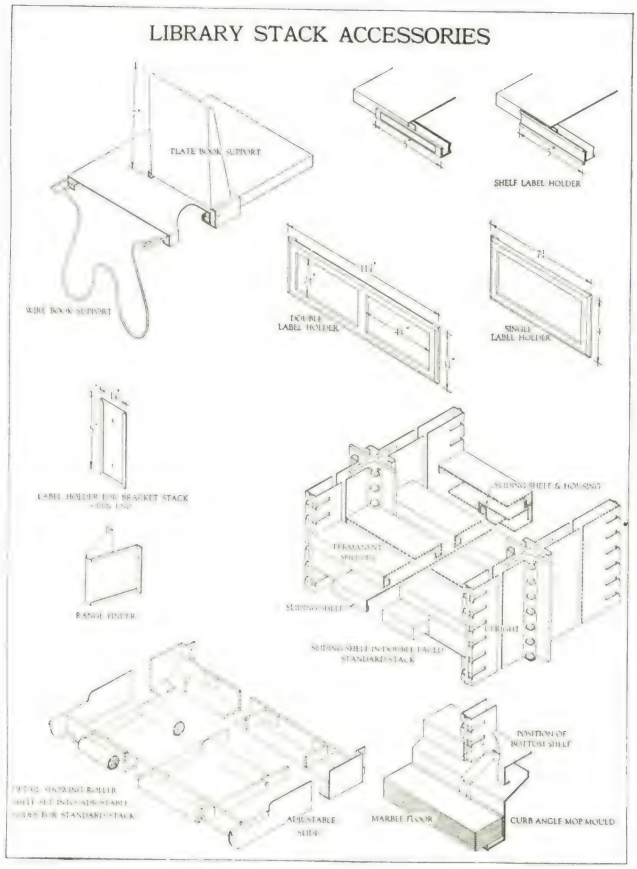
In right-hand column are shown standard railings of designs particularly adapted for use in libraries. Class "A" is a plain design used largely in stack rooms on stairways and around stairwells.

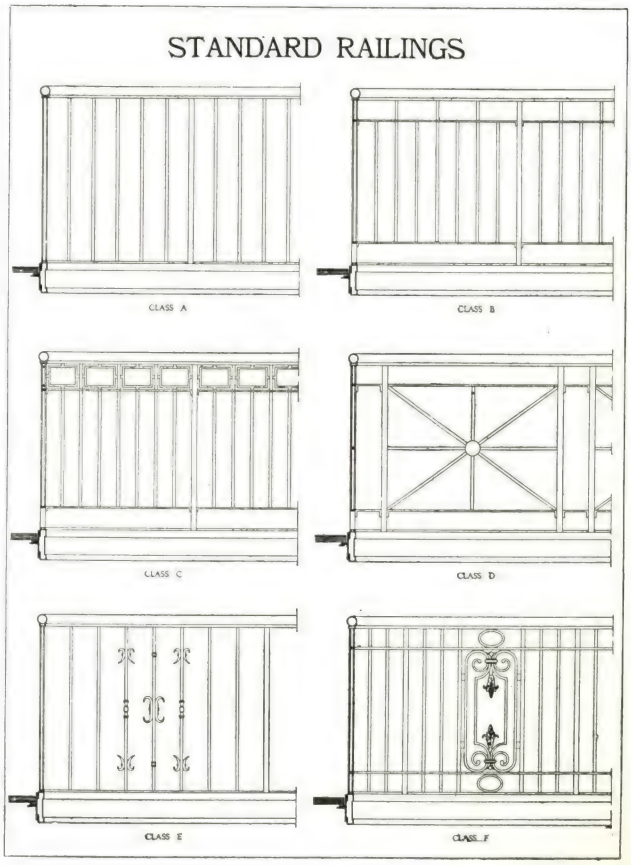
Class "B" and "C" are more elaborate designs used for the same purpose and also used on balconies.

Class "D," "E" and "F" are ornamental railings suitable to all conditions in a library where a railing of more artistic design is desired.

Class "A" railing has a 2-in. steel tubing handrail fitted into a channel top member to which are attached the ½ or ⅝-in. square wrought iron vertical rails. The lower ends of vertical members are attached to a 1 in. by ½-in. channel. Posts are 1 in. square wrought iron.

Class "B" and "C" railings have 2-in. bronze tubing handrails fitted into channel. The horizontal members are 1 in. by ⅜ in. steel bars into which are fitted the ⅝-in. square tubing vertical members. Posts are 1-in. square steel bars.





Class "D" railing is built up of bars with 2-in. bronze handrail, posts being 1-in. square steel bars.

Class "E" railing is similar to Class "A" with the addition of cast ornaments applied to three of the vertical members in the center of each section between posts.

Class "F" railing has a 2-in. bronze tubing handrail fitted into a channel, the two intermediate horizontal members through which the vertical members are mortised consist of 1½ in. by ½-in. bars.

The bottom member consists of a ¾ in. by ⅜-in. channel to which are attached all vertical ⅝-in. square bars as well as the ¾-in. square bars at each side of the ornamental panel occurring at the center of each section between 1-in. square posts.

The ornamental panel is built up from ¾ in. by ½-in. bars and cast ornamentations.

The finish used for all railings is a baked enamel with a brushed bronze finish for bronze handrails.

STACK STAIRS

Main corridors should connect the aisles between the ranges of each tier and the tiers should be connected vertically by stairs and lifts. For standard stair dimensions, see page 10.

Stairs are frequently placed between two parallel ranges thus saving floor space. As a rule, stairs should be near the center of the stack. They are made of cold-rolled steel which gives a better surface for applying the baked-on enamel finish.

Treads of various kinds are available: Corrugated rubber, safety tread, marble, glass, slate or linoleum.

BOOKLIFTS

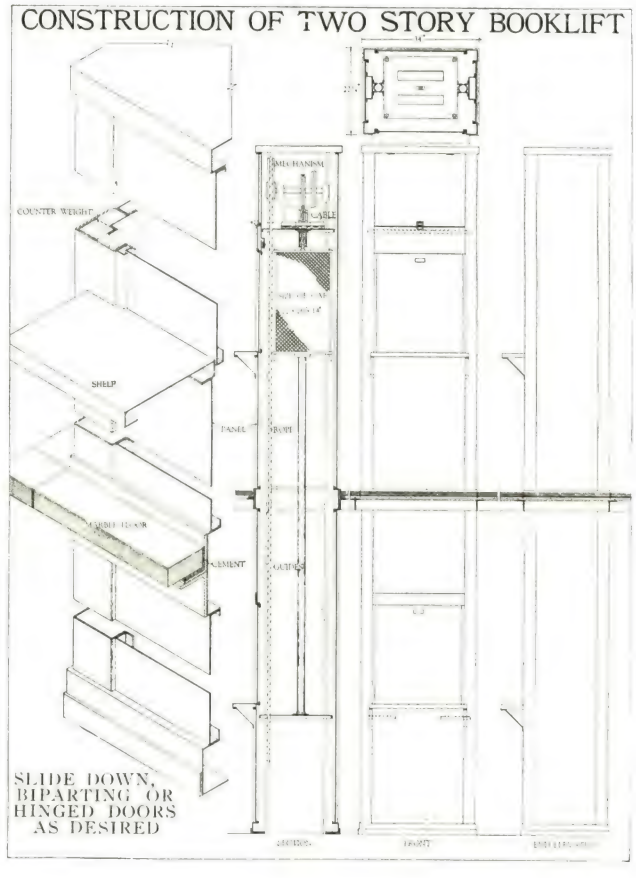
Booklifts are regularly supplied for operation by a handpower mechanism with automatic brakes which hold the car where it is stopped. Car is made of brass mesh or wood and has a capacity of 100 lb. Booklift enclosures consist of corner posts to which are bolted steel panels. An opening is provided at each stack level. These openings are covered with bi-parting, slide down or swing doors. A steel shelf 6 in. deep is provided at each opening to assist in placing books on and removing them from the lift. An access door to the machinery is provided at the top of the enclosure.

Electrically operated lifts are recommended for multi-story book-stacks. They can be furnished with push button control so that the lift will stop at any desired level. The machinery and control mechanism is placed at the top of the shaft behind an access door as in the case of hand operated lifts.

For use in large stacks where the number of books to be handled is great, a continuous conveyor is recommended. By an ingenious mechanism this carries the books to the desired level and automatically discharges them to await the attention of the attendants. Details of this conveyor furnished on request.

With the tendency in modern construction to erect stacks several stories in height, it is desirable to provide a passenger elevator to expedite the movement of workers between floors when necessary. These are usually of the standard push button control type.

Enclosures for elevators and conveyors are constructed in the same manner as shown for booklift enclosures.



BRONZE MUSEUM CASES

These cases are constructed of architectural extruded bronze shapes. All joints are of dustproof construction.

All corners of doors and case panels to be securely fastened together by means of concealed connection angles. All panels of case are held in position by means of concealed sliding lock bars.

Glass or Vehisote panels optional and are cemented in the bronze frames so as to make a dustproof joint and absolutely rigid construction.

Cases can be had with removable panels or hinged doors fitted with locks.

Cases are made to any specified size for mounting on tables, sanitary or closed bases.

For illustration, see page 23

CARREL DESKS AND CUBICLE PARTITIONS FOR READERS

Carrel Desk—This is a new type reading desk of light, portable construction as shown in the illustration. The reading table is 18x37 in. with a linoleum top and brass binding edge. Above it is a bracket type shelf for additional reference books. The overall dimensions are 37 in. wide by 38 in. long and 54 in. high. Desks may be placed in double rows, 6 ft. between centers in the row.

They provide maximum seating capacity where space is a consideration, are inexpensive, light and easily portable and afford a semi-privacy. Corrugated rubber at the underside of the footing prevents the desk from sliding and makes it unnecessary to fasten to the floor.

Cubicle Partitions—Metal partitions for providing study rooms or cubicles can be furnished with a reference shelf that will serve as a work table, and adjustable shelves on which books may be placed within convenient reach of the student.

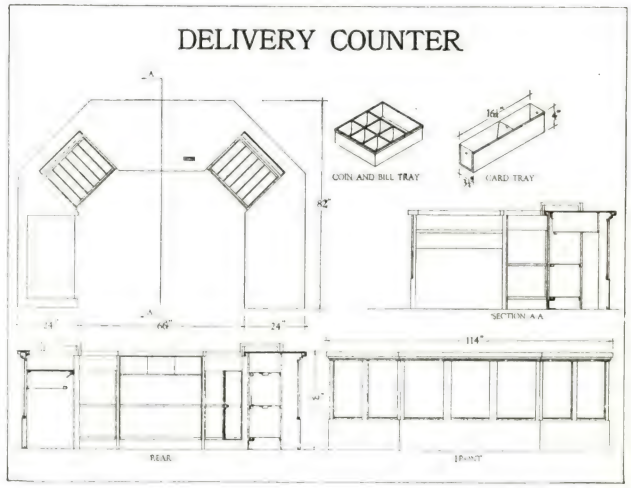


CARREL DESKS FOR READERS

DELIVERY COUNTERS AND READING ROOM EQUIPMENT

Art Metal Delivery Counters—A typical Art Metal Counter for library requirements is shown at right. Charging card trays are placed in the top of the counter and are protected by a disappearing cover. The rear of the counter is equipped with card index drawers, cash drawers, storage cupboards and open shelving for returned book storage.

Art Metal Equipment for Reading Rooms—Includes folio cases, periodical racks and newspaper racks. In smaller libraries the periodical and newspaper racks are placed on casters for ease in moving about the room. The newspaper or periodical is tightly held and locked in a specially designed holder. Only a small part of the margin is covered by the holder and all inside columns are exposed with margin to spare. All equipment is made of steel and finished with the durable baked enamel.



BOOK TRUCKS

Book Trucks facilitate handling of books between stack room, delivery counter or other departments. Art Metal Trucks for this purpose are built entirely of steel and have baked enamel finish. Trucks are equipped with ball bearing wheels and casters with either rubber or aluminum tires.

ELECTRICAL EQUIPMENT

The furnishing and installing of rigid conduit fittings, receptacles and switches may be included with the contract for stacks, but not the wiring and furnishing of lamps.

Conduit risers extend on the underside of each deck floor.

Horizontal conduits to carry the wires are supported in the deck floor construction.

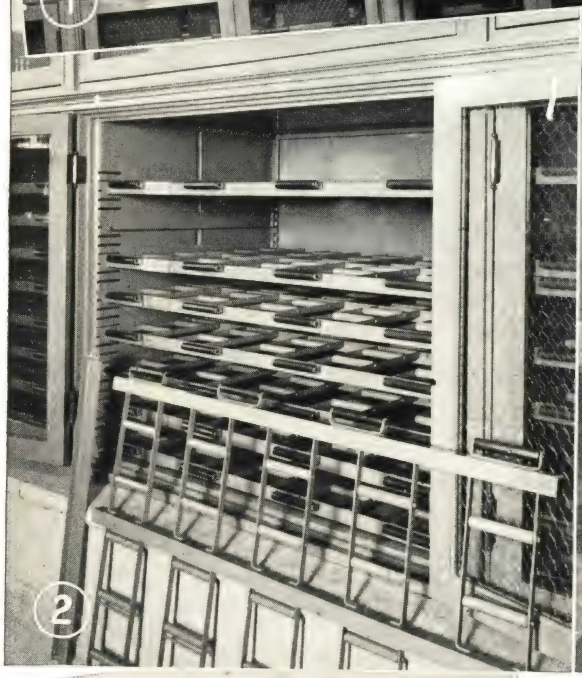
Lights in the aisles between ranges should be located 6 ft. apart and controlled by switches countersunk in the finished ends of the ranges. Main aisle or corridor lights may be located 12 ft. apart and should be controlled by switches adjacent to stack room entrances, or at foot or head of stairways.

Single or double switches may be used to control range aisle lights. Three-way switches are very convenient where ranges are open at both ends and 12 ft. or longer.

SPECIAL LIBRARY AND MUSEUM EQUIPMENT







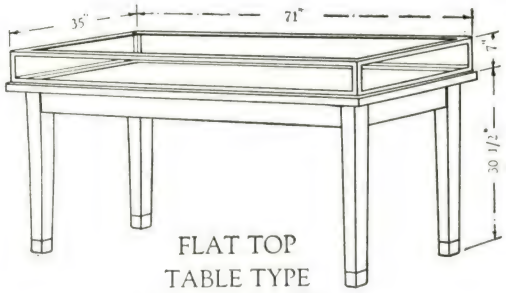




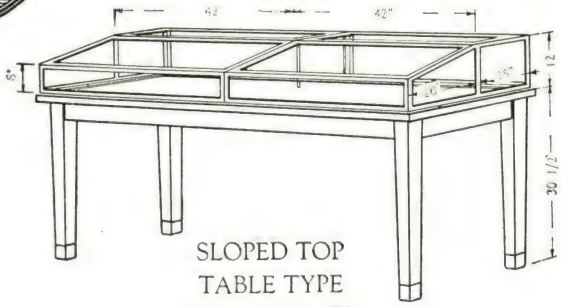


1. BULLETIN BOARD IN WHICH PRINT MAY BE LOCKED
2. DETAILS OF ROLLER SHELVING
3. SINGLE FACED MUSEUM CASE ON STEEL DRAWER BASE
4. DOUBLE FACED MUSEUM CASE TABLE TYPE
5. PORTFOLIO CASES FOR PRINTS
6. HIGH NEWSPAPER RACK

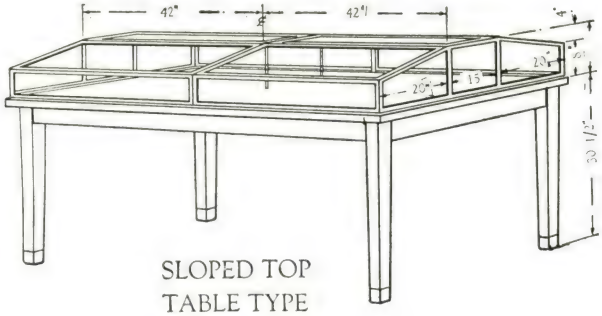
MUSEUM CASES



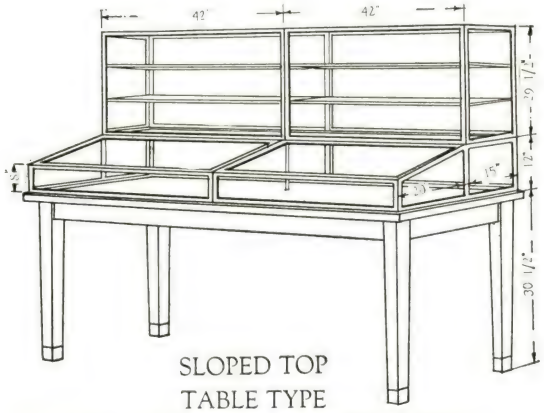
FLAT TOP
TABLE TYPE
DOUBLE FACED



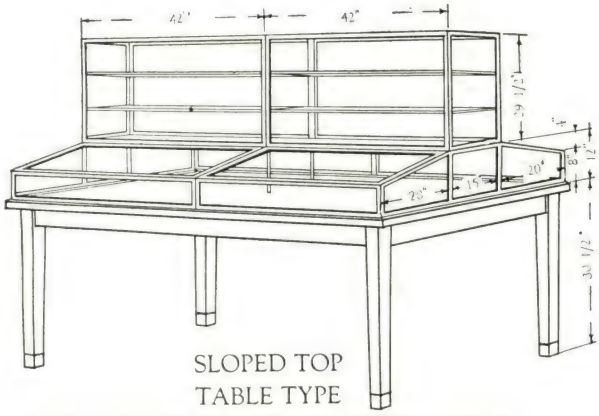
SLOPED TOP
TABLE TYPE
SINGLE FACED



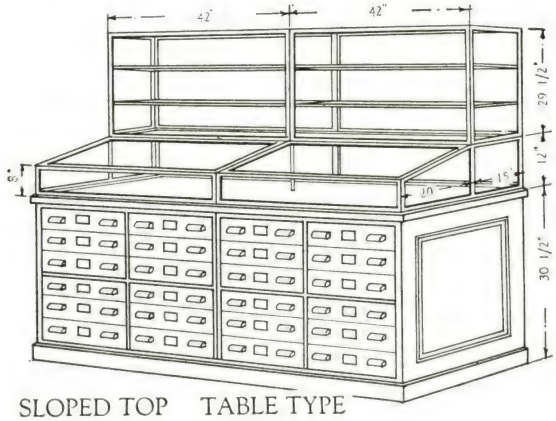
SLOPED TOP
TABLE TYPE
DOUBLE FACED



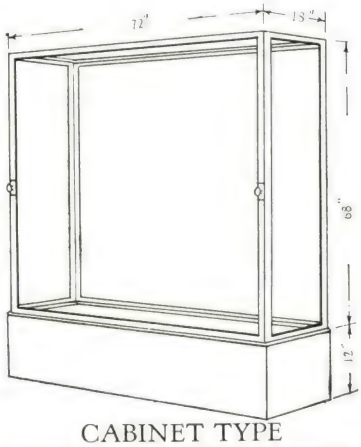
SLOPED TOP
TABLE TYPE
SINGLE FACED WITH CABINET ABOVE



SLOPED TOP
TABLE TYPE
DOUBLE FACED WITH CABINET ABOVE



SLOPED TOP TABLE TYPE
WITH DRAWER PEDESTAL



CABINET TYPE
FOR LARGE SPECIMENS
GLASS OR SOLID BACKS OPTIONAL

RECENT ART METAL INSTALLATIONS

Buffalo Historical Society, Buffalo, N. Y.
Free Library of Philadelphia, Philadelphia, Pa.
Jewish Theological Seminary, New York, N. Y.
Lehigh University, Bethlehem, Pa.
Lynn Historical Society, Lynn, Mass.
State Senate House, Kingston, N. Y.
University Museum, Philadelphia, Pa.



CABINET TYPE WITH
SHELVES FOR SMALL SPECIMENS
GLASS OR SOLID BACKS OPTIONAL

PARTIAL LIST OF ART METAL LIBRARY INSTALLATIONS

City	Library	Architect
	ALABAMA	
Montgomery	Montgomery Co. Law Library	Okel & Cooper
	CALIFORNIA	
Berkeley	University of California	J. H. P. Atkins
Los Angeles	William A. Clark, Jr., Library	Robert D. Farquhar
Los Angeles	University of California	
Palo Alto	Leland Stanford, Jr., University	Ward & Blohme
San Francisco	Mechanics' Institute	Albert Pissis
San Diego	Public Library	Ackerman & Ross
	COLORADO	
Boulder	University of Colorado	Geo. W. Roe
	CONNECTICUT	
Bridgeport	Fairfield County Law Library	Briggs & Caldwell
Hartford	Hartford Public Library	
Hartford	Trinity College	Benj. W. Morris
New Haven	Ives Memorial Library	Cass Gilbert
New Haven	Yale University Library	Chas. C. Haight
	DISTRICT OF COLUMBIA	
Washington	Department of Commerce	York & Sawyer
Washington	Folger Shakespeare Library	Paul Cret
Washington	Scientific Library-Patent Office	Thos. Ustick
Washington	U. S. Geological Survey Library	Thos. Ustick
Washington	U. S. Senate Library	Thos. Ustick
	FLORIDA	
Gainesville	University of Florida	Wm. B. Ittner
Jacksonville	Free Public Library	H. J. Klutho
	GEORGIA	
Atlanta	Carnegie Library	
	IDAHO	
Boise	Carnegie Library	Tourtelotte & Company
Moscow	University of Idaho	J. E. Tourtelotte & Co.
	ILLINOIS	
Aurora	Public Library	W. A. Otis
Chicago	Art Institute	Shepley, Rutan & Coolidge
Chicago	Frederick Hild Branch, Pub. Lib.	Pierre Blouke
Chicago	University of Chicago	Shepley, Rutan & Coolidge
Decatur	Public Library	Mauran, Russell & Crowell
Urbana	University of Illinois	
	INDIANA	
Bloomington	Indiana University Library	
Decatur	Public Library	
Fort Wayne	Carnegie Library	Alfred Grindle
Indianapolis	City Library	Paul B. Cret
Indianapolis	State Library	Edwin May
	IOWA	
Des Moines	State Historical Library	Smith & Gutterson
Des Moines	Iowa State Library	Oliver O. Smith
	KANSAS	
Kansas City	Carnegie Library	W. W. Rose
Lawrence	Un. of Kansas Library	Van Brunt & Howe
Topeka	State Library	E. T. Carr, J. G. Haskell
	KENTUCKY	
Huntington	Public Library	
Lexington	Public Library	H. L. Rowe
Paducah	Carnegie Library	A. L. Lassiter
	MAINE	
Augusta	Maine State Library	G. Henri Desmond
Bangor	Penobscot Co. Law Library	
	MARYLAND	
Annapolis	State Library	
Baltimore	Baltimore Bar Association	
Baltimore	St. Mary's Seminary	Maginnis & Welch
	MASSACHUSETTS	
Boston	Harvard School of Business	H. G. Balcom
Boston	Mass. Historical Society	
Boston	State Law Library	Chas. Brigham
Boston	Museum of Fine Arts	Guy Lowell
Cambridge	Harvard Un. Law Library	Shepley, Rutan & Coolidge
Cambridge	Harvard School of Business Adm.	McKim, Mead & White
Holyoke	Holyoke Public Library	
Lawrence	Lawrence Public Library	
Lynn	Lynn Historical Society	William Aldrich
New Bedford	Public Library	Nat C. Smith
South Hadley	Mt. Holyoke College Library	George F. Newton
Wellesley	Wellesley College Library	Coolidge & Carlson
	MICHIGAN	
Ann Arbor	University of Michigan	Albert Kahn
Ann Arbor	University of Michigan, Legal Research Building	York & Sawyer
Detroit	University of Detroit	Malcomson & Higginbotham
Houghton	Michigan College of Mines	Charlton & Keunzli
	MINNESOTA	
Duluth	Public Library	
Minneapolis	Public Library	Chas. A. Aldrich
Minneapolis	University of Minnesota	Clarence H. Johnston
St. Paul	State Historical Library	Clarence H. Johnston
	MISSOURI	
Columbia	University of Missouri	Jamieson & Spearl
Jefferson	Missouri State Library	Mariner & La Blaume
St. Louis	Washington University	Cope & Stewardson

City	Library	Architect
	MONTANA	
Bozeman	Montana State College	
Helena	State Law Library	Card & Hawksworth
	NEBRASKA	
Lincoln	Lincoln Carnegie Library	Fisher & Lawrie
Lincoln	University of Nebraska	
Omaha	Omaha Public Library	Walker & Kimball
	NEVADA	
Carson City	State Library	M. J. Curtis
	NEW HAMPSHIRE	
Bennington	Dodge Memorial Library	
Dover	Dover Public Library	J. E. Randlett
	NEW JERSEY	
Newark	Free Public Library	Rankin & Kellog
Passaic	Reed Memorial Library	John F. Jackson Co.
	NEW YORK	
Albany	State Ed'l Building	Palmer, Hornbostel & Jones
Buffalo	Buffalo Historical Society	
Brooklyn	Polytechnic Institute	William B. Tubby
Brooklyn	Public Library	R. F. Armiral
Ithaca	Cornell University Library	Miller & Mallory
New York City	Columbia University Library	McKim, Mead & White
New York City	Jewish Theological Seminary	Gehron & Ross
New York City	Fordham University	Emile G. Perrot
New York City	Municipal Building	
New York City	Teachers' College	
Poughkeepsie	Vassar College Library	Allen & Collens
Syracuse	Public Library	James A. Randall
Utica	Utica Public Library	
	NORTH CAROLINA	
Asheville	Pack Memorial Library	Edward L. Tilton
Charlotte	Carnegie Library	J. M. McMichael
	NORTH DAKOTA	
Fargo	Public Library	Hancock Brothers
	OHIO	
Canton	Public Library	Guy Tilden
Cincinnati	Cincinnati College	Tietig & Lee
Cincinnati	Public Library	James W. McLaughlin
Cleveland	Cleveland Law Library Ass'n	
Columbus	Supreme Court Law Library	
Columbus	Public Library	
Dayton	Dayton Library and Museum	Peters & Burns
	OKLAHOMA	
Muskogee	Muskogee Public Library	Henry D. Whitefield
Norman	University of Oklahoma	Layton, Hicks & Forsyth
Oklahoma City	University of Oklahoma	
	PENNSYLVANIA	
Erie	Public Library	Alden & Harlow
Harrisburg	South Office Building No. 2	Gehron & Ross
Harrisburg	State Law Library	Jos. M. Huston
Philadelphia	Free Library of Philadelphia	Horace Trumbauer
Philadelphia	Philadelphia City Law Library	J. McArthur
Philadelphia	University of Pennsylvania	Furness & Evans
Pittsburgh	Allegheny County Law Library	Alden & Harlow
Pittsburgh	Carnegie Library	Alden, Harlow & Jones
	RHODE ISLAND	
Newport	U. S. Naval War College	
Providence	Public Library	Stone, Carpenter & Wilson
	SOUTH CAROLINA	
Rock Hill	Winthrop College	Edwards & Sayward
	SOUTH DAKOTA	
Sioux Falls	Carnegie Library	Joseph Schwartz
Vermillion	University of South Dakota	Joseph Schwartz
	TENNESSEE	
Chattanooga	Public Library	R. H. Hunt
Memphis	Cossitt Library	L. B. Wheeler
Nashville	Carnegie Library	Albert R. Ross
	Fisk University	Henry C. Hibbs
	TEXAS	
Austin	University of Texas	Cass Gilbert
Dallas	Dallas Public Library	
	UTAH	
Salt Lake City	State and County Law Library	
	VERMONT	
Burlington	University of Vermont	W. H. Richardson
	VIRGINIA	
Charlottesville	Law Dept. University of Virginia	
Richmond	State Law Library	W. M. Poindexter
Williamsburg	William and Mary College	Charles M. Robinson
	WASHINGTON	
Olympia	Washington State Library	
Seattle	University of Washington	E. O. Eastwood
	WEST VIRGINIA	
Charleston	West Virginia State Capitol	Cass Gilbert
Morgantown	West Virginia University Library	
	WISCONSIN	
Madison	State Law Library	Geo. B. Post & Sons
Madison	State Historical Society	Edw. Tough
Madison	University of Wisconsin	
Milwaukee	Milwaukee Public Library	Van Run & DeGelleke
	WYOMING	
Cheyenne	State Library	

ART METAL HOSPITAL EQUIPMENT

Art Metal manufactures a complete line of Hospital Equipment in both Flush and Free Standing Types. (See list on following page.)

The Flush Type, as illustrated below, is growing in popularity because it has ably proved its worth from the standpoints of sanitation, adaptability and appearance.

Following is a brief summary of the advantages of Art Metal Flush Type Hospital Equipment.

(1) Flush, built-in construction providing bond with tile or plaster at all faces.

(2) Two-piece cabinet design permitting frames to be installed with the building walls.

(3) Finished cabinets to be held until building is broom clean.

(4) Assembly without visible attachments or joints.

(5) Sanitary inside cove construction.

(6) Elimination of dirt pockets.

(7) Facilities for cleaning and dusting.

(8) Acid resisting, baked enamel finish.

(9) No-bolt shelf adjustment.

(10) Nationwide Service Organization.

ART METAL FLUSH TYPE CASE WORK IN THE HILLMAN HOSPITAL, BIRMINGHAM, ALA.

BERLIN & SWERN, Architects
H. B. WHEELOCK, Associate Architect



MODERN METAL EQUIPMENT



ART METAL BLANKET WARMERS



A WELL PLANNED ASSEMBLY OF SHELVES WITH DOORS, DRAWERS AND CABINETS

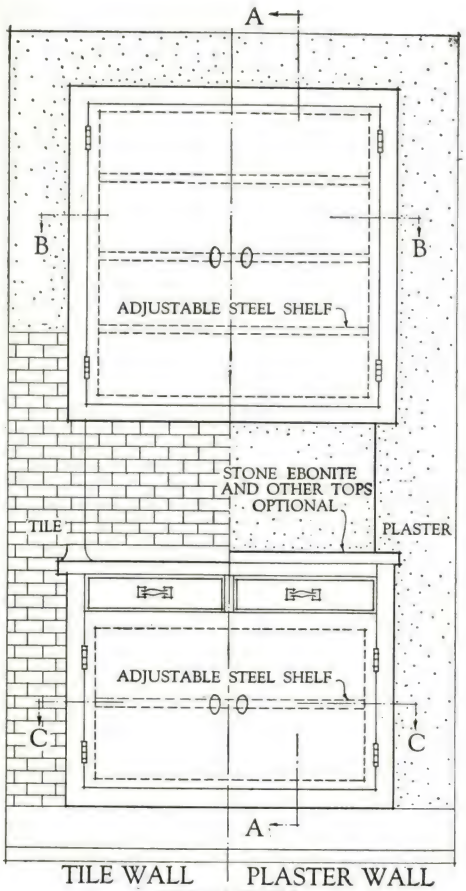


HOLLOW METAL COUNTERS

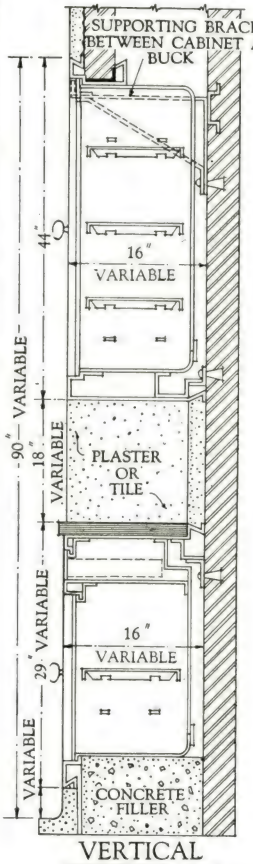
SCALE 1 1/2" = 1 FT.

ART METAL HOSPITAL CABINETS

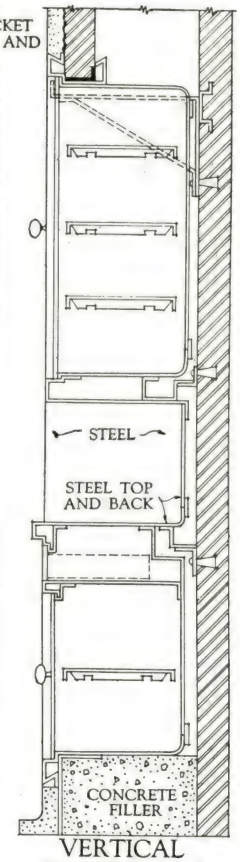
PLATE 1



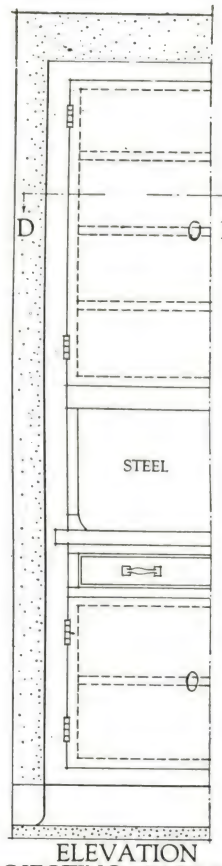
TILE WALL PLASTER WALL ELEVATION



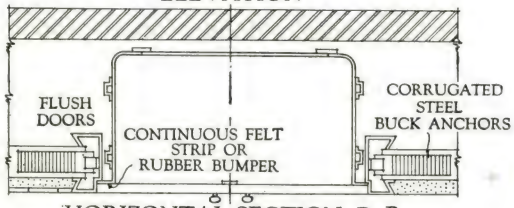
VERTICAL SECTION A-A



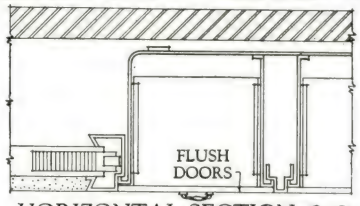
VERTICAL SECTION A-A



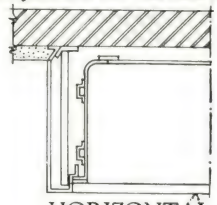
ELEVATION PROJECTING CABINET



HORIZONTAL SECTION B-B



HORIZONTAL SECTION C-C

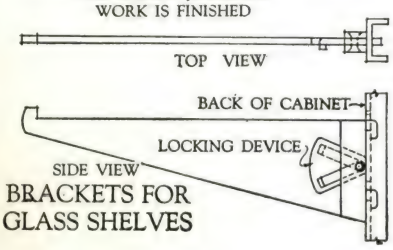


HORIZONTAL SECTION DD

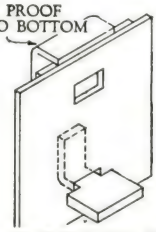
BUILT IN CABINET BUCKS ARE BUILT INTO THE WALL CONSTRUCTION THE CABINETS PROPER ARE SET INTO THESE BUCKS AFTER ALL OTHER INTERIOR WORK IS FINISHED

BUILT-IN CABINETS

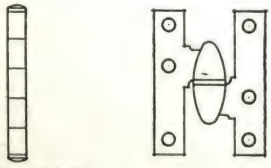
PROJECTING CABINET



BRACKETS FOR GLASS SHELVES



ADJUSTABLE SUPPORT FOR STEEL SHELVES



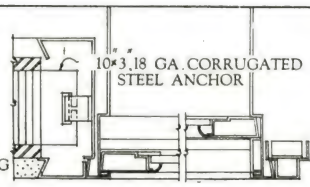
BUTTON TIP BRONZE HINGES

PAUMELLES ALTERNATE

HARDWARE USED WITH CABINETS



VERTICAL SECTION



HORIZONTAL SECTION

SLIDING DOOR CASES

FLUSH TYPE AND FREE STANDING HOSPITAL EQUIPMENT

Drying Racks
Supply Cabinets
Illuminating and Viewing Cabinets
Utensil Cabinets and Racks
Special Gown Cabinets
Toy Cabinets
Steam Dryers
Suction and Pressure Gauge Cabinets
Solution Warming Cabinets
Instrument Cabinets
Titration Tables
Bed Pan Racks
Dressers
Rubber Sheet Cabinets
Shelving
Towel Warmers
Blanket Warmers
Drying Racks and Cabinets
X-Ray Viewing Cabinets
Fire Extinguisher Cabinets
Narcotic Cases
Ether Cabinets
Medicine Cases
Kitchen Equipments, including:
Monel Metal Sinks
Drain Boards
Cabinets



MEDICAL SUPPLIES STORAGE CASE



MEDICAL CASE IN TYPICAL SERVICE ROOM



TYPICAL CORRIDOR ENCLOSURE

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD.
Joseph Evans Sperry, Architect

RECENT ART METAL HOSPITAL INSTALLATIONS

Installation	Art Metal	Architects
Allentown Hospital, Allentown, Pa.	Hospital Equipment	Ruhe & Lang, Architects
Babies' Dispensary and Hospital, Western Reserve University, Cleveland, Ohio	Hospital Equipment	Abram Garfield
Battle Creek Sanitarium, Battle Creek, Mich.	Hospital Equipment	M. J. Morehouse, Chicago, Ill.
Bryn Mawr Hospital, Bryn Mawr, Pa.	Hollow Metal	Zanzinger, Borie & Medary
Boston City Hospital, Boston, Mass.	Hollow Metal	Ritchie, Parsons & Taylor
Bucyrus City Hospital, Bucyrus, Ohio	Hospital Equipment	Thomas D. McLaughlin
Charlotte-Hungerford Hospital, Torrington, Conn.	Hospital Equipment	Crow, Lewis & Wick, New York, N. Y.
Children's Hospital, Neurological Unit, Boston, Mass.	Hollow Metal	Coolidge, Shepley, Bulfinch & Abbott
Cleveland Clinic Hospital, Cleveland, Ohio	H. M. and Hospital Equipment	Ellerbe & Co.
Coney Island Hospital, Brooklyn, N. Y.	Hospital Equipment	George M. McCabe, New York, N. Y.
Henry Ford Hospital, Detroit, Mich.	Hospital Equipment	Albert Kahn, Inc.
Hahneman Hospital, Philadelphia, Pa.	Hollow Metal	Pettit & Ferris, and H. Hall Marshall
Hillman Hospital, Birmingham, Ala.	Hospital Equipment	Berlin & Swern
Holy Name of Jesus Hospital, Gadsden, Ala.	Hospital Equipment	Schmidt, Garden & Erikson
Johns Hopkins Medical and Surgical Clinics, Johns Hopkins University, Baltimore, Md.	Hospital Equipment	Joseph Evans Sperry
Kings County Hospital, Brooklyn, N. Y.	Hollow Metal	Le Roy P. Ward
Maine General Hospital, Portland, Me.	Hollow Metal	Coolidge, Shepley, Bulfinch & Abbott
Mercy Hospital, Davenport, Iowa	Hospital Equipment	Schmidt, Garden & Erikson
Mount Sinai Hospital, New York, N. Y.	Hospital Equipment	Coolidge, Shepley, Bulfinch & Abbott
New York Hospital, New York, N. Y.	Hospital Equipment and Hollow Metal	Philip H. Johnson
Philadelphia General Hospital, Philadelphia, Pa.	Hollow Metal	Irwin & Leighton
Presbyterian Hospital, Philadelphia, Pa.	Hollow Metal	Sullivan W. Jones and J. E. Kleist
Queens General Hospital, New York, N. Y.		John Russell Pope
Roosevelt Memorial Hospital, New York, N. Y.	Hospital Equipment	Jacoby & Everett
Sacred Heart Hospital, Allentown, Pa.	Hospital Equipment	Schmidt, Garden & Erikson
Sheboygan Memorial Hospital, Sheboygan, Wis.	Hospital Equipment	Eastman & Budke, and M. W. Lethly
Springfield City Hospital, Springfield, Ohio	Hospital Equipment	Crow, Lewis & Wick, New York, N. Y.
St. Luke's Hospital, Newburg, N. Y.	Hollow Metal	Alan B. Mills, State Engineer
State Hospital, Morris Plains, N. J.	Partitions	State Engineer
State Hospital for Insane, Trenton, N. J.	Hospital Equipment	Kendall, Taylor Co.
Whidden Memorial Hospital, Everett, Mass.		



STEEL and BRONZE INTERIOR EQUIPMENT

FOR

BANKS
LIBRARIES
PUBLIC BUILDINGS
HOSPITALS

Hollow Metal Doors
Elevator Enclosures and Cabs
Partitions
Ornamental Bronze
Counters and Cages
Bookstacks and Shelves
Museum Cases
Library Accessories
Bulletin Boards
Hospital Case Work



ART METAL CONSTRUCTION COMPANY
JAMESTOWN, N. Y., U. S. A. and LONDON, ENGLAND

CLEAR-VISION COUNTERS, INC.

Operating Under Domestic and Foreign Patents
FORMERLY JOHN POOLE

3214 Woodley Road, N. W.
WASHINGTON, D. C.

JOHN POOLE "CLEAR VISION" OR "FRIENDLY" COUNTER

License

We license the use of this system, and shall quote a license fee to any one interested, the fee being based upon the number of feet of counter used.

Patents

Each bidder shall include in his estimate a sum sufficient to cover the license on the low-type counter. These patents—No. 1,210,802; 1,235,567; 1,420,942; 1,673,639—are owned and licenses are issued by CLEAR-VISION COUNTERS, INC., 619 Fourteenth Street, Washington, D. C.

Application

The drawing below clearly indicates both the form and construction of this unique counter for banks, brokers' offices, building and loan association offices and, in fact, for all types of offices in which a cage or partition was formerly considered necessary for the protection of the person in charge and the cash he was handling.

Advantages of the "Clear-Vision" Counter

Light and vision are greatly improved.

Ventilation is much better because of the absence of high partitions and glass.

Greater protection is assured due to the visibility of the working quarters.

The absence of high partitions gives the effect of a larger room.

The counter forms a continuous window and every foot is available for service if needed, thus allowing the maximum flexibility and elasticity.

It is cheaper to build because less material and labor are required.

Fifty per cent greater utility of floor space is obtained.

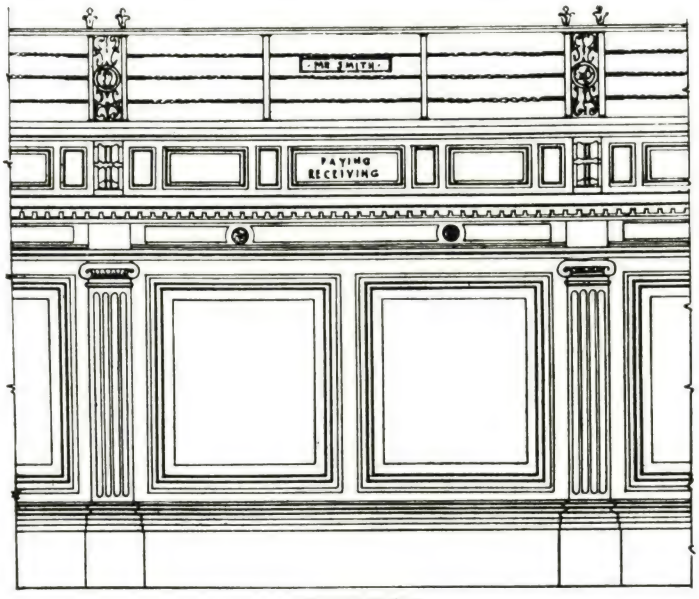
More intimate relations between customer and teller are established.

Special Construction

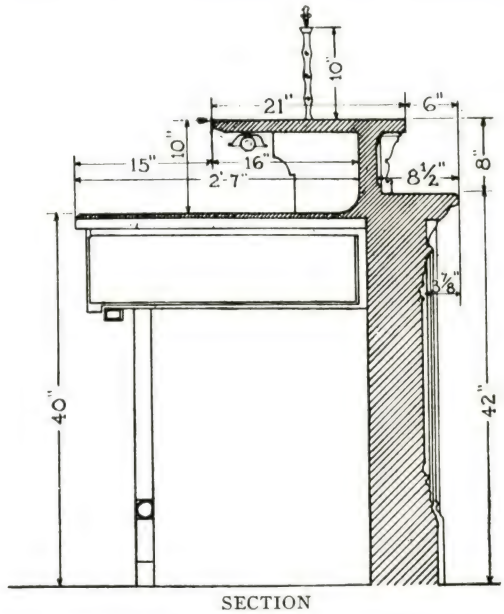
Each counter is constructed in accordance with the architect's own details and specifications, which naturally will reflect the architect's and prospective user's own individual ideas and tastes.

Some Installations of the John Poole "Clear-Vision" Counter

Federal-American National Bank, Washington, D. C.
Chase National Bank, New York, N. Y.
City National Bank & Trust Co., Bridgeport, Conn.
Hartford National Bank & Trust Co., Hartford, Conn.
Indiana Trust & Savings Bank, Evansville, Ind.
National Shawmut Bank, Boston, Mass. (Branch)
Framingham Trust Company, Framingham, Mass.
Farmers & Mechanics Bank, Ann Arbor, Mich.
State Bank & Trust Company, New York, N. Y. (Branch)
Savings Bank of Utica, Utica, N. Y.
First National Bank, Grand Forks, N. D.
Barclay-Westmoreland Trust Co., Greensburg, Pa.
Atlanta and Lowry National Bank, Atlanta, Ga. (Branch)



ELEVATION



SECTION

ONE POPULAR TREATMENT OF THE "CLEAR-VISION" COUNTER
Upon request we will gladly furnish a booklet showing architectural treatments

THE GLOBE-WERNICKE COMPANY

CINCINNATI, OHIO

EASTERN FACTORY: AVENEL, N. J.

BRANCH OFFICES, DEALERS AND EQUIPMENT ENGINEERS IN PRINCIPAL CITIES

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STEEL SHELVING.
OFFICE FURNITURE.
BANKING EQUIPMENT.
COURTHOUSE EQUIPMENT.
SPECIAL BUILT EQUIPMENT.
Complete Public Building Installations.

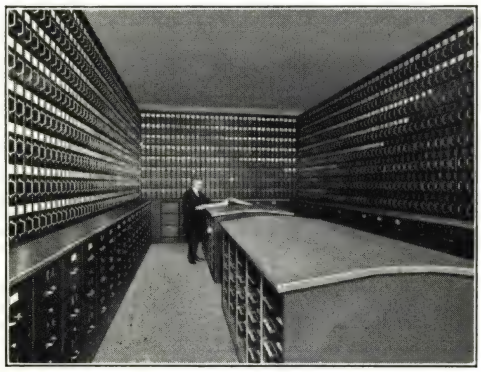


Maricopa County Courthouse, Phoenix, Ariz.
EDW'D F. NEILD, Architect.

Established in 1882

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Courthouses.
Municipal Buildings.
Banks.
Office Buildings.
Libraries.
Hospitals.
Schools and Colleges.
Corporations.



State Capitol, Olympia, Wash.
WILDER & WHITE, Architects.



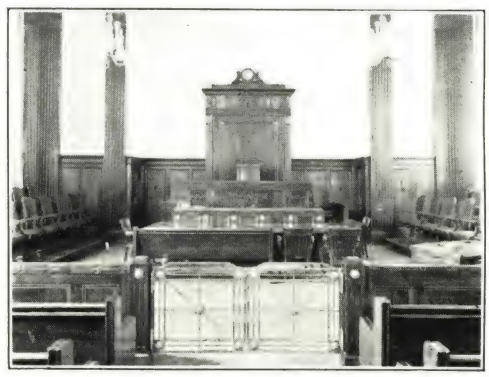
Providence County Courthouse, Providence, R. I.
JACKSON, ROBERTSON & ADAMS, Architects.

STEEL AND WOOD EQUIPMENT



Davies County Courthouse, Washington, Ind.
SUTTON & ROUTT, Architects.

Below
Hunt County Courthouse, Greenville, Tex.
WM. RAGSDALE, Architect.



Orleans Parish Criminal Courts and Jail Building, New Orleans, La.
DIBOLL & OWEN, Architects.



We maintain a service department for surveys, plans, specifications, and estimates.

We are in position to handle complete interior requirements.

SOME GLOBE-WERNICKE INSTALLATIONS



Richmond Public Library, Richmond, Va.
BASKERVILLE & LAMBERT, Architects
EDWARD L. TILTON, Consultant

"Interiors of Distinction"

Complete catalogues of all stock equipment sent on request



John Howe Library, Albany, N. Y.

Miscellaneous

Maricopa County Courthouse, Phoenix, Ariz., Edw. F. Neild	
Denver, Colo., Fisher & Fisher	Denver National Bank
Orlando, Fla., Howard F. Reynolds	First National Bank
Atlanta, Ga., Lloyd F. Preacher	City Hall
Corydon, Ind., Fowler & Karges	Harrison County Court house
Washington, Ind., Sutton & Routt	Davies County Court-house
Topeka, Kan., Ora Williamson	High School
New Orleans, La., Diboll & Owen	Orleans Parish County Courthouse
Poplar Bluff, Mo., N. S. Spencer & Son	Butler County Court-house
Asheville, N. C., Milburn Heister	Buncombe County Court-house
Ashland, Ohio, Vernon Redding & Assoc.	Ashland County Court-house
St. Bernard, Ohio, Paul Jones	Citizens Bank
Cincinnati, Ohio, Tietig & Lee	Morris Plan Bank
Toledo, Ohio, Edward M. Gee	Woodward High School
Pittsburgh, Pa., York & Sawyer	Allegheny, General Hospital
Roseburg, Ore., Toutellotte & Hummel	Darby County Court-house
Providence, R. I., Jackson, Robertson & Adams	Providence County Courthouse
Springfield, Tenn., Dougherty & Gardner	Robertson County Court-house
Hoquaim, Wash., J. De Forrest Griffin	City Hall
Chehaulis, Wash., Edwin St. John Griffith	Lewis County Court-house
Olympia, Wash., Wilder & White	State Capitol
Olympia, Wash., Jos. Wohleb	Thurston County Court house
Milwaukee, Wis., Richard Phillip,	Marshall and Ilsley Bank
Hamilton, Ohio, Weary & Alford	2nd National Bank
Bisbee, Ariz., Roy Place	Cochise County Court-house
Tucson, Ariz., Roy Place	Pima County Courthouse



Western Hills High School, Cincinnati, Ohio



Denver National Bank, Denver, Colo.
WM. E. & ARTHUR A. FISHER, Architects

Libraries

New Haven, Conn.,	Fair Haven High School
Wilmington, Del., E. W. Martin	Kennet Square School
Cambridge, Ill.,	Gruey Memorial Library
Muncie, Ind., Houck & Smenner	Grace Keiser Maring Public Library
New Orleans, La., Favort & Livoudais	Tulane University
Detroit, Mich., Henly & McGill	Shrine of the Little Flower
Albert Lea, Minn., Hamilton, Fellows & Nepyed	High School
Virginia, Minn., J. A. Codding	Northside Branch
Paterson, N. J.,	Public Library
Albany, N. Y.,	John Howe Public Library
New York, N. Y.,	Board of Education
New York, N. Y., Metropolitan Museum of Art	
Wilmington, N. C.,	Sheppard Memorial Library
Winston Salem, N. C.,	Board of Education
Cincinnati, Ohio,	Western Hills High School
Dayton, Ohio, Pretzinger & Musselman	North Dayton Branch
Philadelphia, Pa.,	Temple University
Reading, Pa.,	High School
Wilkes Barre, Pa., High School Libraries.	Elmer Meyers and Jas. Coughlin
Richmond, Va., Baskerville & Lambert and E. L. Tilton, Consultant	Dooley Memorial Library



Western Bank & Trust Co., Cincinnati, Ohio
TIETIG & LEE, Architects

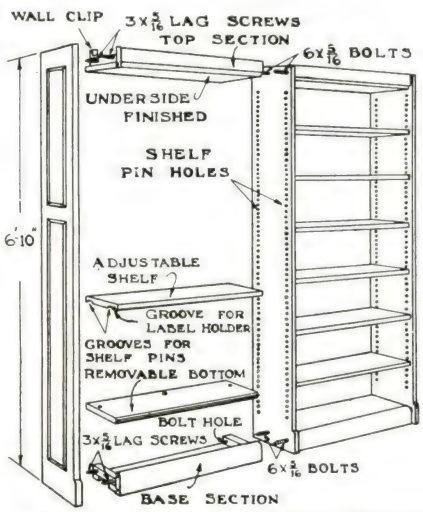
For Steel and Wood Partitions see Manufacturers' Index



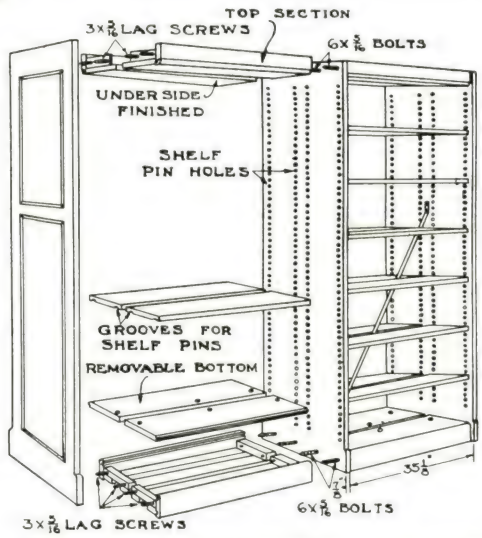
Western Bank & Trust Co., Cincinnati, Ohio
TIETIG & LEE, Architects

Globe-Wernicke

LIBRARY EQUIPMENT



WALL TYPE BOOK SHELVING



DOUBLE FACED BOOK SHELVING

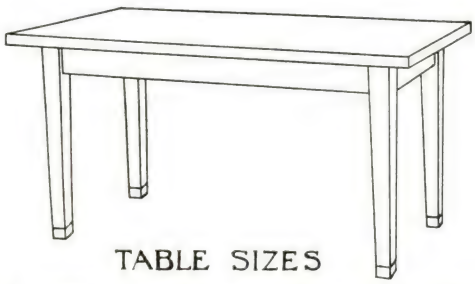
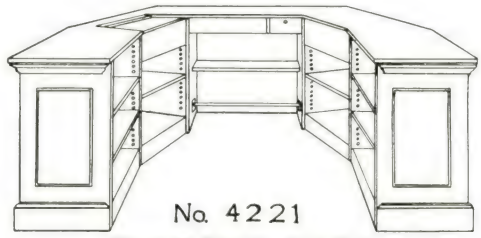


TABLE SIZES

No. 4245	52"	LONG •	30"	DEEP • 26" OR 28" HIGH
No. 4245-1 •	78"	"	30"	" • 26" OR 28" "
No. 4245-2 •	72"	"	36"	" • 26", 28" OR 30" HIGH
No. 4245-3 •	60"	"	36"	" • 26", 28" OR 30" "
No. 4245-4 •	90"	"	36"	" • 26", 28" OR 30" "
No. 4245-5 •	120"	"	36"	" • 30" HIGH

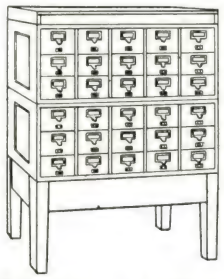


No. 4221

CHARGING DESK

SIZE • 7'-6" WIDE • 6'-11 7/8" DEEP • 2'-8 1/2" HIGH

OTHER TYPES SHOWN IN OUR CATALOGUE



3317 • TOP

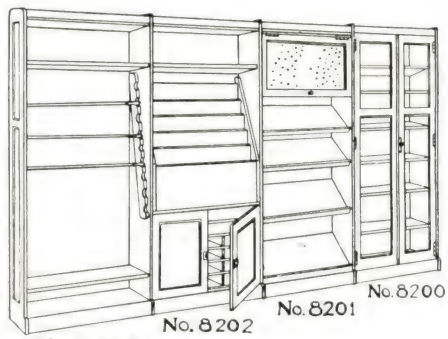
3317-3R • 15 TRAY UNIT

3317-3R • 15 TRAY UNIT

3317-B16 • LEG BASE

30-TRAY CARD CATALOGUE CASE

SIZE • 2'-9" WIDE • 1'-5" DEEP • 3'-8 3/4" HIGH



No. 8203 NEWSPAPER RACK

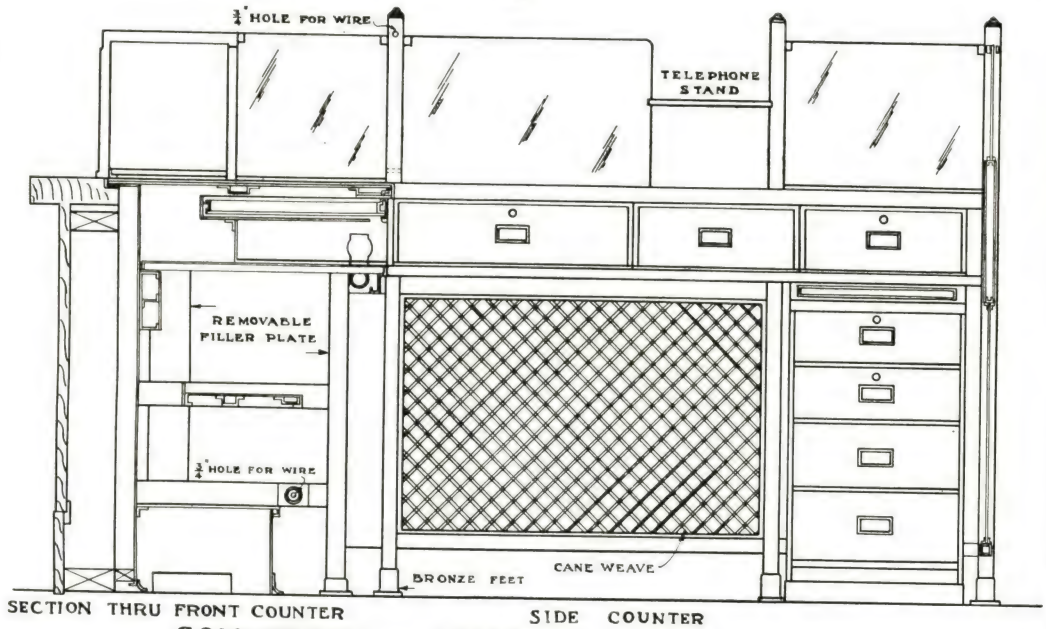
No. 8202 MAGAZINE RACK & CUPBOARD

No. 8201 MAGAZINE RACK 12" DEEP & BULLETIN BOARD

No. 8200 BOOKCASE WITH GLASS DOORS

Globe-Wernicke

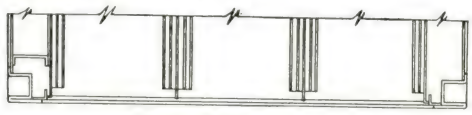
BANK COUNTERS



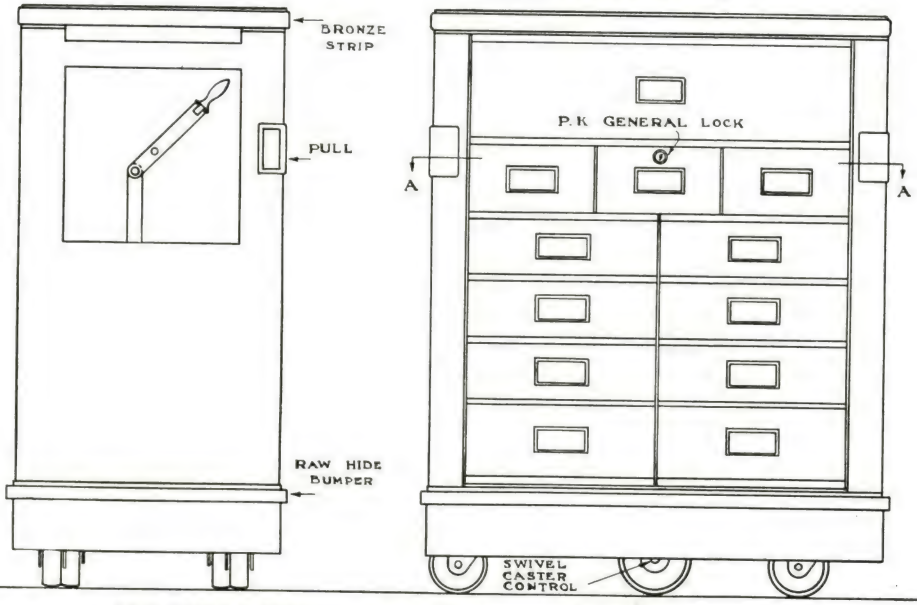
SECTION THRU FRONT COUNTER

SIDE COUNTER

COMMERCIAL TELLERS CAGE



SECTION A-A



COMMERCIAL TELLERS TRUCK

JAMESTOWN METAL EQUIPMENT COMPANY

INCORPORATED

Metal Furniture and Equipment for Banks, Hospitals, Libraries, General Offices and Public Buildings

GENERAL OFFICE AND FACTORY
JAMESTOWN, N. Y.

NEW YORK CITY OFFICE, 205 East 42nd Street

Products

FURNITURE and EQUIPMENT in METAL: Bank Equipment; Library Stacks; Metal Furniture for Offices; Metal Equipment for Hospitals; Steel Shelving; Metal Partitions; Courthouse Fixtures; Vault Interiors.

Furnished in stock designs and built to architects' specifications.

TRADE-MARK

Quality

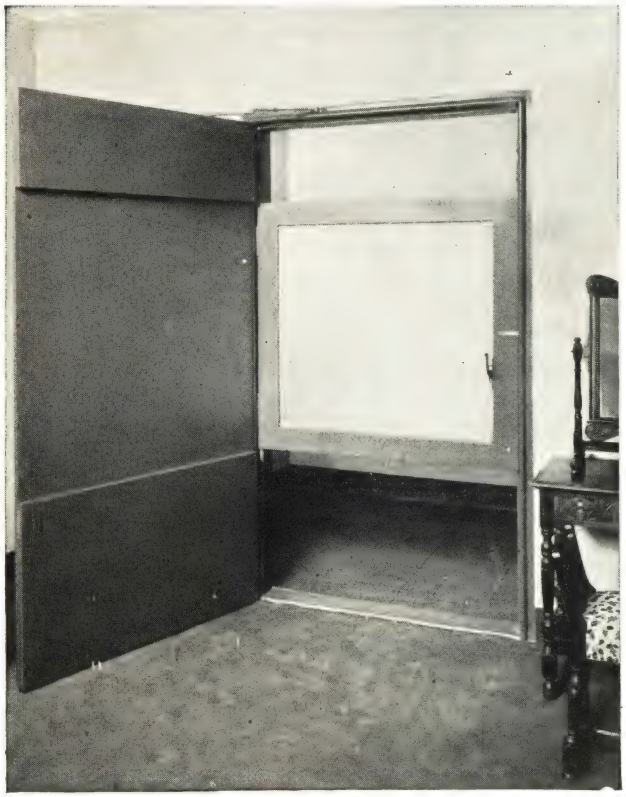
Jameco equipment is built to give uninterrupted service and the utmost efficiency in a minimum space. Careful attention is given each detail of construction and all finishes are oven baked to make their beauty permanent.

The handsome appearance of Jameco equipment is the result of well balanced design and many refinements of construction that experience has shown to be essential to a good product.

Privador for Hospitals

Interlocking flap door eliminates the inconvenience of screens that swing into the corridor.

Write for complete information.

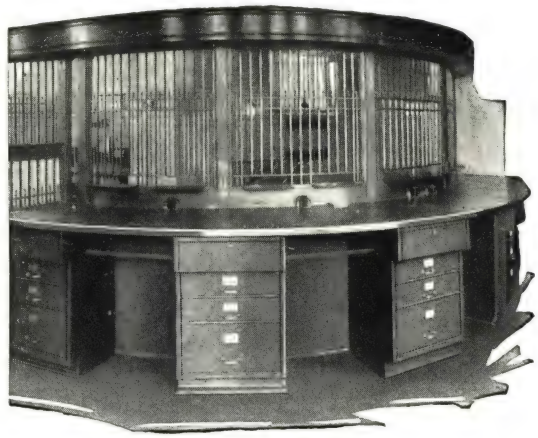


Privador for Hospitals

Construction

Designing and engineering is under the supervision of capable men who have had long experience in building steel equipment of quality. The materials are carefully selected from the most suitable stocks and fabricated with modern machinery and equipment by skilled craftsmen.

Architects are invited to refer inquiries to us for estimates, submission drawings or details of construction. This service is furnished without cost or obligation.



Metal Counter and Screen

Deliveries

Shipment and installation schedules are under constant supervision and delivery is made to conform with the requirements of each project.

Catalogue

Complete catalogues of Jameco Products will be mailed upon request.

Some of Our Recent Installations

Chatham & Phoenix National Bank, Empire State Building, New York, N. Y., Louis S. Weeks, Architcet

Boulevard Trust Co., Boston, Mass., J. Williams Beal Sons, Architects

Delaware County Courthouse, Media, Pa., Clarence Wilson Brazer, Architect

Brooklyn Memorial Hospital, Brooklyn, N. Y., Lord & Hewlett, Architects

Pontiac General Hospital, Pontiac, Mich., Leo. J. Heenan, Architect

Los Angeles County Farm Hospital, Hondo, Cal., Karl W. Muck, Architect

REMINGTON RAND BUSINESS SERVICE, INC.

Manufacturers of Bank and Business Equipment

BUFFALO, N. Y.

PRODUCTS AND SERVICES

REMINGTON RAND BANK PEDESTALS, BANK COUNTERS and SCREENS, SAFE-CABINET VAULT DOORS, SAFE-CABINETS for protection of business records and books.

Also, Bank Vault Equipment and Safe-Files, Safe-Desks, Safe-Kardex Visible Cabinets; Library Bureau Filing Equipment; Steel Shelving for stockrooms and stores; Steel Desks and Tables; Steel Library Bookstacks; Wall Safes and numerous other Filing and Storage Equipment not described or illustrated.

TRADE-MARK

So extensive is the line of steel bank and business equipment manufactured by the REMINGTON RAND BUSINESS SERVICE, INC., that we are safe in stating that the architect, the builder and the business executive can quickly solve their problems of supply, space arrangement and filing by consulting our experts. They will gladly co-operate without obligating you.

REMINGTON RAND BANK PEDESTALS



Our years of experience in bank equipment construction, including specially designed counters, enable us to offer this bank pedestal as a most necessary stock unit. It has much to recommend it for its convenience and variety of ways in which it may be utilized.

The bank pedestal is a four-drawer unit, with drawers mounted on standard progressive suspension slides. Top drawer may be equipped with removable till and coin compartments and the drawers may be divided by partitions to suit any requirement. Attractive countersunk cast bronze pulls are standard equipment.

Bases, setting back 4 ins., are supplied which will raise the pedestal to any specified height.

Steel tops are standard. A continuous linoleum top is usually built to cover the entire counter. A brass cove moulding may be applied to top to prevent checks and papers slipping between the pedestals.

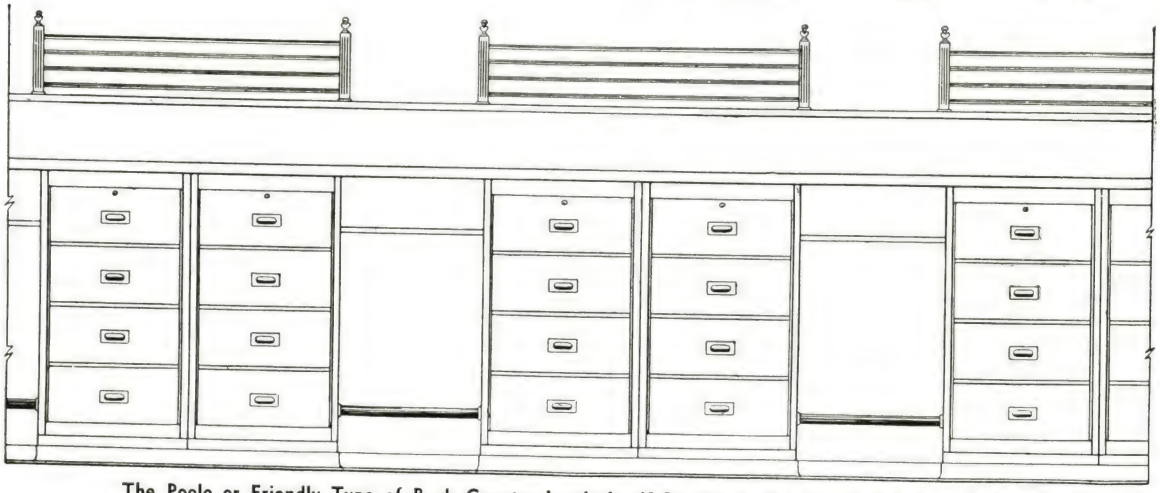
Flexibility and ease of erection are favorable advantages. Local contractors can erect these units without factory supervision, and dismantling is easily effected without effort, or damage to units.

To make a complete counter it is necessary, in addition to the pedestal units, to provide knee space, foot rests, pistol shelves, panels to cover inside of counter front at knee spaces, bronze plates with bronze cove moulding where top joins the counter front, bronze plates or binding with cove mouldings around the base to protect from kicking or mopping, glass deal plates countersunk in counter top at each window or wicket. All of these items are available through Remington Rand expressly for stock pedestals.

Where counters must fit around columns or are to be of special shape, sketches must be submitted to our estimating department at Tonawanda, N. Y. for prices.

PEDESTAL DIMENSIONS

	Width, in.	Height, in.	Depth, in.
Outside over all.....	22	34 5/8	25 3/8
Inside of drawer.....	18 1/4	6 1/2	23 3/8



The Poole or Friendly Type of Bank Counter Lends Itself Readily to the Use of R-R Bank Pedestals

The rear elevation of a Friendly type counter showing two pedestals to one knee space. This allows about 6 lin. ft. of counter to each teller. Can be used in single columns and for corner arrangement



Left:

Remington Rand Standard Counter Pedestals Used in East New York Savings Bank, Brooklyn, N. Y.

Remington Rand standard counter pedestals are here utilized for active window service in one of the busiest savings banks in Greater New York



Right:

Remington Rand Standard Bank Pedestals Meet the Requirements of All the Tellers of the Lincoln National Bank & Trust Company, Syracuse, N. Y.



Left:

Remington Rand Counter Pedestals in Artisans Savings Bank, Wilmington, Del.

These counter pedestals preserve the uniformity of appearance and provide the element of convenience for all clerks who have contact with the public



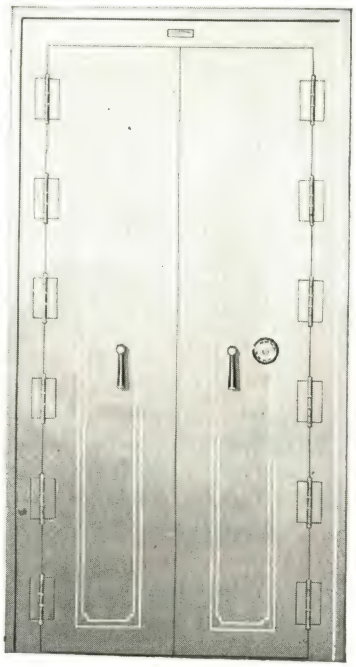
Right:

Remington Rand Safe-Cabinets in Office of Guardian Trust Co., Cleveland, Ohio

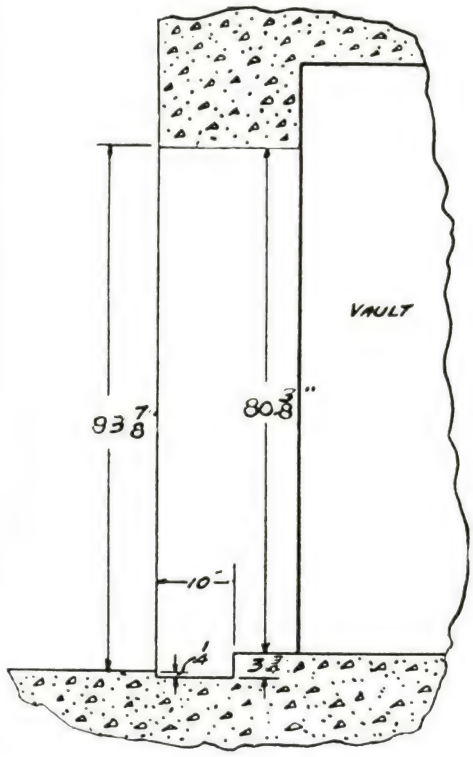
Safe-Cabinets here house the active visible Kardex records of the manifold trust activities of this large and widely known bank

SAFE-CABINET INSULATED VAULT DOORS

Vaults fail to protect their contents against fire, not so frequently because of structural weakness of the walls as because of improper construction of the doors. Many vault doors are of the "fire door" type, uninsulated, preventing direct contact with flame, but offering little resistance to heat of any intensity.



The vault, in which valued records are stored, should be equipped with a door comparable to that used on well made record safes. The door should be insulated.



Safe-Cabinet Vault Doors are insulated on the same principles which govern manufacture of its line of record safes. Their insulation is a monolith, cast in one piece, in which the reinforcing members are protected against the effects of heat. The insulation contains less than 1 per cent of free (evaporable) moisture. Its ability to resist heat is permanent. It involves no corrosion of metal parts.

Safe-Cabinet Insulated Vault Doors are Made in Two Models:

Severe Exposure—To withstand uniform exposure on the face of the door, according to a standard test schedule, to heat reaching 2,000° F. at the end of three hours, before the temperature inside the vault chamber reaches 300° F.

Medium Exposure—To withstand uniform exposure on the face of the door, according to a standard heat schedule, to heat reaching 1950° F. at the end of two hours, before the temperature inside the vault chamber reaches 300° F.

Underwriters' Laboratories Label

The Severe Exposure Model also bears the "six-hour" label of the Underwriters' Laboratories, Inc.

Vestibule Jamb

The vestibule jamb is filled with insulating material. It is equipped with tongues and grooves registering with tongues and grooves of the door. It is additionally reinforced by angle construction.

Wall Thickness

Safe-Cabinet Insulated Vault Doors are designed for a minimum wall thickness of 10 ins. but can be inserted without difficulty in openings of greater thickness. We recommend 10-in. thickness for reinforced concrete and 12-in. thickness for brick or plain concrete.

Safe-Cabinet Insulated Vault Doors can be built directly into a vault wall by passing anchor bolts through the holes provided in the insulated door frame. No further grouting will then be necessary. These doors may be installed on any vault, new or old, by making slight changes in the masonry.

A strong, substantial foot bridge of $\frac{3}{16}$-in. material is furnished to cover the lower tongues and grooves and to provide runways for omnibuses.

Lock

The lock is a Yale 4-tumbler combination.

Dimensions of Door

Over all: 47 ins. wide, $87\frac{9}{16}$ ins. high. Inside or clear entrance: $31\frac{1}{2}$ ins. wide, $76\frac{3}{32}$ ins. high. Swing of door: right hand (S. E. and M. E.), $18\frac{11}{16}$ ins.; left hand, $22\frac{11}{16}$ ins. for M. E., $24\frac{5}{16}$ ins. for S. E.

Dimensions for Constructing Vault

Front opening, $39\frac{5}{8}$ ins. wide, $83\frac{7}{8}$ ins. high. (A pit, $\frac{1}{4}$ in. deep, beginning at the front face of the wall and extending to a depth of $10\frac{1}{4}$ ins., should be built on the lower side of the opening.) Rear opening, $80\frac{3}{8}$ ins. high for both types of doors in case the floor level is raised to the height of the bridge. The opening must be plumb and the surface must be level at the bottom.

A difference in floor level is necessary because of the tongue and groove construction of the door and of the requirements of trucks and omnibuses.

Important

The vault door should be insulated and its ability to protect its contents should be certified. To be effective as a barrier to fire, its resistance to fire should equal that of the walls of the vault itself.



THE RIESTER & THESMACHER COMPANY

Manufacturers of Special Steel Interior Equipment

1514-1526 West 25th Street
CLEVELAND, OHIO

Products

METAL EQUIPMENT for Hospitals, Libraries, Banks and Public Buildings, including Complete Institutional Cabinet Equipment, Cases, Library Stacks, Stairs, Counters, Screens, Partitions and Vault Equipment.

Exclusive Manufacturers of "BEERS DUSTITE" MUSEUM EXHIBITION and STORAGE CASES.

Also Special Equipment of every description fabricated of Steel, Bronze and the Stainless Steels.

For Hollow Metal Doors and Steel Stairs, see Manufacturers' Index.

Service

A modern plant with an efficient factory organization of thirty years' experience in the manufacture and installation of quality metal building products. An engineering department highly qualified to assist in formulating plans and specifications. Inquiries for estimates, submission drawings and typical construction details are invited.

Construction

Materials as specified are first grade, carefully selected from the best available sources and fabricated with modern equipment. Skilled craftsmen are properly supervised to maintain a high standard of precision workmanship and finish. Refinements in design and construction have been made to give better utility and flexibility in arrangement. Strict adherence to details and specifications to meet the most exacting requirements from preliminary drawings to final installation is essential in the fabrication of R. & T. products.



Cuyahoga County Jail and Criminal Courts Building, Cleveland, Ohio
WARNER & MITCHELL, Architects

Installations

A few buildings, and their architects, in which we have furnished special steel equipments of varied design:

Good Samaritan Hospital and Mutual Home and Savings Association, Dayton, Ohio, *Schenck & Williams, Architects.*

Tuberculosis Pavilion of City Hospital, Cleveland, Ohio, *Herman S. Kregelius (City Architect).*

Jefferson Medical College, Philadelphia, Pa., *H. F. Beers, Equipment Engineer.*



Central Library, Jamaica, N. Y.
R. F. SCHIRMER and J. W. SCHMIDT, Architects



American Museum of Natural History, New York, N. Y.
H. F. BEERS, Equipment Engineer

THE SHAW-WALKER COMPANY

Filing Cabinets, Safes, Office Furniture, Indexing Supplies and Recordkeeping Systems for Banks and Business Offices

FACTORY AND GENERAL OFFICES

MUSKEGON, MICHIGAN

FACTORY BRANCHES

ATLANTA, GA., 103 Marietta Street
BALTIMORE, MD., 403 First National Bank Building
BOSTON, MASS., Chamber of Commerce Building
BUFFALO, N. Y., 721 Genesee Building
CHICAGO, ILL., 210 No. Michigan Avenue
COLUMBUS, OHIO, 35 E. Gay Street
DAYTON, OHIO, 306 Third National Building
DETROIT, MICH., 3063 Penobscot Building
HARTFORD, CONN., 324-26 Pearl Street
INDIANAPOLIS, IND., 4th Floor, Meyer-Kiser Bank Building
JACKSONVILLE, FLA., 608 Laura Street
LANSING, MICH., 705 American State Savings Bank Building
MINNEAPOLIS, MINN., 513 Second Avenue, So.
NEW YORK, N. Y., 405 Lexington Avenue
OMAHA, NEBR., 226 Union State Bank Building
PHILADELPHIA, PA., 1010 Chestnut Street
PITTSBURGH, PA., 642 Liberty Avenue
PROVIDENCE, R. I., 721 Industrial Trust Building
RICHMOND, VA., 710 Mutual Building
ROCKFORD, ILL., 312 Mead Building
ST. LOUIS, MO., 715 Washington Avenue
TOLEDO, OHIO, 122-24 Superior Street
WASHINGTON, D. C., 605 Thirteenth Street, N. W.

PARTIAL LIST OF EXCLUSIVE DEALER REPRESENTATIVES

For Cities Not Given Here, Consult Your Telephone Book Under Listing "Shaw-Walker"

BIRMINGHAM, ALA., James A. Head, Inc.
BRIDGEPORT, CONN., Frank H. Fargo, Inc.
CINCINNATI, OHIO, Gibson & Perin Co.
CLEVELAND, OHIO, Helms-Gorling, Inc.
DALLAS, TEX., Parker Brothers, Inc.
DES MOINES, IOWA, Zaiser's
HOUSTON, TEX., J. E. Kirkham, Inc.
KANSAS CITY, MO., Schooley Stationery Co.
LOS ANGELES, CALIF., Barker Brothers, Inc.
LOUISVILLE, KY., Clarence R. Smith & Co.
MILWAUKEE, WIS., H. H. West Co.
NEWARK, N. J., Baker Printing Co.
NEW BRITAIN, CONN., Adkins Printing Co.
NEW HAVEN, CONN., Bradley & Scoville, Inc.
NEW ORLEANS, LA., H. C. Parker, Inc.
PORTLAND, ME., Loring, Short & Harmon
PORTLAND, ORE., Bushong & Company
SAN FRANCISCO, CALIF., Rucker-Fuller Desk Co.
SEATTLE, WASH., Seattle Office Equipment Co.
ST. PAUL, MINN., McClain & Hedman
TULSA, OKLA., Tulsa Stationery Co.

LOCAL REPRESENTATIVE

Standard Filing Cabinets

THE SHAW-WALKER COMPANY has manufactured and sold the famous line of "Built Like a Skyscraper" filing equipment for 30 years. There are over 2700 items available in this complete line. Architects specifying this equipment for use in banks or general business offices where new buildings or alteration programs are being undertaken will find it to be entirely as represented, and built to stand up under a "lifetime of service," which is the guarantee placed upon it.



These files are carried in stock fitted with drawers of all standard sizes necessary for the proper housing of business records. These drawers are of the "interchangeable insert" type, allowing a single cabinet to be fitted up with files to hold papers and records of several different sizes. The cabinets are obtainable in counter height sizes (42-in.) as well as the standard vertical or 52-in. height.

Besides these upright files, Shaw-Walker builds a complete line of stock files in horizontal and sectionet sizes which intermember in building up stacks for private offices, bank vaults, storerooms, etc.

Equipment Specialties

Shaw-Walker specializes in a line of stock equipment built for particular system operation needs in banks and business offices, such as insulated ledger desks and files, ledger posting trays and bases, visible card filing equipment, record desks, tellers' omnibuses, vault trucks, and check sorting racks for bank use, and so on. Equipment of special character is also built to order, following architects' specifications.

Record Keeping Systems and Supplies

A complete line of standard card indexing and filing supplies, also printed forms of record keeping, is available to the architect who wishes to furnish his equipment installation with the "inside works" to make it operate.

Special Services

Shaw-Walker services to the architect and his clients offer three distinct advantages, namely:

At Factory Headquarters and in principal branch store cities a service of layout and designing is available, rendered by filing equipment engineers and expert draftsmen. This service will be of great value to the architect in assisting him to lay out and plan his arrangement of tellers' cages, officers' quarters, record vault interiors, bookkeeping rooms, etc., in bank buildings or general office equipment layouts for business concerns.

A second valuable class of service is rendered by trained sales representatives located in all principal cities, who are capable of making analyses of operating methods in banks and general business offices, in order to recommend the character of record keeping systems and filing equipment that will be most efficient and economical.

On top of this, Shaw-Walker maintains a staff of system service supervisors who are capable of undertaking the entire work of installing any special system, including the equipment, records and indexing necessary to make it function properly.

Facilities and Guarantee

THE SHAW-WALKER COMPANY maintains showrooms in all principal cities where this equipment may be seen and complete information about it may be obtained.

Through the branches and dealers displaying this equipment the services of trained specialists are available and when necessary factory representatives can readily be called in for consultation.

There are proper facilities for completely installing all equipment and our responsibility does not cease until the customer as well as the architect is fully satisfied.

Branches and Dealers

Branches or dealers are maintained in all important centers in the United States, where complete information can be secured. If information is wanted in cities not listed above, the name of the dealer can be secured from THE SHAW-WALKER COMPANY, Muskegon, Michigan.

OFFICE EQUIPMENT

Upright Steel Filing Cabinets

All files are carried in olive green finish, walnut and mahogany, and can be delivered from any of our branch or dealer stores, where they are all on display.

No. 1070 four-drawer letter file is 52 in. high, 14¼ in. wide, 27 in. deep outside. **No. 1071** four-drawer legal file is 52 in. high, 17½ in. wide, 27 in. deep. Both files have 100-in. net filing capacity. Any drawer in either file can be taken out and 3x5-in. and 4x6-in. card double or triple compartment drawers substituted, there being two such drawers to each opening. Likewise a document drawer can be installed.



Standard Four-Drawer Upright File

Besides the letter and legal size files there are solid cabinets for filing 3x5-in. cards **(No. 1215)**; for 4x6-in. cards **(No. 1219)**; for 5x8-in. cards **(No. 1214)**; for bills and invoices **(No. 1072)**; for ledger sheets up to 12x12-in. **(No. 1220)**; check files (8 and 9 drawers, **Nos. 1216-8** and **1217)**; X-ray files **(No. 1224)**; for impairment record cards **(No. 1218)**; and tabulating machine cards **(No. 1298)**. There are also cupboard sections with and without drawers.

Five Drawer Filing Cabinet

Present day rentals have made floor space very expensive, especially in the larger cities and to meet the demand for filing capacity at a minimum cost the architect has available five drawer files which give 25% more capacity in the same amount of floor space. There are stock items in letter and legal size—the letter being 57½ in. high, 14¼ in. wide, 27 in. deep; the legal 57½ in. high, 17½ in. wide, 27 in. deep outside.

Counter Height Steel Filing Cabinet

Shaw-Walker carries a complete line of counter height equipment, consisting of files for letters, legal papers, 3x5, 4x6 and 5x8-in. cards, cupboard sections, safes, etc. These items can be set up to form a counter of almost any nature, a working top of linoleum, bound with bronze binding, finishing it off as an efficient piece of office furniture. All counter height equipment is 42 in. high, 27 in. deep outside, the width depending on the type of cabinet used.



Stock Vertical Filing Cabinets in Battery

Steel Safes and Fire Files

Modern business demands protection for their records. The architect, through the Shaw-Walker line, has at his disposal as complete a line of insulated equipment as is obtainable. For severe risks there are safes carrying the "A" and "B" label of the Underwriters' Laboratories, Inc.

Executive Safes

For less severe fire risks, such as modern fireproof buildings where there is no danger of collapse, sprinklered risk buildings and one and two-story detached buildings THE SHAW-WALKER COMPANY builds a line of Executive Safes in four different sizes. They are well insulated with a reinforced type of monolithic insulation, and have successfully gone through many fires in the ten years they have been on the market.

The large double-door safe **(No. 2056)** is 67 in. high, 43⅛ in. wide, 27 in. deep. **No. 2042** is 52 in. high, 25⅛ in. wide, 27 in. deep. **No. 2033** (counter height) is 43 in. high (42 in. without casters), 25⅛ in. wide, 27 in. deep. **No. 2020** is 27⅞ in. high, 22⅛ in. wide, 21 in. deep. All dimensions being outside ones.



Executive Safe With Adjustable Interior
42 inches high

Insulated Fire Files

THE SHAW-WALKER COMPANY has a line of insulated filing cabinets (fire-files)—a reinforced type of monolithic insulation identical to that used in our line of Executive Safes.

The standard letter file is 52 in. high, 17¼ in. wide, 30¼ in. deep, and weighs 558 lbs. The legal file is 52 in. high, 20 9/16 in. wide, 30¼ in. deep, and weighs 614 lbs.

The counter height letter and legal files are 42 in. high, the width and depth being the same as above. The letter size weighs 450 lbs. and the legal 508 lbs.

A complete line of inserts for 3x5, 4x6 and 5x8-in. document, check and box drawers can be fitted into the drawers of either the letter or legal files.



Fire File Protects Valuable Papers

Counter-height (42-in.) Equipment

Nearly all offices have need for some railings, counters, department separators, and files. The modern practice is to combine all these together in one piece of equipment, with a saving in floor space about equal to the files themselves. It is possible in some cases to save the cost of the equipment in a year and avoid the necessity of taking additional space which is not always conveniently available.

Shaw-Walker counter equipment includes files for every purpose—letters, cards of all sizes, credit reports, checks, maps and blueprints, documents, ledger accounts of standard sizes, orders, etc.; also safes, for the important records, cashier, clerical, or stenographer desks; and the odd bits of space can be utilized for storage and shelving. Shaw-Walker counters may be arranged in a hollow square, or to form two or three sides of a rectangle; or in a straight line, with or without gate. Structural building columns need not interfere with their location.

A stenographer's desk can be built into your counter files and in small offices she will act as information clerk, file clerk, stenographer, etc. The linoleum counter top makes a wonderful working surface. It often takes the place of a table.

Open railings are hard to keep clean. Ordinary counters accumulate dirt and rubbish.

Shaw-Walker counter equipment leaves little if any place for dirt and accumulations. It's neat, sanitary, and businesslike. The marble base acts as a mop board and kick plate.

The standard 4-drawer letter files are best placed against a wall or partition. The counter height files may be used in any part of the office space without interfering with light distribution and supervision. With the disappearance of the standing and roll top desks, there has come a demand for better visibility in office layout, not solely because of its practical features of good supervision and lighting, but because of the better general effect produced.

The Shaw-Walker Representative is trained to assist you in planning changes in your office layout. His suggestions are the result of experience with others and a careful training and preparation in meeting the special conditions encountered in most offices. After he has discussed a tentative layout with you, he will submit a finished blueprint of the arrangement for your more careful consideration.



An Infinite Variety of Combinations Can Be Had

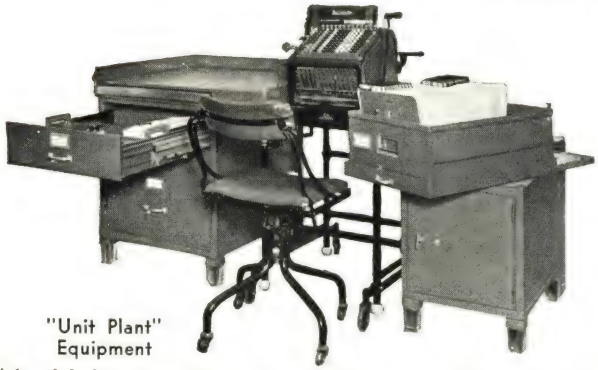


A Single Counter-height File with Card Inserts



Illustrating the "Knee-Space" Feature

BANK SPECIALTIES



"Unit Plant" Equipment

Height of desk top from floor, 30 in.: width of desk, 31½ in.: depth, 28½ in.; depth, with auxiliary top fully extended, 50½ in.

Shaw-Walker "Unit Plant" Equipment for Commercial Bookkeeping Department

In this, the architect has available, a complete unit for commercial bookkeeping departments—the last word in working convenience and efficiency.

The desk has a top that overhangs about 9 in. to the right of the pedestal base, allowing left side of machine to fit snugly against the desk when the shelf, usually attached to machine stand, is discarded. A cut-out in the top allows motor return carriage to operate freely.

The entire width, including the desk, machine, and posting equipment, need not exceed 6 ft. Figuring on space for the extension of the auxiliary top and plenty of working space for the operator, the depth of this equipment when units are ranged one behind another in the work room, is 5 ft. from the back of one desk to the next.

One style (illustrated) consists of one storage drawer at the top 5⅜ in. high, 19¾ in. wide, 26½ in. deep inside. Drawer is usually equipped with a pen and clip tray and here also is kept a duplicate signature list of checking account customers.

Large drawer at the bottom is 12¾ in. high, 19¾ in. wide, 26½ in. deep inside. Equipped with two compartments for cross filing the filled and unfilled ledger cards. Each compartment has follower block and guide rod, and a filing capacity of 19 inches.

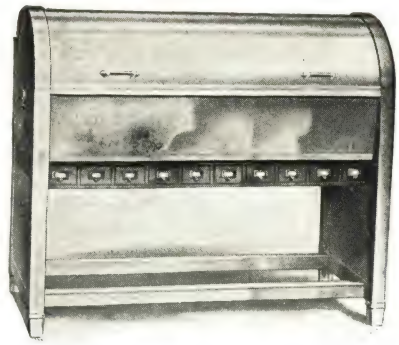
For banks desiring to have the individual bookkeepers file the checks for the accounts they handle, a desk is available, which has three drawers identical to the top drawer in desk described above. Each drawer can be equipped with two check filing trays, cross filed in drawer. Trays have a net filing capacity of 18 in., giving a total of 108 in. in the three-drawer desk. A four-drawer unit is available which houses eight check filing trays with a net filing capacity of 144 inches.

All drawers are equipped with "Built Like a Skyscraper" heavy-duty roller bearing slides which permit extension entirely free of the case, making all contents easily accessible.

The desk can be equipped with high leg bases for standing height operation, where desired.

The Shaw-Walker line of products includes the necessary posting trays for ledger and statement work. However, due to varied conditions which we found after an extensive survey, THE SHAW-WALKER COMPANY has designed a special base for these trays. The unique feature of this is in its top which slides forward 8 in. and rotates to a 45° angle. This makes it possible to bring the tray very close to the side of the bookkeeper and at an angle suitable to the speediest operation when posting.

Base is mounted on glass legs. It is 22½ in. high, 16¼ in. wide, 23½ in. deep (outside dimensions). Space below top can be made into a cupboard section as illustrated, or drawer on heavy-duty roller bearing slides can be inserted.



Posting Ledger Desk

52⅝ in. high; 63⅛ in. wide; 31 in. deep. Top of desk body, 42 in. from floor.

Shaw-Walker Insulated Posting Ledger Desk

Shaw-Walker Posting Ledger Desk is constructed entirely of steel, embodying the famous "Built Like a Skyscraper" principles throughout. Main compartment of desk, in which trays are housed, is of double walled steel, electrically spot-welded, the walls being completely filled with a reinforced monolithic type of insulation.

The insulation has been fully tried out over a period of 10 years and has a very definite degree of fire protection. In addition the design of the desk is such that there is a dead air space entirely surrounding the inner compartment that carries the trays, giving added fire resistance.

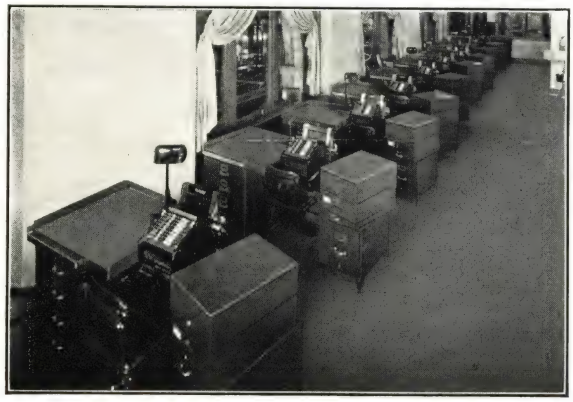
The top is likewise of double wall construction, semi-circular in design and rigid—not merely a flexible steel curtain. It fits smoothly into the sides, running in grooves and is counterbalanced for easy operation. It forms a perfect watershed. There is an automatic lock. Thus the simple operation of closing top will give fire protection to the ledger cards in the desk.

The desk will hold 10 trays for 8x5-in. cards or 8 trays for 8x6-in. cards. Each tray has a net filing capacity of 18¾ in., thus making it possible to house from 12,000 to 15,000 cards, including the necessary indexing in less than 15 sq. ft. of floor space. A sliding posting shelf is also part of the equipment.

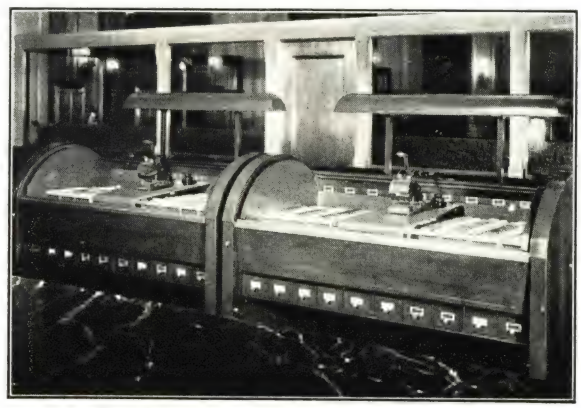
Equipment can be added underneath body of desk. Either one row of 10 3x5-in. signature or index card drawers or 8 4x6-in. drawers can be added directly underneath the main body of the desk, thus concentrating the signature cards with the ledger cards without increase in floor space—an important item. Below these can be placed four drawers, mounted on roller slides, each drawer equipped with two compartments for the housing of filled and transferred accounts, thus giving a complete unit for savings cages without increasing floor space and at the same time saving vault space and labor.

Equipment built-in underneath can be varied within the allowable dimensions to take care of any size card or sheet desired.

This desk has been and is being used by hundreds of banks (list furnished on request) in their savings departments. They are also in use in the loan and discount department and stock transfer department. Its practicability has been fully proved and the architect can safely recommend this item to his bank.



Bank Installation of "Unit-Plant" Equipment



Bank Installation of Posting Ledger Desk

Equipment for Bank Tellers' Omnibuses and Vault Truck

In specifying trucks for bank use the architect wants to feel that the first cost is the last one and the truck will stand the treatment of being wheeled over ramps, across cracks, etc.

Shaw-Walker construction provides for such conditions. The base is of a heavy pilaster construction, thoroughly reinforced. The casters are of a full swivel, ball bearing type. The truck can be equipped with a caster control consisting of two double wheeled casters, controlled by a lever on the left-hand side of the truck, unless otherwise specified.

All hardware on drawers is countersunk, as are the truck handles and lever control, thus eliminating all protruding parts.

The top is linoleum covered (where there is a closed top), bound with bronze which likewise can act as a bumper strip. A similar strip of bronze can be placed around the base for a bumper strip if so desired.

The truck itself is spot-welded throughout, making it one solid piece.

Sectional trucks, that is, trucks that are built up of stock equipment that intermembers, are also obtainable. This equipment is all 36 in wide over all outside and 19 in. deep overall, except in the case of one unit for savings ledger cards which has an additional overhang in front of 4¼ in.

A regular stock base equipped with two fixed and two full swivel ball bearing rubber tired wheels is a stock item. On this any desired unit for housing practically any form used in a bank is obtainable. One of the economical values of such a truck lies in the fact that the equipment can be added to or reduced as the conditions warrant, which is not true of a truck constructed of a solid shell.

Fully guaranteed as to workmanship and materials. Complete specifications showing construction will be forwarded on request.



Truck With Tiller Mechanism



Truck Built Up From Stock Equipment

Equipment for Bank Clearing House Work and Transit Work Rooms

Shaw-Walker has designed and manufactures, to order, three styles of check sorting racks and tables to go with them. These are standard in design but since they are not stock and must be made-to-order, changes in the number of compartments and in other minor ways can be made if desired.

One of the most popular styles is one that has a backward slope to a depth of about 6 in. at the top from a 20-in. depth at the base. The compartment plates are set at a 90° angle to the back so that checks can be quickly and easily thrown in and will be flat. The rack has closed ends and back.

An optional feature of this rack is found in the compartment label holders. They are 1x2 in. with a reading space of ¾x1½ in. for inserting numbers of clearing house, country or correspondent banks, bookkeeping divisions, etc. They are mounted on hinges to swing if struck by hand in fast sorting.

Another style of rack is obtainable in an entirely different design. The slope, size, etc., are approximately the same as the above style, but the compartment plates are set at a more elevated pitch. Checks sorted in this style rack do not lie flat in the plates, but are thrown in to stand on edge against the backs of the compartment. This is a fast sorting method to those accustomed to it.

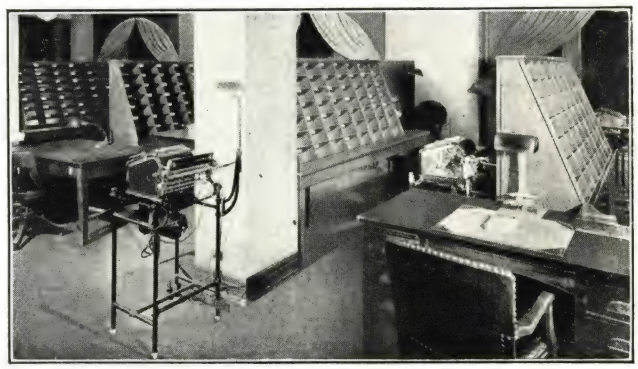
A third style is built in "skeleton" design (ends and backs not closed). This rack is intended to be set on a table with its top sloping back against a wall. The proper slope is to a depth of about 30 in. at the base from a height of 18 in. at the back. to the top.

Steel tables for use with these racks come in two styles; one providing a working ledge and the other large enough to hold only the rack. With or without center drawers, and exposed arts linoleum covered.

Complete specifications can be secured by an architect from our branches or dealers, or direct from the factory at Muskegon, Michigan.



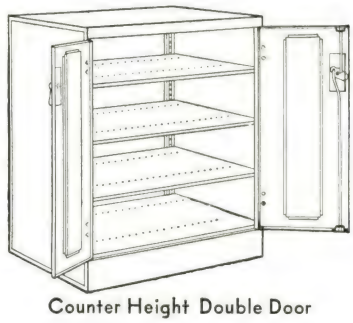
Steel Check Filing Rack



Typical Check Rack Installation in Bank Distribution Department

Unit-welded Steel Storage Cupboards

The great advantage of these over ordinary cupboards is the fact that they are unit-welded, electrically, into *one piece*. No rivets, flanged joints or wobbly door frames. Shaw-Walker cupboards always remain solid and rigid. A complete line of partitions and shelves is available, all adjustable, in an infinite number of arrangements. These cupboards are fitted as wardrobes, stationery cupboards and for any purpose in connection with storage.



Counter Height Double Door

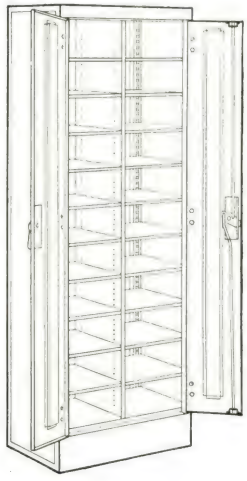
There are more than a dozen models of unit-welded steel storage cupboards. Basic sizes of the various sizes of cupboards are as follows:

DIMENSIONS, INCHES

Type	Width	Depth	Height
Double door	34	17¾	77¾
Double door	34	23¾	77¾
Double door	22	11¾	65¾
Double door	22	14¾	65¾
Double door	22	17¾	65¾
Single door	18	17¾	65¾
Double door, counter height	34	23¾	42



Single Door



Medium Double Door



Large Double Door



Large Double Door

Equipment for Vaults

For fitting up vaults the advantages of Shaw-Walker stock filing equipment will be apparent to the architect. The completeness of this general line as to variety of sizes of filing units, with drawer inserts in the vertical cabinets and the intermembering of horizontal filing sections into stacks, makes possible the building up of any required combination of storage facilities.

Vertical cabinets can be ranged in batteries along vault walls and bolted together to form a level, unbroken top, 27 in. deep. Horizontal sections can be stacked above them, or sectional steel shelving can be erected there, to extend to the ceiling.

If a large amount of storage space is required, for letter, legal or document sized material, four-drawer vertical cabinets can be stacked one upon another to fill all available vault space as to height.

A line of transfer cases with drawers for letter, legal, check and standard card sizes of material is also available for equipping the interior of record vaults. These are unit files that intermember with one another to stack as high as required for proper utilization of vault space.

Architects are urged to call upon the services of our specialists in various cities, to help them in laying out proper filing equipment for vault interiors.



Installation of Record Vault Filing Equipment



Stacked Installation of Record Vault Equipment

STEEL OFFICE FURNITURE

This line of business furniture is entirely different in design from any other on the market.

Tops of desks and tables have rolled edges—that is, edge of the top is curved, so that linoleum covers the *entire* surface. There is no brass edge—only handsome curved corner caps of bronze.

Drawer pulls are of bakelite, which matches perfectly with all finishes. Feet on the desk are of bronze and can be had in two styles—splay foot for wood grain finishes and spade foot for the standard olive green finish.

Edges of the legs are beaded, so that there are no uncomfortable sharp edges anywhere.

Tan linoleum tops are furnished with all olive green models; green linoleum tops come with wood grain models.

All desk accessories are built into the desk. There is a waste basket in the lower left compartment.

In the upper left-hand drawer is a completely organized personal card index; lower right-hand drawer contains an individualized correspondence file. In the upper right-hand compartment is an arrangement to hold incoming and outgoing mail, thus dispensing with desk trays. Center drawer is also "compartmentized." A complete system of hidden wiring has been arranged for the call buzzer, telephone, and lighting fixture. The desk is "electrified."



Double Pedestal Steel Desk



Steel Office Table



Skyscraper Desks in the Offices of the Tri-State Telegraph & Telephone Co. St. Paul, Minn.

Desks

Following are the models now available:

DOUBLE PEDESTAL

66x34 in.—In olive green, mahogany or walnut.

60x34 in.—In three above finishes.

60x34 in.—In three above finishes, Clemco typewriter attachment in either right or left pedestal.

55x34 in.—In three above finishes, typewriter (drophead) attachment in center.

50x32 in.—Clerical desk, one drawer in each pedestal.

DOUBLE PEDESTAL-DOUBLE DESK

60x48 in.—In three above finishes.

SINGLE PEDESTAL

45x34 in.—Salesman's desk, in three above finishes.

45x34 in.—With drop-head attachment, in three above finishes.

45x34 in.—Calculating desk, in three above finishes.

Tables

Following models are now available:

66x34 in.—In olive green, mahogany or walnut, rolled edge top, like desk.

60x34 in.—In three above finishes, rolled edge top, like desk.

55x34 in.—In three above finishes, rolled edge top, like desk.

45x34 in.—In three above finishes, rolled edge top, like desk.

39x27 in.—In three above finishes, rolled edge top, like desk.



Skyscraper Desks in the Office of the Geo. A. Hormel Co.

SNEAD & COMPANY

FOUNDED IN 1849

Manufacturers of Metal Bookstacks for Libraries

TELEPHONE
MOntgomery 5-6200

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94 Pine Street
JERSEY CITY, N. J.

CABLE ADDRESS
"Sneadco, Jersey City"

CANADIAN OFFICE:
Snead & Co. Iron Works, Ltd.,
58 Wellington Street, East, TORONTO, ONT.

Products

SNEAD STANDARD and BRACKET BOOKSTACKS and NEWSPAPER STACKS in both cast iron and steel.

SNEAD STACK AISLE LIGHT REFLECTORS; BOOK DISTRIBUTORS and SNEAD ZIG ZAG VENTILATING SYSTEMS for University, College, Public and Special Libraries.

For our pages on ArmorGrids for concrete floors and Steel Partitions for office and factory, see Manufacturers' Index.



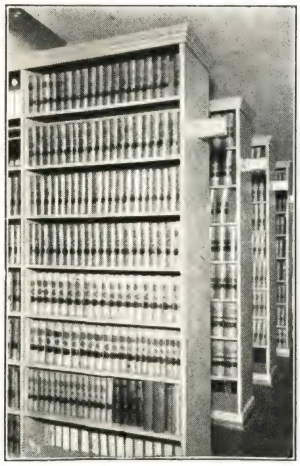
Snead Standard Stacks, Type A, University of Cincinnati Library

Snead standardized bookstacks make it possible for the small as well as large library to enjoy the finest metal appointments at quantity production prices. Ranges can be made adjustable in width, and shelves are adjustable at optional ⅝ or 1-in. intervals



Snead Bracket Stacks, California State Library, Sacramento

One tier of thirteen-tier stack, showing two sorting shelves on right front with regular shelves above and below, and newspaper shelves on left, all cantilevered from vertical steel columns. The stack is self-supporting from top to bottom



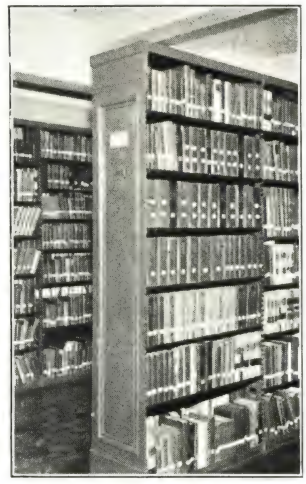
Snead Standard Steel Stacks, Essex County Law Library, Newark, N. J.

A new type of free-standing, solid upright stack. Shelves adjustable at ⅝-in. intervals, allowing maximum capacity



A Most Radical Improvement in Bookstack Construction Snead Flat Slab Reinforced Concrete Deck Floor

New and exclusive Snead feature, shown as installed in Snead Standard Stack, Type B, in Great Neck (N. Y.) Public Library. No floor framing; saves shelf space. Smooth top and bottom; improves appearance. Continuous; prevents dust settling. Wiring for Snead Aisle Lighting System imbedded in slab



Snead Standard Stacks, Type B, American Institute of Banking, New York, N. Y.

A free-standing stack with cast iron solid paneled ends. Easily erected with wrench and screwdriver

Service

The Snead staff of library experts is available for consultation, criticism, layouts, special designs and estimates, all without obligation. From a simple installation of wall shelving to a fifty-tier tower stack—nothing is too small or too large for the attention of SNEAD & COMPANY.

We are publishing a large book on library planning, containing complete architectural and engineering data on bookstacks and library equipment, including many actual library plans and designs of proven merit. Owners, architects and librarians may secure this valuable book on request.

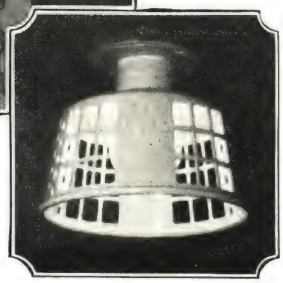
Snead Engineers have also developed the Snead Book Distributor, the Snead Zig Zag Ventilating System, the Snead Stack Aisle Light Reflector and other accessories for the efficient library. Send for full information.



Above:

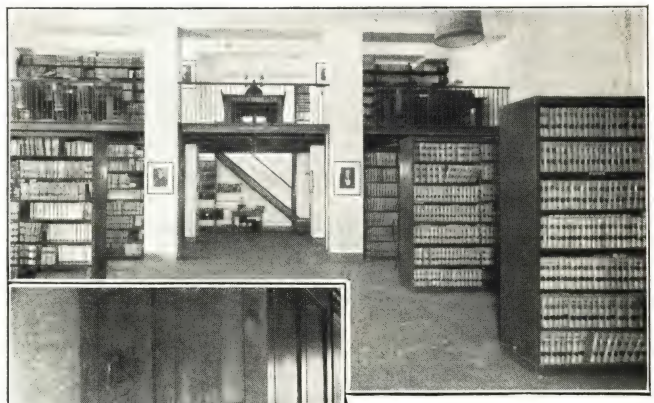
Snead Newspaper Stacks and Light Reflectors, Sterling Memorial Library, Yale University

The unique Snead bookstack structure is welded into one solid unit, bracing the immense tower walls and carrying the roof. Ranges are adjustable in width and equipped with Snead open bar shelves



Snead Stack Aisle Light Reflector

The Sterling Memorial Library contains over 4000 Snead reflectors, especially designed for this building to secure uniform light distribution and freedom from glare



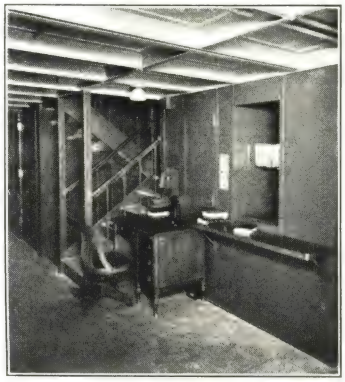


Above:

Snead Bracket Stacks, New York County Lawyers Association, New York, N. Y.

Illustrating solid end, free-standing stacks and double tier bracket stack which permits attractive balcony effect and efficient use of space. Standard railings and stairs also built by Snead.

Snead stacks are designed for convenient future expansion both horizontally and vertically. Details of construction and accessories have been developed over a period of 50 years, so that practically every individual need can be met



Left:

Snead Book Distributor, Stack Room Station, Yale University

Conveyor has push-button control and automatic unloading device. Photograph also shows pneumatic tubes above attendant's desk and stack stairs with elevator beyond



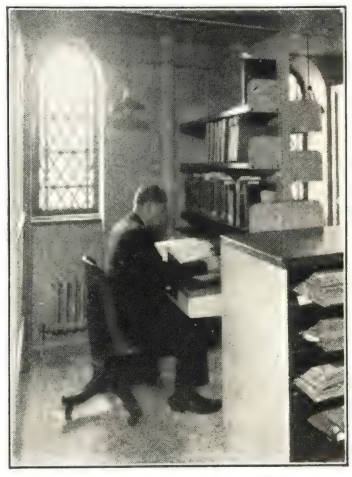
Snead Rolling Cases, Toronto Public Library

Ideal for book storage where space is at a premium as capacity is increased 50%. Cases are mounted on wide rollers, each is independent, and requires neither tracks nor overhead supports

Above:

Snead Book Distributor, Delivery Desk Station, Toronto Public Library

Facilitates sending and receiving large numbers of books between stack room and public rooms. Push button controlled, quiet and trouble-free



Right:

Snead Study Carrel, Yale University

Note the sloping, linoleum top desk and lock drawer. Shelves and desk are cantilevered from uprights, and fully adjustable. Low folio case adds to privacy. Light and heat may be independently controlled in each carrel

WATSON MANUFACTURING COMPANY

Metal Office Furniture

EXECUTIVE OFFICE AND FACTORY
630 Taylor Street
JAMESTOWN, N. Y.

For Watson Insect Screens and Venetian Blinds, see Manufacturers' Index

Products

STEEL and BRONZE EQUIPMENT for banks, courthouses, hospitals and public buildings including: Counters, Counter Screens, Cage Partitions, Office Partitions, Vault Equipment, Omnibuses, Document Files, Roller Shelves, Slope Top Standing Desks, etc.; Dressers, Chifforobes and all kinds of special Built-in Wall Cases for the hospital; Library and Vault Shelving; also a complete line of Desks, Tables and Filing Cabinets for every purpose.

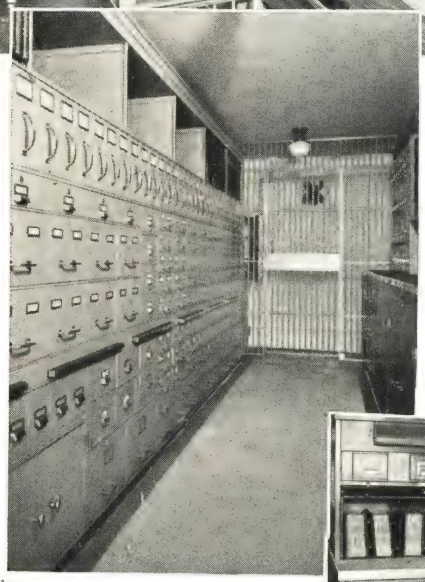
WATSON
JAMESTOWN, N.Y.
TRADE-MARK

Experience

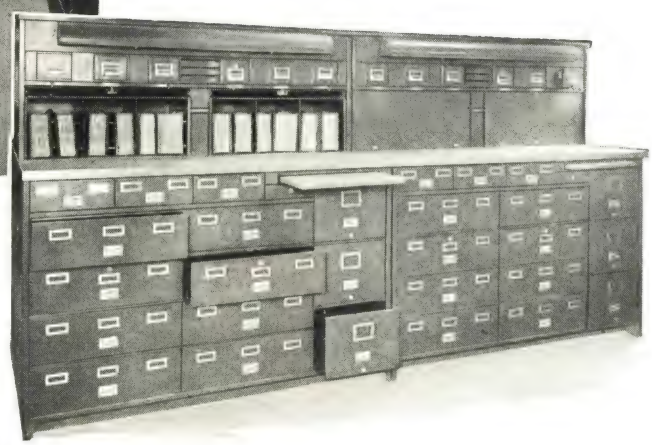
Our many years of practical manufacturing experience, a business and manufacturing organization of selected competent and trained men, a sincere desire to satisfy customers, careful adherence to details and specifications, constant study and improvements, and the use of modern designs and manufacturing processes have not only established an enviable reputation for the best in quality and service but have won the interest, friendship and confidence of our customers.



Above:
Second National Bank of Boston, Boston, Mass.
THOMAS M. JAMES CO., Architects, Boston, Mass.



Above:
Vault Equipment Furnished the Waltham Trust Co., Waltham, Mass.
HUTCHINS & FRENCH, Architects, Boston, Mass.



Right:
Various Specially Built Cases

Facilities

The factory is equipped with the most modern machinery, much of it specially designed for the satisfactory production of our work.

Our central location provides the best shipping facilities.

Co-operation

Our large force of trained engineers is at the service of architects and contractors to assist with the solution of all kinds of interior equipment problems.

Estimates

Without obligation we will submit quotations and, if necessary, accompany them with submission drawings, on architects' or contractors' plans and specifications.

Catalogue

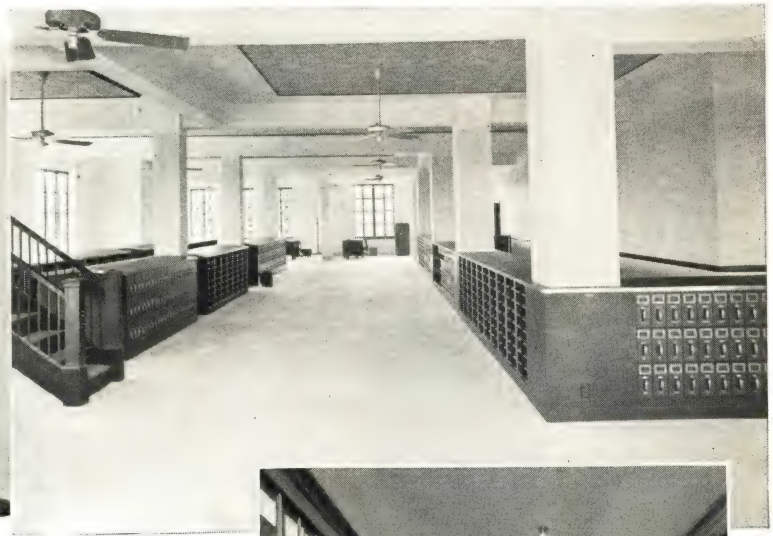
Complete catalogues giving detailed information on bank work, courthouse equipment, library stacks and hospital equipment will be mailed upon request.



Omnibuses



City and County Hall, Buffalo, N. Y.



Above:
County Clerk's Office, Travis County Courthouse, Austin, Tex.

Installations

We will be pleased to send complete lists of Watson installations in any particular section, or lists of our larger operations if advised of what particular kind of equipment you are interested in.

Quality

Watson Products have a well earned reputation among the leading architects and contractors for their fine workmanship, sturdy construction and everlasting quality equipment.

These few illustrations are typical of the hundreds of important contracts where the quality of Watson Equipment has played an important part.

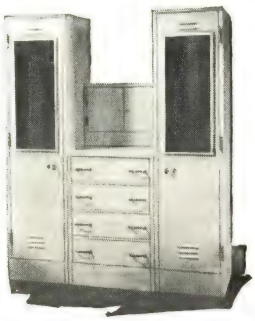
Only the best of all kinds of materials are used in the fabrication of Watson Products.



Right:
File Room, Probate Clerk's Office, New Civil Courts Building, St. Louis, Mo.



Right:
Law Library, Erie County Courthouse, Erie, Pa.



Hospital Chifforobes, J. N. Adams Memorial Hospital, Perrysberg, N. Y.



Special Built Monel Metal Cases, Beth Israel Hospital, Brookline, Mass.



Built-in Wall Cases Furnished for Hurley Hospital, Flint, Mich.

ESTABLISHED 1890

AKINS PRODUCTS INC.

U. S. CHANGEABLE SIGN CO., INC. B. L. AKINS, INC. ADANCRAFT CORPORATION

TELEPHONE
Bryant 9-6430

118 West 43rd Street, NEW YORK, N. Y.

Products

BUILDING DIRECTORIES; FLOOR DIRECTORIES; ELEVATOR DIRECTORIES; CLUB ROSTERS; GOLF HANDICAP BOARDS and IN-and-OUT BOARDS; CHANGEABLE BULLETINS and ANNOUNCEMENT BOARDS; REFLECTOLITE ELECTRIC SIGNS; CORK BULLETIN BOARD; BRONZE TABLETS; BRONZE LETTERS; FLOOR DIRECTIONAL ARROWS.

Also products of the U. S. Changeable Sign Co., Inc., the pioneer building directory company established in 1890.

Wide Scope of Adaptability

Building Directories and Floor Directories—For office and loft buildings, banks, hotels, clubs and fraternal organizations, department stores, hospitals, schools and colleges, business departments, and public buildings and places where alphabetical or group listings are required.

Bulletin and Announcement Boards—For hotels, churches, railroad and steamship schedules, theater ticket agencies, rosters, menus, programmes, etc.



Cast Bronze Directory, Style No. 306
36 in. wide x 43 in. high
Capacity, 265 names

Statistical Boards—Sales record tabulations, factory production records, hospital and institutional census records, fire department calls, competitive records, stock quotations, etc.

Club Boards—Rosters, golf handicap boards, in-and-out, changeable letter bulletin boards, and cork bulletins for thumbtack notices.

Building Directories (Akins Type Strip Directories)

This new and improved directory has been developed by our organization and is the result of our many years of manufacturing directory boards.

Patented October 20, 1925, No. 1557542 and February 16, 1926, No. 1573126.

Advantages—Construction so simple no supervision required for making changes. In making changes, it is only necessary to remove the doors with a key, leaving all name strips in place, so that operator is always working from the front, making alphabetical mistakes improbable. This method of making changes is a distinct advance over any other system, since it permits changes to be made with one operation, allowing the directory board to be in full use while changes are being made. Any door may be removed and cleaned without disturbing the names. Changes are supplied promptly at nominal cost.

Frame Designs and Finishes—Frames for the various types of directory and bulletin boards are furnished either in approved stock designs or in acocrdance with the architect's specifications. Special designs are created when desired. They can be had in bronze, wood or iron in any finish required. We supply our systems without frames if so desired.

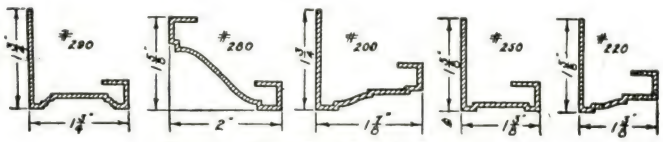
Service—Directories are sold outright and service maintained, or furnished on rental basis.

Specifications—*(1) Frame*—Frame to be constructed of bronze (steel, iron or wood), workmanship and design to meet approval of architect. Title of directory shall be in bronze.

(2) Fillers—Any door shall be removable, allowing easy access to change name strips, without disturbing balance of directory. Name strips to remain in directory while changes are being made. Name strips shall be held in place by a steel backboard, covered by locked doors of cold rolled steel finished in baked enamel (or bronze). Doors to be glazed with beveled plate glass.

(3) Name Strips—Name strips to be of flexible fibre board, covered with dull black paper. Names to be made with white embossed letters, machine spaced, alignment to be perfect and all lettering uniform.

(4) Service—Must be accurate and prompt. Directory to be purchased outright (furnished on rental basis).



Bronze Moulding Stock Designs

AKINS PRODUCTS, INC. 118

⅜-in. Strip, ¼-in. Letters for Akins Type Strip Directory, Actual Size Shown
Also made ⅝ in. wide with ⅜-in. letters and $\frac{5}{16}$ in. wide with $\frac{3}{16}$-in. letters

SIZE AND NAME CAPACITIES OF AKINS TYPE STRIP DIRECTORIES

Fillers 7½ in. wide x 26 in. high								
Number of fillers	2	3	4	5	6	7	8	9
Width, in.	15	22½	30	37½	45	52½	60	67½
Name capacity, ⅜-in. strips	75	125	175	250	300	350	400	450

Fillers 7½ in. wide x 32 in. high								
Number of fillers	2	3	4	5	6	7	8	9
Width, in.	15	22½	30	37½	45	52½	60	67½
Name capacity, ⅜-in. strips	125	195	265	335	405	475	545	615

Table figures actual name capacities ⅜-in. strip. Alphabet space allowed.

Greeley Changeable Letter Directories

Original changeable letter system, in use over 40 years and still giving excellent service, testifying to its durability.

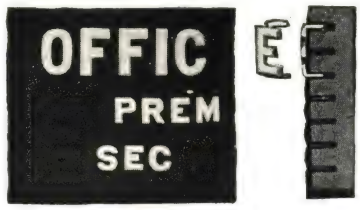
In making changes, entire equipment is under complete control of owner—no outside assistance needed.

Blackboard—Solid or in interchangeable strips; each strip holding a name or line of reading matter, and the whole grooved horizontally and covered with durable broadcloth. Wood used is well seasoned, kiln-dried, free from knots, ribbed and reinforced to prevent warping.



Changeable Letter Type Directory Installed in the Municipal Building, New York, N. Y.

Special design cast bronze frame, using broadcloth covered grooved backboard and Akins' letter Type B



Type B

Broadcloth—Of fine durable quality, all wool—black, blue, green or special colors.

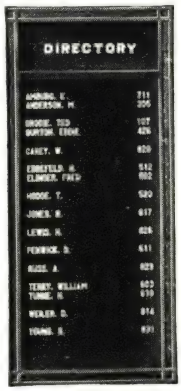
Changeable Letters—Type "B"—Convex faced and stamped in one piece (including tongues) from half-hard brass and covered with a special ivory white enamel, guaranteed against discoloration, cracking or chipping. Letters are set and held in place by tongues top and bottom; can be set in upright position only and will align perfectly.

Sizes—¼, ½, ¾, 1 and 1½ in.

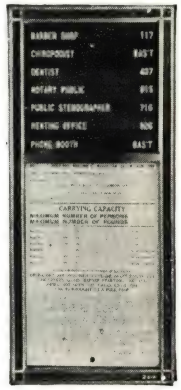
Elevator Directories

Style No. 376—Lists names of tenants in smaller buildings.

Style No. 377—For inspection card and listing profession or business of tenant and regulation card in one frame, combining requirements in elevator of modern office building. Convenient to locate tenants on various floors and a service greatly appreciated.



Style 376



Style 377

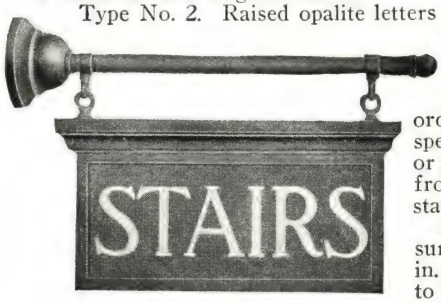
Reflectolite Signs—Wall and Hanging Types

Illuminated signs for hotels, clubs, banks, theatres, office buildings, public buildings and stores.

Type No. 1. A plate glass with etched letters. The source of illumination is entirely hidden. Light enters plate through edge. Plate appears dead, except where etching occurs, giving a beautiful and original effect.

Type No. 2. Raised opalite letters on ground of deep rich bronze. Housing of bronze of different styles. Special designs on request. Letters to order of any description or special trade-mark. Single or double face, hanging from wall or bracket, standing or wall types.

Stock sizes glass measurements, 4x14 to 14x74 in. Special practical sizes to order. Write for information on new changeable electric sign for indoors and outdoors.



No. 424

Hanging. Single or double face. Made with plates 14 and 26 in. long 4 to 8 in. high

SIZE AND NAME CAPACITIES OF CHANGEABLE LETTER DIRECTORIES TYPE B LETTERS

Sight size, in.		9½x21½	19½x29½	29½x35½	29½x49½	39½x53½	49½x61½
¼-in. letters	Number of columns	1	2	4	4	5	6
	Name capacity	40	75	200	300	400	600
½-in. letters	Number of columns	1	2	3	3	4	5
	Name capacity	25	50	100	150	250	350

Allowance has been made for title of building in suitable size letters.

A Few Recent Installations of Building Directories

Over 5000 in use. Some for 40 years. Many in foreign countries.

New York

Empire State Bldg.
American Radiator Bldg.
American Express Bldg.
New York Central Bldg.
Film Centre
Graybar Bldg.
New York Telephone Bldg.
Standard Oil Co.
Bowery Savings Bank
Municipal Bldg.
Singer Bldg.
Pershing Square Bldg.
Wall-Hanover Bldg.
Johns-Manville Bldg.
Pennsylvania Hotel
Lord & Taylor
One Park Avenue Bldg.

New York (Continued)

No. 2 Park Avenue Bldg.
Salmon Tower
French Plan Bldg.
Gimbel Brothers
Saks & Co.
Garment Tower
Bank of Manhattan Bldg.
Squibb Bldg.

Detroit

Fisher Bldg.
Book Tower
First National Bank
Union Trust Bldg.

Philadelphia

Public Ledger Bldg.
Gimbel Brothers

Philadelphia (Continued)

Bell Telephone Co.
Liberty Title & Trust Co.
Philadelphia Convention Hall

Brooklyn

Williamsburg Savings Bank
Albee-Keith Theatre
Court-Remsen Bldg.
Municipal Bldg.
Court-Montague Bldg.

Newark

L. S. Plaut & Co.
Federal Trust Bldg.
Industrial Office Bldg.
Military Park Bldg.
National Newark and Essex Bank Bldg.

Miscellaneous

Industrial Trust, Providence
Administration Bldg., Pittsburgh
Niels Esperson Bldg., Houston, Tex.
Union Central Life Ins. Co. Bldg., Cincinnati
Union Station, Chicago
First National Bank, Utica
First National Bank, Boston
Nissen Bldg., Winston-Salem
Barnett Nat. Bank, Jacksonville
Gimbel Brothers, Pittsburgh
Grant Bldg., Pittsburgh
State Office Bldg., Albany
Capitol Bldg., Harrisburg
Chesapeake & Potomac Telephone Co., Richmond
75 Federal St. Bldg., Boston

ADVANCE DIRECTORY COMPANY

Manufacturers of Building Directories and Bulletin Boards

303 Fourth Avenue, NEW YORK, N. Y.

Products

BUILDING DIRECTORIES (Strip or Loose Letter Type); CHANGEABLE BULLETIN BOARDS, ANNOUNCEMENT BOARDS, CORK BULLETIN BOARDS, MEMORIAM BOARDS, IN-AND-OUT and STATISTICAL BOARDS, GOLF HANDICAP BOARDS.

Building Directories (Strip Type)

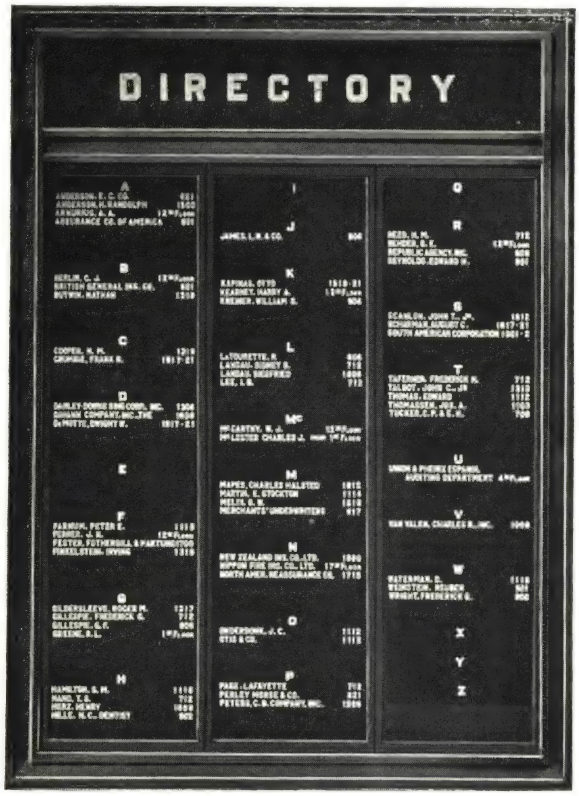
Advance Building Directories are modern in design, compact, practical and ornamental.

Frames—Wood, iron or bronze (drawn, extruded or cast); stock or special designs created to fit any requirements. Blue print of mouldings on request.

Sections (Glazed Panels)—Cold rolled steel fitted with bevel plate glass and lock.

Removable separately from face of frame—names remain on steel backboard exposed to view permitting convenient and rapid insertions, removals or respacing of name strips.

Name Strips—Lettering embossed by machine process assuring perfect spacing and alignment and uniformity.



100-Name Directory

Sizes—Strip type directories consist of any number of sections, as described above, fitted into an outer frame. For computing sizes of frames for any given number of names refer to chart below.

SIZES AND NAME CAPACITIES OF ADVANCE STRIP TYPE DIRECTORIES

Size of section	7½ x 26⅜-in.								7½ x 32⅞-in.						
Number of names.....	50	100	150	200	250	300	400	500	100	200	300	400	500	600	700
Number of sections...	2	3	4	5	6	7	8	10	2	4	6	7	8	10	11
Width, in....	15	22⅜	29⅞	37⅜	44⅞	52⅜	59⅞	74⅞	15	27⅞	44⅞	52⅜	59⅞	74⅞	82⅜

Note: Above table computed for size letters shown below.

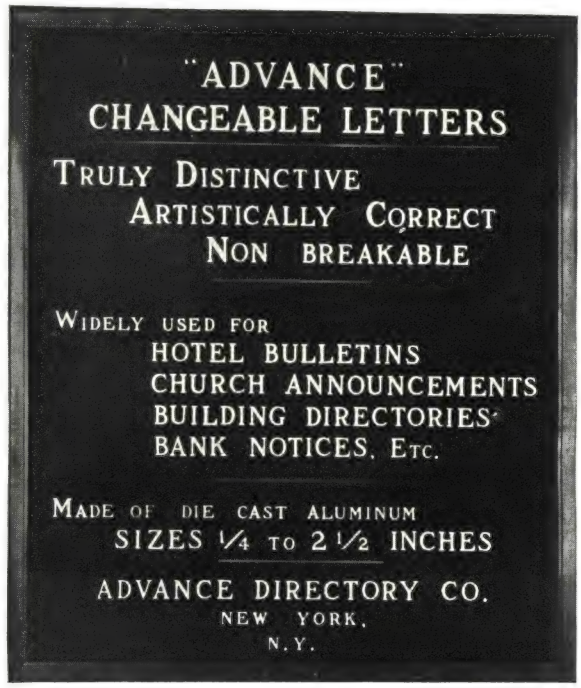
Service or Sale—We maintain directories on contract or sell same outright. New name strips furnished promptly.

Bulletin Boards—Changeable Letter Type for Indoor or Outdoor Use

Used in hotels, office buildings, public buildings, churches, banks, clubs, schools, colleges, etc., for sales charts, announcements, hymn boards, etc.

Frames—Wide variety of designs and materials, glazed or unglazed as desired.

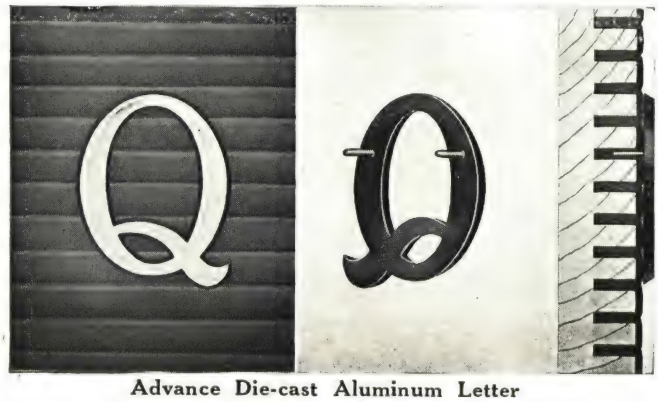
Grooved Boards—Boards are made of kiln dried wood, properly reinforced, covered with best quality cloth of standard or special colors.



Letters—"Advance" die-cast aluminum letters, with letter and invisible prongs in one piece.

Easy to insert, shift or remove. Artistically designed, clean-cut and legible. The faces of the letters are flat, with a baked semi-flat white finish and black beveled edges which throw the letters into strong relief.

Sizes ¼ to 2½ in. in height. Can be had in colors if desired. Guaranteed against breakage and discoloration.



Advance Die-cast Aluminum Letter



Actual Size of Advance Strip Type Names (¼-in. Letters)

JAS. H. MATTHEWS & CO.

TELEPHONE
Mayflower 7500

3931 Forbes Field, PITTSBURGH, PA.

ESTABLISHED
1850

BRANCH FACTORIES:

NEW YORK, N. Y., 480 Canal St.—Telephone WAlker 5-9860

BOSTON, MASS., 24 Lincoln St.—Telephone LIBerty 2754

PHILADELPHIA, PA., Terminal Commerce Building

For our pages on Bronze Building Tablets, Overhead Letters, etc., see Manufacturers' Index

Building Directories

Sold outright. No continuous rental. Made any capacities. Simple or ornamental. Bronze or wood frames.

Changeable Name Strip Style—Preferred style. Name strip (7½x⅜ in.) fits in standard name panel 7½x26 or 32 ins. Gives compact, uniform appearance to names. Changes are easy. Name strip cost, nominal.

Changeable Letter Style—Usually for smaller capacity directories. Grooved felt background carries winged, ivory-white individual letters in perfect alignment. Changes made instantly without outside assistance.

Standard Directories—No. 180-S (at right) illustrates standard style directory. Made with any desired number of panels from 2 up. Bronze or wood frames. Plate glass, black steel frame name panels 7½x26 or 32 ins.

Special Designs—Oliver Design (at right) illustrates typical special cast bronze directory—design either by architect or Matthews. Takes standard name panel.

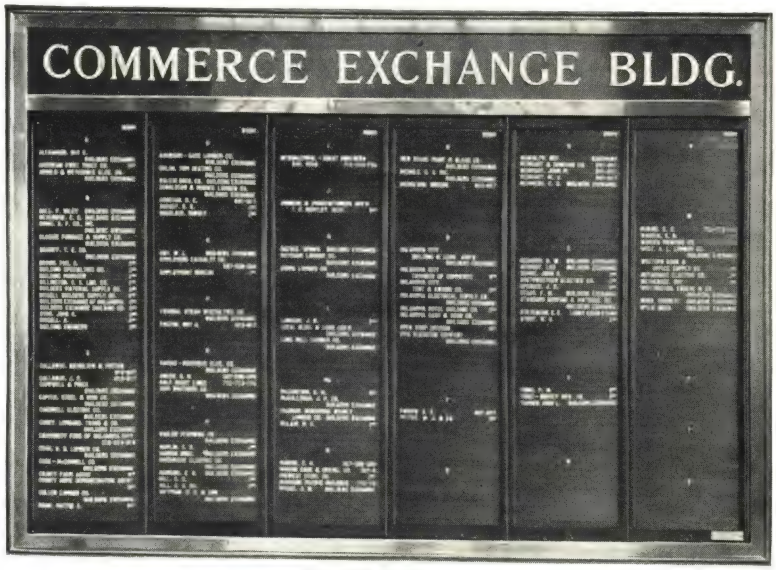
Directory Frames and Capacities

Bronze Frames—(a) Drawn bronze over invisible wood core.
(b) Heavy extruded bronze—no wood core.
(c) Ornamental cast bronze.

Finishes—Light natural brushed bronze, or dark oxidized bronze.

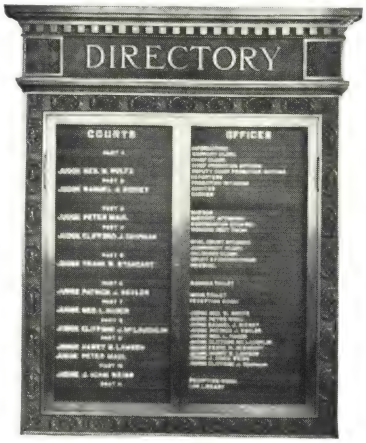
Wood Frames—Finished mahogany, oak or walnut.

Capacities—Using 7½x26-in. standard name strip panels, a 2-panel directory accommodates 75 names without crowding; additional panels 50 names each. Using 7½x32-in. standard panels, a 2-panel directory takes 125 names; additional panels, 70 names each.



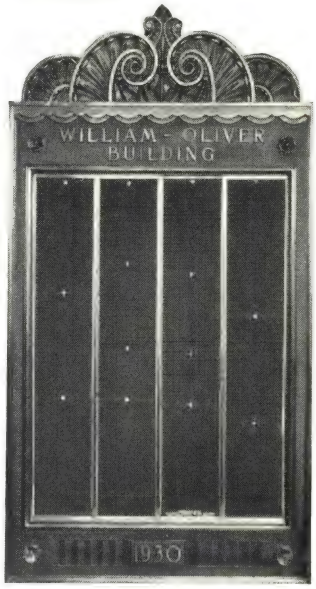
No. 180-S Directory

Drawn bronze over invisible wood core. Panels 7½x26 ins. Over-all size 48x34 ins. Capacity 275 names. Made any capacity



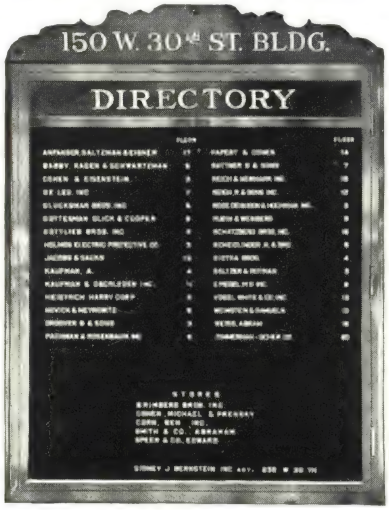
Municipal Design

Solid cast bronze. 39x46 ins. Changeable ½-in. letters recommended. Capacity, 75 names



Oliver Design

Special design. Solid cast bronze. Takes standard name panels. Made any size



Changeable Letter Style Directory

Made in any capacity, size, or style. Capacities of 100 names or less are usual. Changes made (as illustrated) by owner from compartment box of letters. Ivory-white, non-curling letters made in ½, ¾, 1, 1½ and 2-in. sizes



Left:

Changeable Name Strip Directories

Name strips have embossed white characters (not paper letters gummed on cardboard) on fibre strips—black or bronze tone. Two sizes 7½x⅜ ins. and 10x⅝ ins. Easy to change. Fast service on strips. Uniform, legible and compact appearance as illustrated below



J. A. WEBER, President and Treasurer

R. G. MOLITOR, Vice-president and Secretary

R. W. CLARK MFG. CO.

Manufacturers of Building Directories and Bulletin Boards

TELEPHONE
Buckingham 2277

4311 Ravenswood Avenue
CHICAGO, ILL.

ESTABLISHED 1913

Products

BUILDING DIRECTORIES for Lobby or Floors: CLARK LIBERTY (INTERCHANGEABLE LETTER) and CLARK EMBOSSED STRIP.

Also Rosters, Bulletin and Announcement Boards, Desk and Teller Name Plates, and Cork Tack Boards.

Clark Directories

Clark Liberty Directory (Interchangeable Letter)—Little or no up-keep cost; immediate service to tenant; letters and covered strips can be re-used many times; practically same wall space required as for gummed-strip using same size letter. Letters made of best white celluloid under Clark patent.

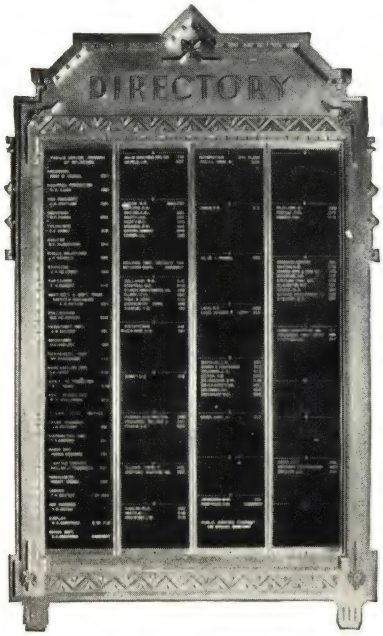
Embossed Strip Directories—Also supplied and a service on strips given. Service costs approximately 15% of customary rental. We do not rent directories, but save owner about 85% of such rental charge. Strips fit easily into groove and are held in position with felt covered back.

Styles and Sizes

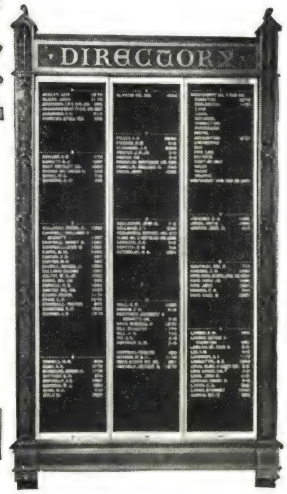
All sizes, styles and finishes supplied—ornamental iron, plain or ornamental extruded bronze, wood filled bronze, and wood in either oak, walnut, mahogany or ebony finish.

Standard width of sections: for changeable strip (embossed strip), 7½ in.; for Clark Liberty (interchangeable letter) 7½ in. with ¼-in. letters and 12 in. with ⅜-in. letters. Sections also made 15 in. wide for ½-in. letters.

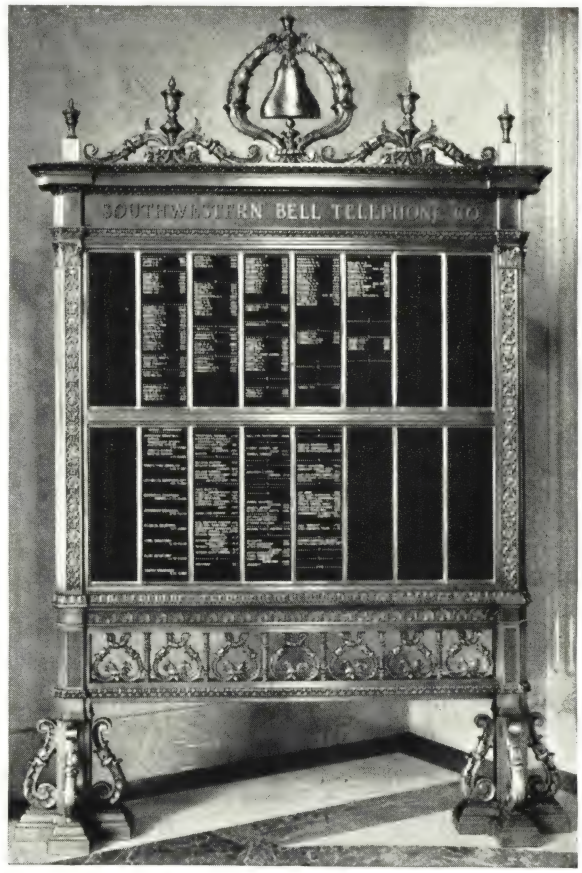
Any convenient heights can be made; standard sizes are given on following page.



4-section Special Clark Liberty Directory



3-section Special Clark Liberty Directory



16-section Clark Liberty Directory, Special Bronze Frame

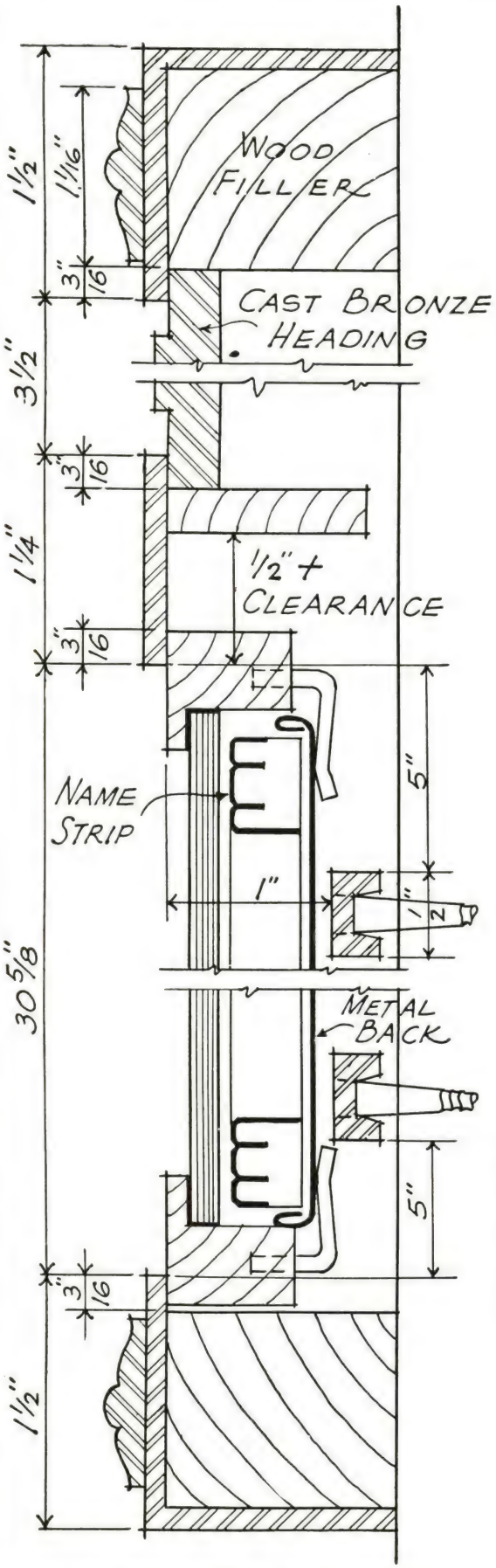
Estimates

For all ordinary buildings two names to the room will be the approximate capacity of directory required. In the case of special buildings, more or less, according to purpose of the building.

In writing for estimates, state total number of names board must hold; material; style; finish; and, particularly, available wall space, if limited.

Some Installations of Clark Directories

FORT WORTH, TEX.—National Bank Building, Sanguinet, Staats, Hedrick & Gottlieb, Architects; Electric Building
SCHENECTADY, N. Y.—General Electric Company
AKRON, OHIO—Municipal Building, Good & Wagner, Architects
EL DORADO, ARK.—Exchange Building, Mann & Stern, Architects
BUFFALO, N. Y.—Travelers Insurance Company
PITTSBURGH, PA.—George Brothers, Guthrie Building
SAVANNAH, GA.—Realty Office Building, Henrik Wallin, Architects
HOUSTON, TEX.—Post-Dispatch Building and First National Bank Building, Sanguinet, Staats, Hedrick & Gottlieb, Architects; Gulf Building, Alfred C. Finn, Architect
NASHVILLE, TENN.—Nashville Trust Co.—Asmus & Clark, Architects
OKLAHOMA CITY, OKLA.—Petroleum Building and Oklahoma Gas & Electric Building, Layton, Hicks & Forsyth, Architects; Southwestern Bell Telephone Co.
QUINCY, ILL.—Western Catholic Union Building
HAGERSTOWN, MD.—Wareham Building
ALBANY, N. Y.—New York Power & Light Corp.
WACO, TEX.—Liberty National Bank
BEAUMONT, TEX.—Goodhue Building
DALLAS, TEX.—Dallas County Building and Southwestern Bell Telephone Building, Lang & Witchell, Architects
TULSA, OKLA.—Philtower Building, Keene & Simpson, Architects
KLAMATH FALLS, ORE.—Chilcothe & Smith Co., L. R. Perrin, Architect
SAN ANTONIO, TEX.—Smith-Young Tower; Alamo National Bank Building, Graham, Anderson, Probst & White, Architects
SHAWNEE, OKLA.—Masonic Temple
MIAMI, OKLA.—First National Bank Building
MANILA, PHILIPPINE ISLANDS—Heacock Building; Insular Life Building



Vertical Cross Section of Clark Liberty Directory

SPECIFICATIONS

Directory—At the place indicated on the plans or to be designated by the architects, the contractor shall install an "A" section "B" strip directory made by the R. W. CLARK MFG. Co., 4311 Ravenswood Avenue, Chicago, Illinois.

The strips shall be made for the use of "C" inch Clark interchangeable celluloid letters and shall be covered with black broadcloth.

Sections shall be glazed with beveled plate glass with frame of "D."

The directory frame shall be "E."

Legend—"A"—State number of sections of fifty strips each. (40 for ½-in. letters.)

"B"—Calculate at two to two-and-a-half times the number of rooms.

"C"—One-quarter, three-eighths or one-half.

"D"—"Wood," "black steel" or extruded bronze.

"E"—Oak, mahogany or ebony finish, black ornamental iron, bronze wood filled, extruded bronze, extruded ornamental bronze or cast bronze.

DIRECTORIES WITH 12-IN. SECTIONS FOR ⅜-IN. LETTERS

Vertical Sight Opening of Frame 30⅝ in.
Other heights can be furnished

Number of sections	Height of directory, in.	Width of directory, in.	Strip capacity
1	38	15	50
2	38	27	100
3	38	39	150
4	38	51	200
5	38	63	250
6	38	75	300
Double 4	70	51	400
Double 5	70	63	500
Double 6	70	75	600



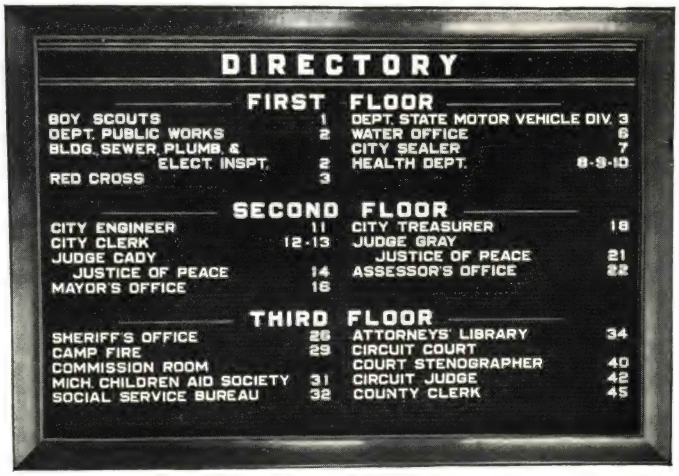
Pat. Dec. 12, 1916

Actual Size of ⅜-in. and ¼-in. Clark Celluloid Letters

DIRECTORIES WITH 7½-IN. SECTIONS FOR ¼-IN. LETTERS

Vertical Sight Opening of Frame 24 in.
Other heights can be furnished

Number of sections	Height of directory, in.	Width of directory, in.	Strip capacity
2	32	18	100
3	32	25½	150
4	32	33	200
5	32	40½	250
6	32	48	300
Double 4	57	33	400
Double 5	57	40½	500
Double 6	57	48	600



Bulletin Board as Directory—Letters Only Are Interchangeable

No. 60A (grooved long way) two columns. Names in ½-in. letters

THE TABLET & TICKET CO.

Building Directories, Changeable Bulletin Boards, Directional Signs

1021 West Adams Street, CHICAGO, ILL.

115 East 23rd Street
NEW YORK, N. Y.

407 Sansome Street
SAN FRANCISCO, CAL.

607 South Hill Street
LOS ANGELES, CAL.

SALES REPRESENTATIVES

BALTIMORE, MD.
BOSTON, MASS.
BUFFALO, N. Y.
CLEVELAND, OHIO
DETROIT, MICH.
KANSAS CITY, MO.
MILWAUKEE, WIS.
MINNEAPOLIS, MINN.
NEW ORLEANS, LA.
PITTSBURGH, PA.
PORTLAND, ORE.
ST. LOUIS, MO.
ST. PAUL, MINN.
SEATTLE, WASH.
SPOKANE, WASH.
WASHINGTON, D. C.

Products

DIRECTORIES, BULLETIN BOARDS, SIGNS:

Building Lobby Directories; Floor Directories; Business Directories; Church Directories; Store Directories; Club Membership and Handicap Boards; Changeable Letter Signs and Bulletin Boards; "In" and "Out" Boards; Hospital Register Boards; Interior Electric Directional Signs; Changeable Desk and Grille Name Plates; Willson's Gummed Paper Letters and Figures; Self-spacing Pyralin Sell-U-Letters; Embossed and Printed Labels and Seals.

SINCE 1870

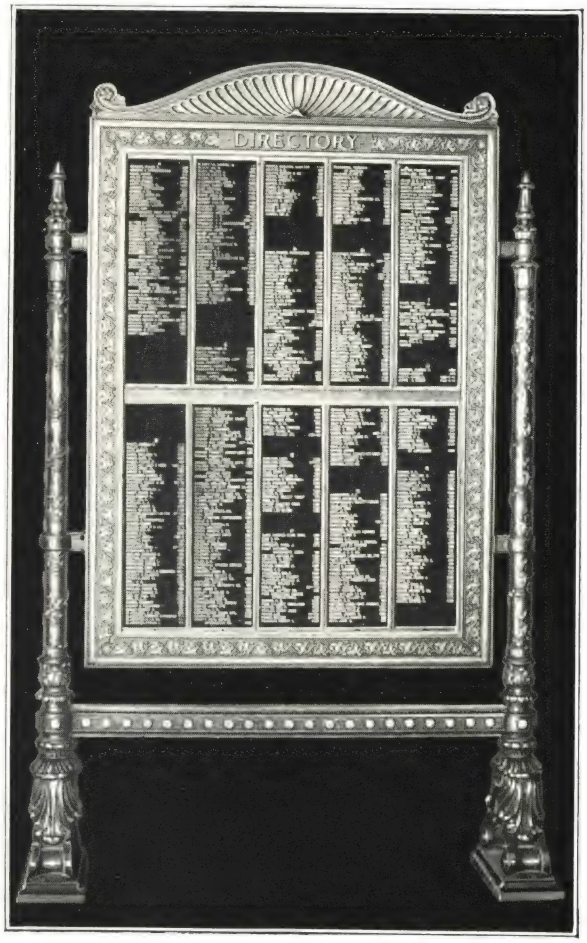
(A) Building Directories—Service or Sale

(A-1) Service—THE TABLET & TICKET CO. will install its directory equipment as specified, furnish name strips, and keep the directory up to date, making name changes as ordered, and render complete maintenance service. The system will be installed under a five-year contract at an agreed annual fee based upon the name capacity of the equipment. No charge is made for the equipment.

(A-2) Strip Service—In cities where our main plant, factory branches or strip service stations are located, name changes are inserted in 24 hours; mail orders are invariably forwarded same day as received.

(A-3) Maintenance—A staff of men visit our directories periodically to see that they are kept clean, in repair and in good working order. There is no additional charge for this service.

(A-4) Sale—THE TABLET & TICKET CO. directories may be purchased at a very reasonable cost; in this case regular Tablet & Ticket Directory service may be had at special rates.



(B) Description of Office Building Directory

(B-1) The Directory—Each directory consists of two or more units, the frame and one or more sections.

(B-2) Frames—Our stock frames can be furnished of ornamental cast bronze, white metals, of any of four styles of extruded Benedict nickel, four styles of extruded bronze, two styles of kalamein moulding, or two styles of ornamental iron moulding.

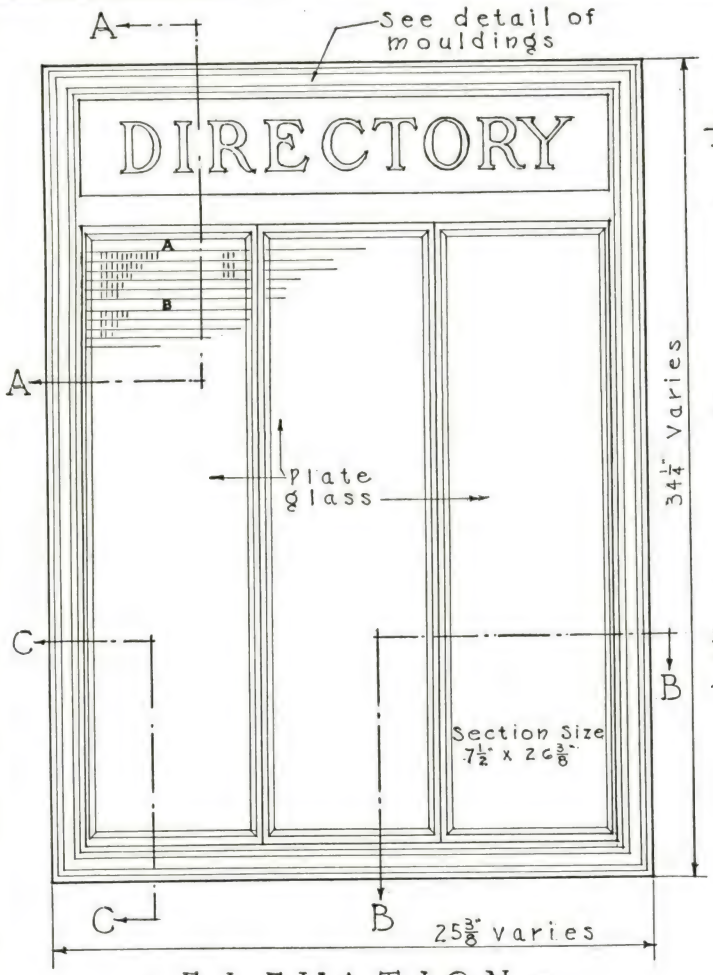
These can be finished in natural polish, or the various plated finishes as desired. Among these will be found a style to harmonize with any bronze or ornamental iron work. Where special frames are included in the work of the ornamental iron or bronze contractor, Tablet & Ticket sections only are specified.

(B-3) Headings—Two styles of headings are available—a bronze tablet with cast bronze letters or a black background with white letters covered with beveled plate glass.

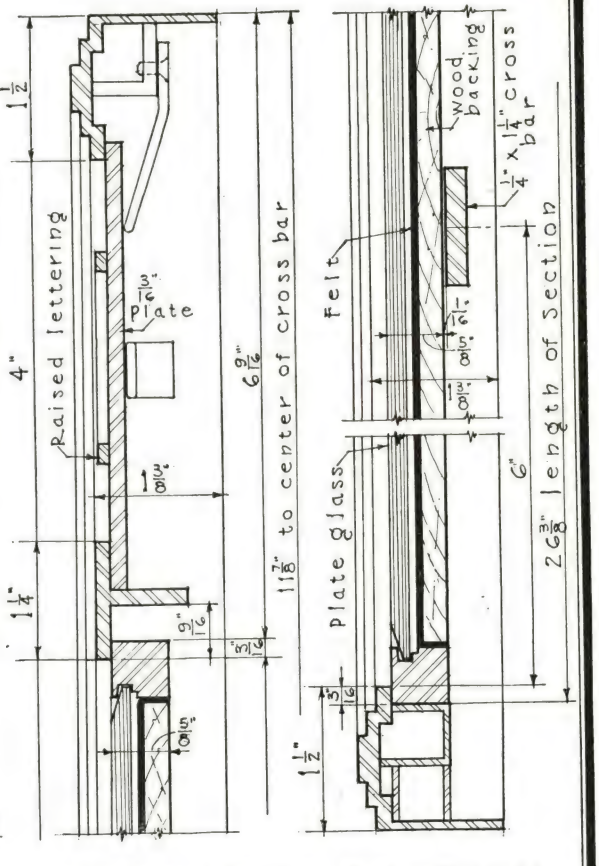
(B-4) Sections—Each section is a unit in itself. Section frame is of extruded bronze, steel, nickel, or special white metals with beveled plate glass front. The strips fit into grooves in each side of the section frame and are held flat and in perfect alignment against the plate glass front by the broadcloth covered removable back piece.

Standard sections are 7½ ins. wide and use No. 1 strips as illustrated. The chart on the following page shows the strip and name capacities of different length sections. Special size sections with appropriate strips to fit special frames can be supplied.

(B-5) Name Strips—An actual size illustration of No. 1 name strip is shown below. The strips are



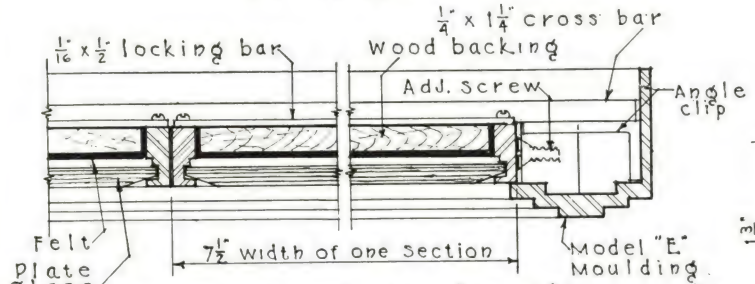
· ELEVATION ·
Scale 1½" = 1'-0"



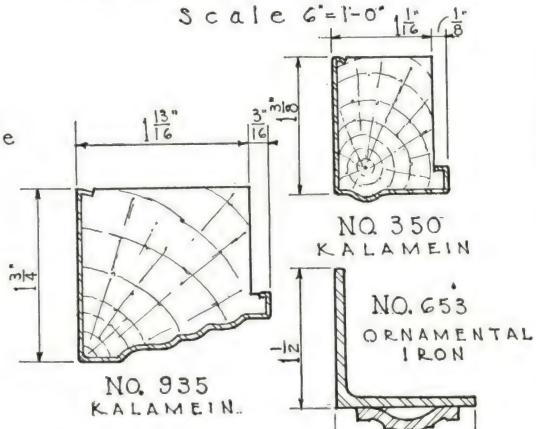
· SECTION · AT "A-A" ·

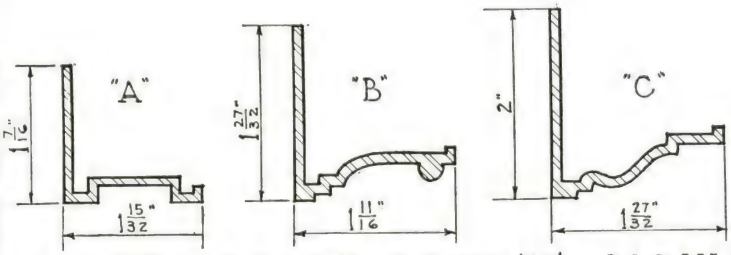
· SECTION · AT "C-C" ·

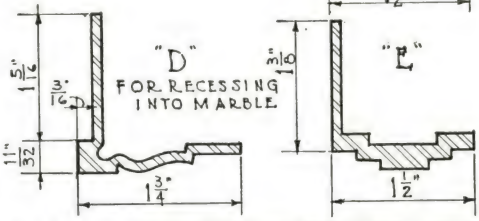
Scale 6" = 1'-0"



· SECTION · AT · "B-B" ·
Scale 6" = 1'-0"







· DETAILS · OF · BRONZE · MOULDINGS ·
· STOCK · DESIGNS ·
Scale 6" = 1'-0"

The TABLET & TICKET CO.
SINCE 1870
NEW YORK CHICAGO SAN FRANCISCO

TYPICAL STANDARD THREE-SECTION DIRECTORY

pliable black cardboard of special texture, 3/8 in. wide, 7 1/8 ins. long, lettered with 1/4-in. glazed white gummed letters, providing sharp contrast and unusual legibility.

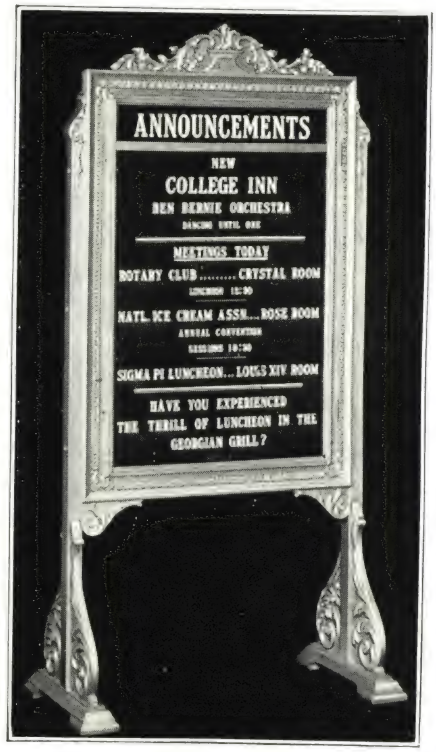
The strips slide easily up and down in the side grooves making it convenient to remove or change a single strip without disturbing the others.

(B-6) Name Capacities—In estimating the size directory equipment required, we advise allowing two names for every office to provide proper expansion margin. The following chart indicates the normal name listing capacity of various combinations of standard sections, after allowing for alphabetical headings and blanks necessary to insure proper appearance.

NAME CAPACITIES OF STANDARD SECTIONS

Number of sections	Length of section, in.			
	18 1/2	26 3/8	32 7/8	40 3/8
3 sections	50	100	150	200
4 sections	100	150	200	300
5 sections	150	200	250	400
6 sections	200	250	300	500
7 sections		300	400	600
8 sections		400	500	700
9 sections		450	600	800
10 sections		500	700	900
(Total strips per section)	45	64	80	100

(B-7) Other Directories—Other types of THE TABLET & TICKET CO. directories are: Floor Directories, used on individual floors to show tenants of such floors; Business Directories, giving the business as well as the name of the individual or company; Church Directories; Department Store Directories for listing the locations of different merchandise departments, etc.; Golf Handicap Boards; and Club Membership Directories with our patented "in and out" feature. Specifications will be immediately furnished upon request.



(C) Changeable Bulletin Boards

(C-1) Description—The Tablet & Ticket Changeable Bulletin Boards are made in three types—(1) without glass front; (2) with stationary glass front and take-out back; (3) with hinged glass door. All have the same kind of grooved backboard.

(C-2) Frames—The stock changeable bulletin boards range in sizes from 6x10 to 28x40 ins. over all. De Luxe models may be of wood moulding or kalamein. Extruded bronze mouldings will be furnished to order. We will furnish special sizes at slightly increased cost.

(C-3) Backboards—Backboards have parallel grooves 5/16 in. apart covered with best quality broadcloth.

(C-4) Standards—Stock standards are 62 ins. high, furnished in oak, mahogany, walnut, bronze or iron. Special finishes on order.

(C-5) Letters and Figures—Our bulletin board letters and figures are known as Sell-U-Letters. They are die-cut from pyralin .020 in. thick and made with our patented self-spacing flanges. Stock colors are red and white, but any color, including gold or silver, will be supplied on special order.

Sizes range from 1/4 in. to 2 ins. high in either block or Roman style, single or double flange.

(C-6) Application—Boards are especially adapted for use in banks, hotels, theatres, clubs, hospitals, railroad stations, schools and public buildings.

(D) "In" and "Out" Boards

(D-1) Description and Application—We manufacture several styles of Changeable Name "In" and "Out" indicator boards to meet every normal requirement, and are prepared to build special "In" and "Out" boards as may be designed.

Such boards are a necessity in large offices, hospitals, etc., to keep accurate record of the movement of executives, doctors, etc.

(E) Cork Back Bulletin Boards

(E-1) Description and Application—These boards are made like our regular changeable boards with the exception the backboard is of cork composition. Furnished in any size and the cork backboards may be covered with broadcloth or without covering.

These are particularly appropriate for use in banking institutions, retail stores, museums and educational institutions for displaying advertisements, drawings, etc., which are attached to the cork backboard with thumb tacks.

(F) Willson's Gummed Paper Letters and Figures

(F-1) Description and Application—Willson's gummed paper letters and figures are die-cut from highly glazed gummed paper in stock colors of white, red and black, but can be furnished in any desired color on special order. We have a wide range of sizes and styles of letters from 3/16 in. to 4 ins. high. These are furnished in individual envelopes as well as in small alphabet assortments and large handy box assortments to suit every need.

Paper letters and figures are used extensively in drafting rooms, for marking and lettering drawings and tracings. They photograph perfectly. Free samples will be furnished on request.

Electric Directional Signs

We are manufacturers of "Letr-Lite" electric directional signs which are furnished with cast bronze frames of special design or with standard drawn bronze frames.

Some installations are: Medinah Athletic Club, Chicago; Hotel Governor Clinton, New York; Chateau Laurier, Ottawa; Wm. Penn Hotel, Pittsburgh; Treasury Building, Washington.

"Letr-Lite" Hanging Type



CAPITOL MAIL CHUTE CORPORATION

TELEPHONE
Greenpoint 9-6033

420 Morgan Avenue
BROOKLYN, N. Y.
AGENCIES IN PRINCIPAL CITIES

Products

Manufacture and installation of the CAPITOL MAIL CHUTE and LETTER BOXES for post office collection service throughout the United States and foreign countries.

Post Office Approval

Capitol Mail Chute bears the approval of the Post Office Department and this company is under bond in a large penal sum to strictly carry out the postal rules and regulations.



Special Features of Capitol Mail Chutes

The frame holding the ¼-in. polished plate glass removable panel is a special patented feature of the Capitol Mail Chute, and is made of heavy extruded bronze material $\frac{3}{32}$ in. thick. These frames have the sharp contours and solid construction not possible to obtain in a drawn moulding. They are secured by locks made especially for us and can be opened for cleaning by the proper authorities by the simple means of unlocking the strap between them. In the Capitol Mail Chute no screws, bolts, or other fastenings of any kind penetrate the metal lining,

SOME RECENT INSTALLATIONS



275 Central Park West, New York
EMORY ROTH, Architect



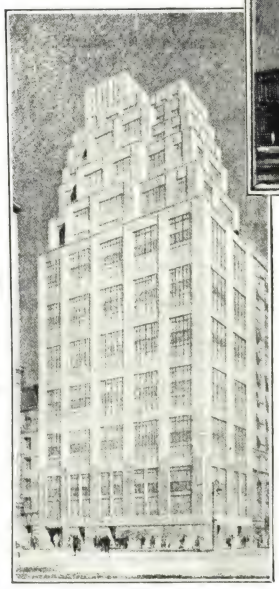
Commerce Bldg., New York
ELY JACQUES KAHN, Architect



Gansevoort Apartment, New York
H. I. FELDMAN, Architect



363 Seventh Avenue, New York
EMORY ROTH, Architect



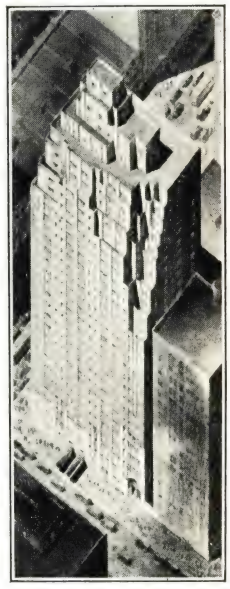
136 East 57th Street, New York
ELY JACQUES KAHN, Architect



Times Plaza Hotel, Brooklyn, N. Y.
MURRAY KLEIN, Architect



2 Beekman Place New York
ROSARIO CANDELA, Architect



Park Avenue Apartment House
ROBERT T. LYON, Architect

due to the method we use in fastening the chute to angles and on which we have applied for patents. A chute unobstructed by the loosening of such fastenings is thus assured.

Letter Boxes

CAPITOL MAIL CHUTE CORPORATION has complete facilities for manufacturing and finishing of specially designed letter boxes of bronze, aluminum or nickel silver conforming to the individual ideas or designs of the architect. However, for those installations requiring economy of expenditure, our Standard Boxes illustrated and described here should be used. These boxes are available for immediate shipment.

U. S. Post Office Requirements

Subject to the approval of the postmaster, collections may be made from mail chutes placed in public buildings, railroad stations, hotels not less than 5 stories high, business and office buildings not less than 4 stories high, and apartment houses comprising at least 50 residential apartments. Boxes must be within 100 ft. of the street entrance.



Single Chute Open Model C



Twin Chute Model C

Specifications for Furnishing and Installing Capitol Mailing Systems

Note: Rough openings in the floor and patching are not part of the mail chute contract and are left for us by others. Architect shall make provisions for these items in other trades.

Furnish and install where shown on the drawings and as hereinafter specified, the Capitol Mailing System as manufactured by the CAPITOL MAIL CHUTE CORPORATION of 21-30 44th Avenue, Long Island City, New York, N. Y.

Preparatory Work

This contractor shall prepare the building to receive the mail chute equipment by furnishing and erecting (....) frame of 2x2x ¼-in. steel angles, securely fastened to wall and through the rough openings provided by others. Frame shall extend from the top of the mail box in the (first) story to a point 4 ft. 9 in. above the finished floor in the (top) story. At this point the angles shall be neatly mitred and returned across the top. The frame shall be left flush and plumb throughout and sufficiently rigid to properly support the mail chute. Attach thimbles to frames in concrete openings between



Capitol Box No. 316

Width 22 in., depth 12 in., height 36 in. Box made of No. 14 gauge sheet bronze. Door and frame cast bronze. Usually finished semi-oxidized



Capitol Box No. 402

Width 24 in., depth 13 in., height 40 in. Box made of extruded metal. Door and frame cast bronze. Usually finished semioxidized

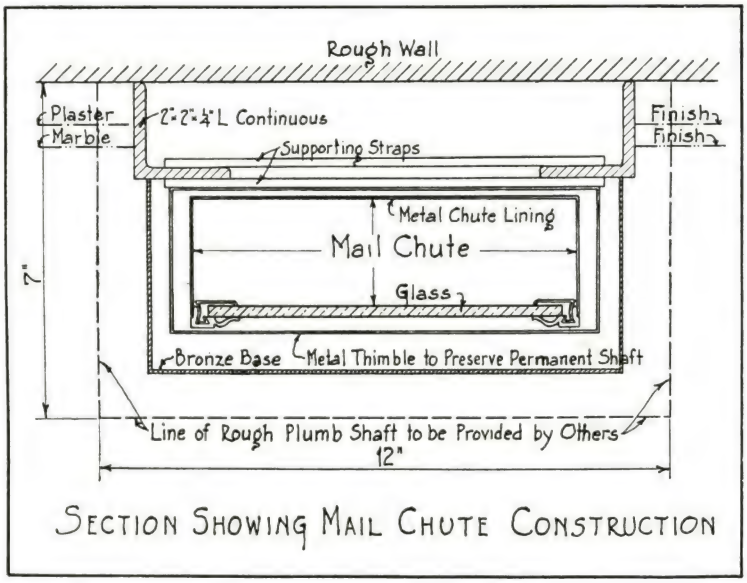
floors. Frames and thimbles shall be finished with two coats of lead and oil in a dead black.

Erection

Erect on this steel frame the Capitol Mailing System, consisting of—Model "C" Mail Chute and No. 312 Standard U. S. Mail Box. The mail chute shall be adequately supported by, and fastened to the angle frame, and shall be properly connected with the mail box. Chute shall extend from the top of box through .... floors and to a point 4 ft. 8 in. above the finished floor of the (top) story where it shall be suitably joined to the angle frame. Opening for mail shall be provided in each story.

Mail Chute

Channel of mail chute and neck piece shall be manufactured of No. 20 U. S. gauge cold rolled steel with removable panels of ¼-in. thick polished plate glass in patented extruded bronze frames and secured in place by special locks with keys in hands of Post Office authorities. Subbase of steel, base neck mouldings and crown moulding of extruded bronze. Collar and mailing pocket of cast bronze.



SECTION SHOWING MAIL CHUTE CONSTRUCTION

Mail Box

Mail Box shall be CAPITOL MAIL CHUTE CORPORATION design No. 312, size 21½ in. wide, 12 in. deep and 37 in. high and constructed of heavy sheet bronze, door and frame of cast bronze, and mouldings of extruded bronze.

Finish

All bronze surfaces shall be finished slightly oxidized or statuary bronze color and lacquered as directed. All steel shall be finished in dead black.

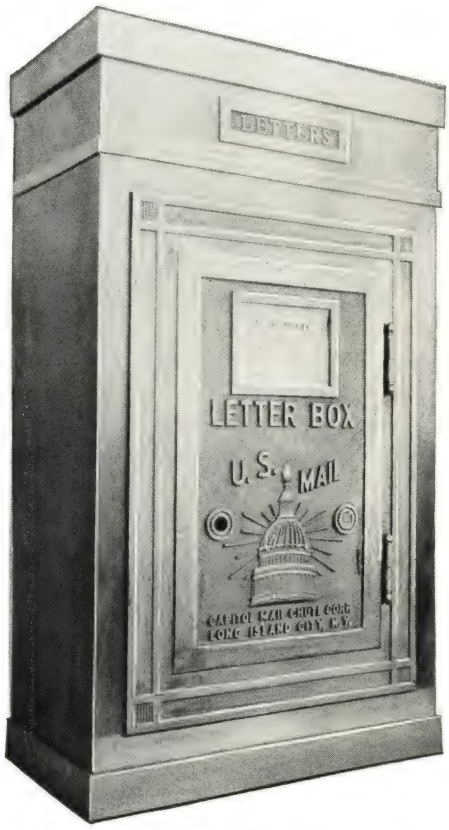
Conclusion

The entire work to be done to the satisfaction and acceptance of the architect in strict accordance with the regulations of the Post Office Department and guaranteed for one year.



Capitol Box No. 312

Width 21½ in., depth 12 in., height 37 in. Box made of No. 14 gauge sheet bronze. Door and frame cast bronze. Usually finished semi-oxidized



Capitol Box No. 314

Width 20½ in., depth 11 in., height 36 in. Box made of No. 14 sheet bronze. Door and frame cast bronze. Usually finished semi oxidized

FIRST INSTALLATION 1881 BUSINESS ESTABLISHED 1883 INCORPORATED 1909

CUTLER MAIL CHUTE COMPANY

NEW YORK OFFICE
551 Fifth Avenue

GENERAL OFFICES
Cutler Building, ROCHESTER, N. Y.
(Where All Correspondence Should Be Addressed)

AGENCIES IN PRINCIPAL CITIES

FACTORY
ROCHESTER, N. Y.

CABLE ADDRESS
"Chutler Rochester"

Copyright 1931 by Cutler Mail Chute Company

THE CUTLER MAIL CHUTE

The achievement of fifty years' experience in meeting the exacting demands of Post Office and public use. Manufactured in our own factory—built, equipped and operated for this purpose exclusively. The only such factory that we know of.

The business is limited and restricted by stringent Postal Regulations, but, centered in one establishment, it is possible to maintain the organization necessary to give to our customers, the public, and the Post Office Department a quality of work and service satisfactory to them, and to us.

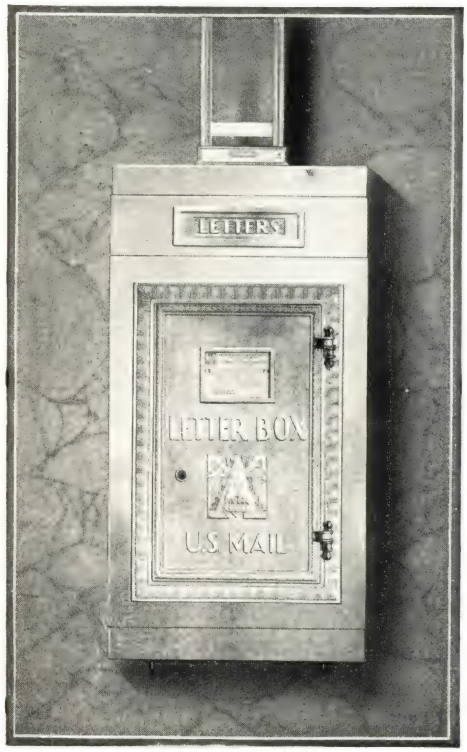
This also justifies the employment of specially designed machinery by which the highest standard of quality is maintained, and the cost of production reduced to the lowest possible level.

The mail box, which is an integral part of the equipment, is furnished in a variety of forms, either from stock or special designs. By the use in part of stock models and patterns, special architectural requirements can be met at moderate cost.

The Standard Cutler Mail Chute is known as Model F. It is installed by authority of the Post Office Department and with the written approval of the local postmaster.

Contracts are written in all cases to cover the work complete, excepting the rough floor openings which are otherwise provided for, ready to be turned over to the Government for postal usage. Contracts are written on a prescribed form, with the Post Office Regulations printed upon and made a part of the contract.

While the finish is varied to meet architectural requirements, the construction of the Cutler Mail Chute is the same in all cases.



Stock Design 4083
Aluminum

Standard Finish—Steel chute channels (sides and back of chute) and subbases in dead black baked enamel; caps, duplex electrobronze plated; bases, mailing pockets and frames of glass fronts are of bronze, slightly oxidized or statuary bronze color.

Bronze Finish—Model F is also made with all exposed parts of bronze. In this construction the sides of the chute channels are covered with sheet bronze. It is not unusual to use this finish in the first story, combined with the standard finish in the upper stories.

Special Finishes—We are prepared to furnish equipment in a great variety of special finishes when required.

Aluminum and Benedict Nickel materials are carried in stock for this purpose and we have excellent facilities for producing special Baked Enamel finishes of all kinds.

SPECIFICATIONS

Note: Rough openings through floors are not included in the mail chute contract, and are otherwise provided for together with the items of general cutting, and patching and repairing of plaster.

When concrete construction is used, openings should be formed by setting centers or curb boxes when concrete is poured; 7x12 ins. for the single chute, or 7x21 ins. for the twin arrangement.



Model F
Full story

(1) Mail Chute Equipment—Mail Chutes where indicated on drawings shall be the Cutler Mail Chute Equipment. To be manufactured and installed complete, including supports, by the CUTLER MAIL CHUTE COMPANY, Rochester, N. Y., as follows:

(2) Supporting frame to be of 2x2-in. steel angles, securely fastened, extending from the floor or top of the mail box in the first (ground) story to a point 4 ft. 8 ins. above the finished floor in the .... (top) story, and there finished by neatly mitering and returning the angle across the top. This frame to be plumb and flush in all stories, and sufficiently rigid to form a suitable support for the Mail Chute. Finish to be 2 coats of dead black or color to match elevator screen, as directed.

(3) Furnish and erect on the steel frame described above (one) Cutler Mail Chute, Model F, and (one) (special) U. S. Mail Box. The Mail Box to be located in the first (ground) story, and the Mail Chute, properly connected with and extending from the top of the Mail Box through .... stories and 4 ft. 7 ins. into the .... (top) story, with openings for mail in each of these stories.

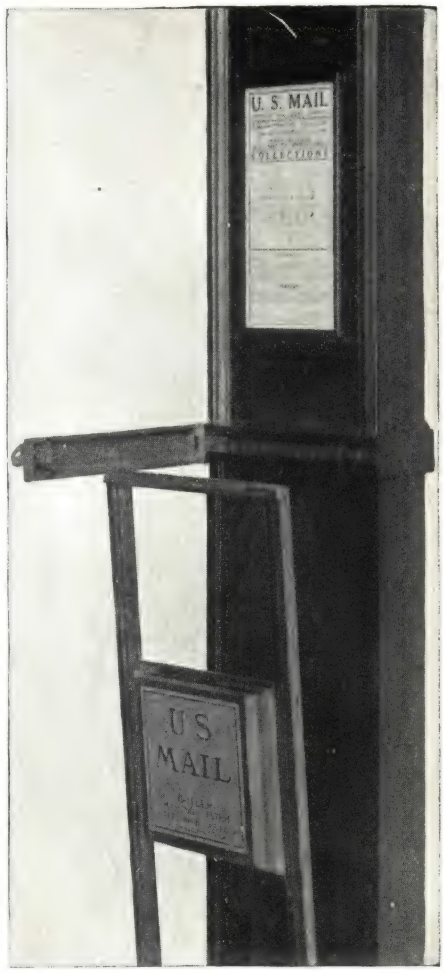
(4) Mail Chute to be constructed of No. 20 U. S. gauge cold rolled steel, formed in channels with removable panels of plate glass set in frames of bronze, and secured in place by standard U. S. Mail Chute locks, with keys in the hands of the Post Office Authorities. Steel chute channels to have an inwardly projecting rib to form a seat for the removable panels and a projecting flange to cover the joint between the panel seat and the panel to prevent tampering. Mailing pockets to be provided with a guard located 1½ ins. below the visible opening to prevent the introduction of newspapers, or loosely folded matter, and to have means of closing the opening, operated from the inside, and accessible to authorized persons only.

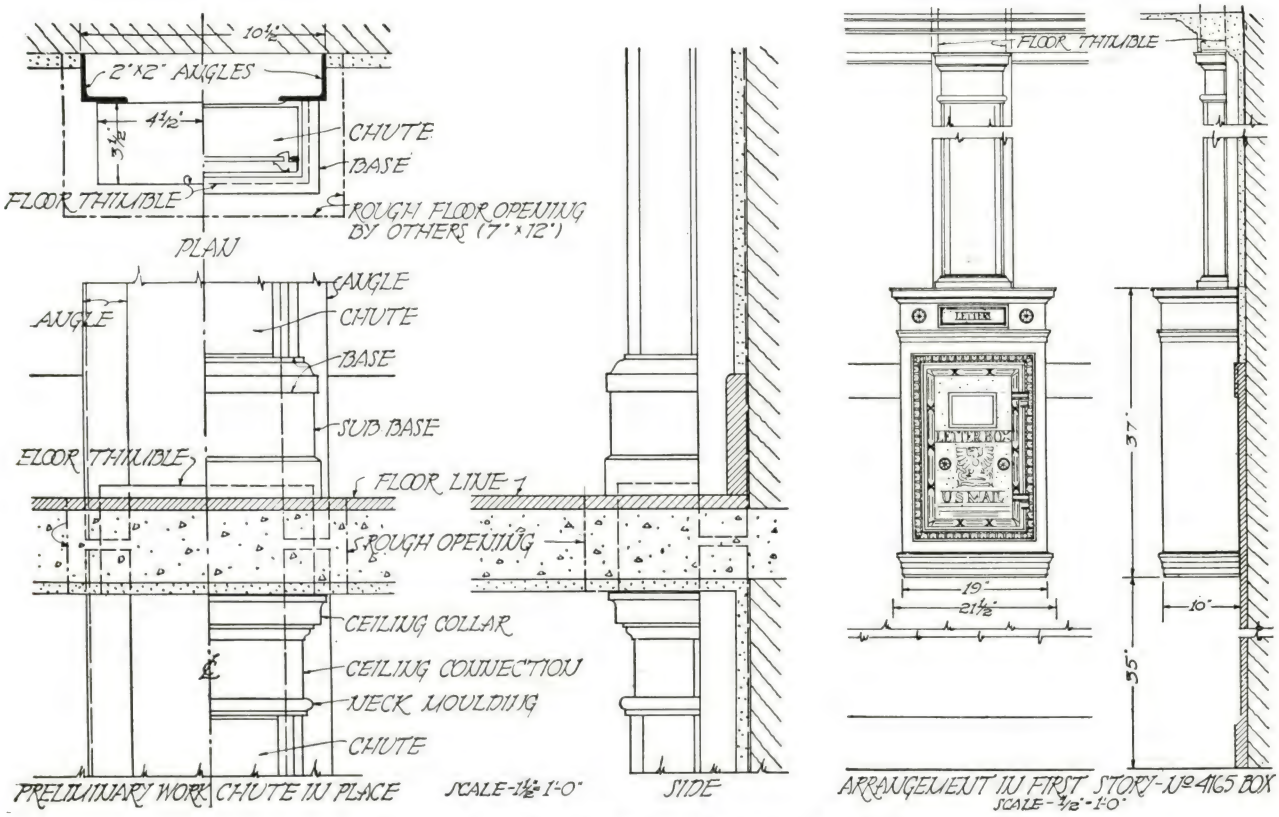
(5) Mail Box to be of design No. 4165 (buildings in Modernistic style, No. 4038) 37x21½x11¼ ins. over all, electro-bronze plated, with mouldings of bronze. Finish of Mail Chute in all stories to be standard—steel chute channels and subbases in dead black baked enamel with other fittings in bronze. All bronze surfaces to be finished slightly oxidized and lacquered.

(6) Work to be done to the satisfaction and acceptance of the architects, ...; in strict accordance with the regulations of the Post Office Department, and installed with the approval of the Postmaster of ..... Any and all defects in workmanship or material developing within one year from date of completion to be made good without charge.

Note: Except where cost is the primary consideration we recommend the use of bronze mail boxes with exposed parts of the chute in the ground story also of bronze. In such cases substitute the following paragraph No. 5A for paragraph No. 5 above.

(5A) Mail Box to be of bronze from design No. .... Exposed parts of Mail Chute and supporting angles in first story to be of bronze; construction and finish of Mail Chute in upper stories to be standard—steel chute channels and subbases in dull black enamel with fittings in bronze. All bronze surfaces to be finished slightly oxidized or statuary bronze color and lacquered.





General Installation Details of Cutler Mail Chute

TWIN CHUTE EQUIPMENT

For buildings in which large quantities of mail originate, Twin Chute Equipment is recommended. By closing the mailing openings on each Chute in alternate stories, the mail is divided between the two Chutes and the possibility of congestion is greatly lessened.

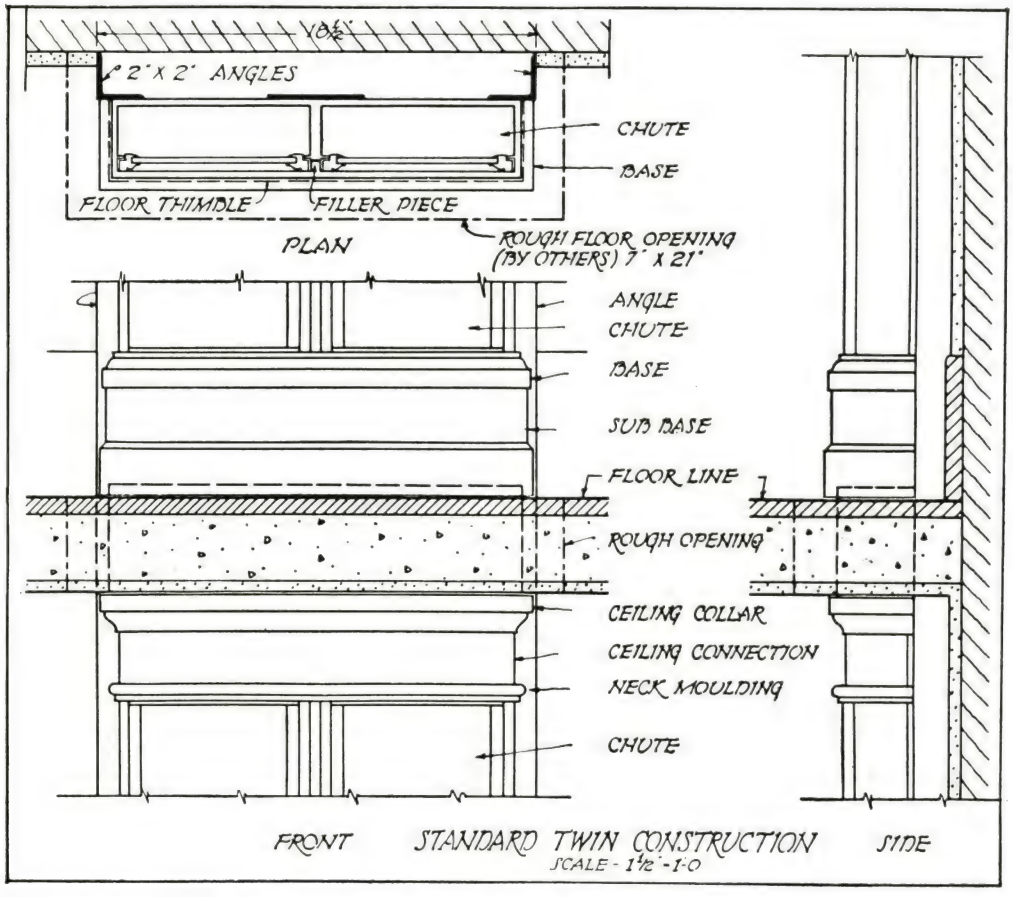
Twin Chute Equipment also makes it possible to close one Chute temporarily for cleaning or repairs, while the service is continued without interruption, by means of the other.

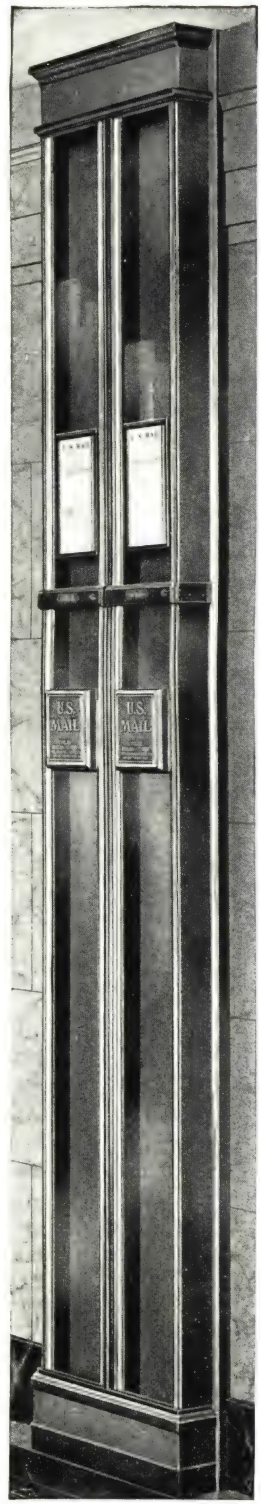
Recent refinements in this construction have reduced the space occupied and greatly improved the appearance.

At least one pair of Twin Chutes should be specified for buildings of large area, or twelve or more stories in height.

In buildings of unusual area or height it is usual to install from four to eight Chutes, depending on the conditions.

We offer our services and experience in determining the number of Chutes and the Mail Box capacity required in any building.





Standard Twin, Model F

UNITED STATES MAIL CHUTE CORPORATION

TELEPHONE
ALgonquin 4-1830, 4-1831

58 West 15th Street
NEW YORK, N. Y.

Products

UNITED STATES MAIL CHUTES, Single and Twin Types.

Mail Boxes, Stock and Special Sizes.

Service

It is our desire to co-operate with the architect and contractor in every way and to have them utilize the experience and facilities of our organization in dealing with any problem involving the selection and installation of mail chutes and equipment.

Write to us for any information, regarding cost of installation, or your own particular problems.



Model A
Twin Chute

Improved Construction of U. S. Mail Chutes

The construction of the interior of U. S. Mail Chutes is such that there can be no impediment to its successful operation.

The process whereby the channels are practically embedded in the panel frame makes the interior of the chute equivalent to one-piece construction in effectiveness. This construction eliminates crevices and precludes blockage in the chute.

The panels are composed of special bronze moulding and ¼-in. clear glass which permits observation of the passage of the mail.

These panels are absolutely pryproof and are secured by special locks made for us by Corbin.

The simplicity with which these glass panels can be opened by authorized persons for cleaning is clearly shown below.

Officially Approved by the United States Post Office Department

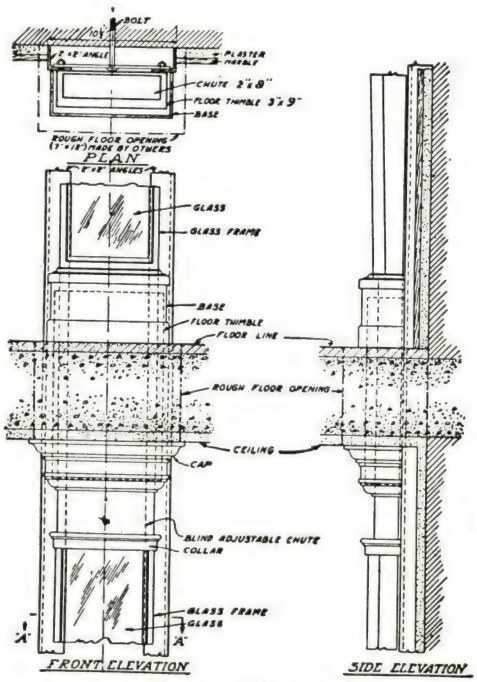
United States Postal Service Regulations call for strict observance of their requirements. UNITED STATES MAIL CHUTE CORPORATION equipment has been officially approved by the United States Post Office Department.

Single and Twin Chutes

In buildings of moderate size our Model A Single Chute will often suffice but in large buildings where a heavy deposit of mail makes the single chute inadequate, our twin chute, with openings for mail on alternate floors, has the necessary capacity and eliminates overcrowding or congestion of either chute.

Stock Designs and Special Finishes

In addition to stock designs and patterns, U. S. Mail Chutes and equipment can be supplied in any finish the architect or owner may desire in order to conform with the decorative scheme of the building in which the installation is to be made.



Installation Details of U. S. Mail Chute



United States Mail Chute Specifications

All United States Mail Chute Corporation Equipment is manufactured strictly in accordance with requirements of Part B, New York Building Congress Standard Specifications for Mail Chutes.

Left:

Standard Mail Box No. 25

Constructed of heavy gauge sheet bronze, with door, frame and mouldings of cast bronze, in slightly oxidized or statuary bronze finish. Designed to conform with the modernistic motif in architecture



Model A
Open

G&G ATLAS SYSTEMS

INCORPORATED

Pneumatic Dispatch Tubes

TELEPHONE
SPring 7-7800

542 West Broadway, NEW YORK, N. Y.

PNEUMATIC TUBE AGENCIES

ATLANTA, GA., The Hill R. Huffman Co., P. O. Box 1394
BALTIMORE, MD., Vincent D. Eastwood, Munsey Bldg.
BOSTON, MASS., Asa C. Deming, 216 Tremont St.
CHARLOTTE, N. C., Ross Sales Service, 16 So. Poplar St.
CHICAGO, ILL., S. I. Kaufman, 228 No. La Salle St.
CINCINNATI, OHIO, A. W. Frank, 710 Broadway
CLEVELAND, OHIO, The R. L. Queisser Co., 9105 Woodland Ave.
DALLAS, TEX., G&G Atlas Systems, 810 Main St.
DETROIT, MICH., Kennedy & Dawson, 2111 Woodward Ave.
LOS ANGELES, CALIF., J. Royden Estey, 420 East 8th St.
PHILADELPHIA, PA., Culbert-Whitby Co., 2019 Rittenhouse St.
PITTSBURGH, PA., J. R. Pitcairn, 132 Seventh St.
PORTLAND, ORE., George L. Cherry, 327 E. 27th St.
SAN FRANCISCO, CALIF., A. Richard Thorson, 383 Brannan St.
ST. LOUIS, MO., Hunkins-Willis Lime & Cement Co., Louderman Bldg.

Products

PNEUMATIC DISPATCH TUBES.
POWER-SAVING CONTROL VALVES.
CARRIERS for PNEUMATIC TUBES.

Uses

Where written instructions, mail, documents, samples or other items must be sent between departments, G&G Pneumatic Dispatch Tubes provide a mechanical messenger service that has proved speedier, more reliable, more efficient and more flexible than foot messenger service.

Pneumatic Tubes *save floor space, reduce elevator congestion, hallway and stair traffic,* and attendant *noise* and *confusion.* Buildings which many messengers enter should have either a central tube room adjoining lobby, or the usual outlying station to which all mail, telegrams and messages should be delivered. A Wall Street broker found such arrangement made him a more desirable tenant, and saved 7 minutes on every transaction. A bank was able to eliminate two elevators. The saving in cost of elevators and the gain in rentable space on 9 floors (paying dividends during life of building), more than paid for tube system.

Industrial Plants—Tubes are used between order department and production manager, manufacturing and shipping departments, shipping and billing departments and elsewhere where frequent transmission may be necessary.

Banks and Office Buildings—Tube Systems in both large and small institutions and offices are used for transmission of mail, telegrams and inter-office documents, especially between tellers' cages and bookkeepers. See Fig. 8.

Newspaper Offices—Tubes are used for sending classified and display advertising matter to composing room, for news service between telegraph room and editorial department, and between editorial department and composing room.

Hotels—Tubes are used for handling guests' mail, telegrams, etc., between floor clerks and front office, between bookkeepers and departments which render services chargeable to guests' accounts. Back-of-the-house departments, such as steward, chief engineer and housekeeper, also have tube service.

Hospitals—Tubes are used for many purposes. See Fig. 9.

Libraries—Tube lines carry book orders between call-slip desk and various bookstacks, and to special departments.

Retail Stores—Tubes are used for handling sales transactions, messages and documents between non-selling departments.

Send for pamphlets describing typical installations in above and other types of buildings.

the G&G ATLAS PNEUMATIC TUBE SYSTEM
TRADE-MARK



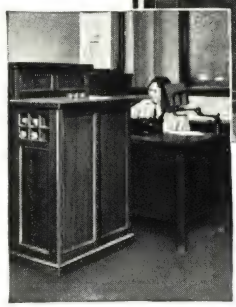


Fig. 4. Central Tube Station, State Mutual Life Assurance Co., Worcester, Mass.
PARKER, THOMAS & RICE, Architects
Like a telephone switchboard, lines reach out to provide communication to all departments

Left:
Fig. 5. G&G Atlas Airtight Cabinet
One of many styles providing convenient sending and receiving stations

Special Advantages

G&G Atlas Pneumatic Dispatch Tubes are always on duty every hour of every day. Equally efficient in rush or dull periods, they provide for continuous flow of messages traveling 30 feet a second, unobserved, without confusion, and conserving every employee's time.

An important feature is the G&G Atlas Power-Saving Control Valve (Fig. 2). Independent of electrical or timing elements and self contained, its action depends upon speed of air flowing through it. This makes it possible to operate longer lines without blockages, minimizes wear and tear on carriers and bends, and saves electric current. Superior to spring, timed or electrically actuated devices, because it always shuts off at correct instant.

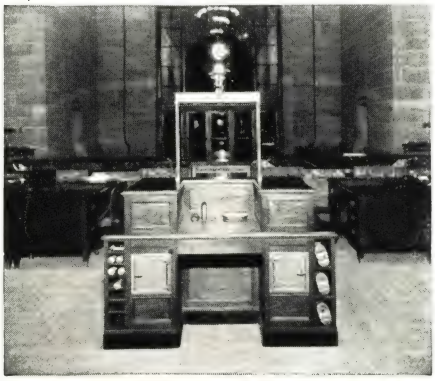


Fig. 1. "Island" Station at The Canadian Bank of Commerce, Toronto, Ont. (Ledger Dept. Toronto Branch)
DARLING & PEARSON, Architects
E. F. ABBELL, Equipment Specialist
Special cabinet contains 1¼-in. terminals and airtight terminals for 2¼-in. round and 4x7-in. oval tube lines

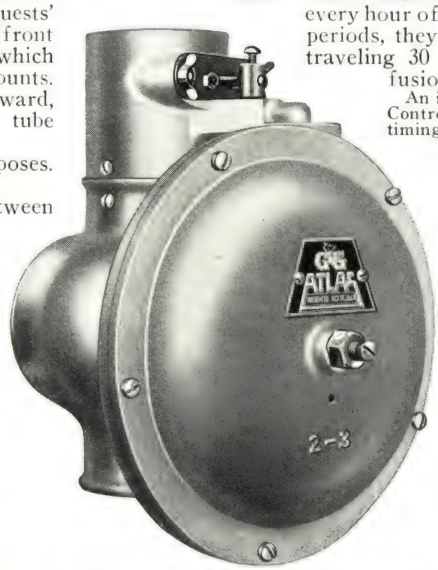


Fig. 2. G&G Atlas Power-Saving Control Valves
These valves permit pilot flow of air through line when not in use. When carrier is inserted, valve automatically opens until last carrier in that line discharges. It automatically cuts off in a long drop by gravity.

R. H. Macy & Co., New York, N. Y., uses 656 valves; Sears, Roebuck & Co., 175 valves; Montgomery Ward, 193 valves; City Bank Farmer's Trust Co., 60 valves; and the Bank of Mitsui, Tokyo, Japan, 20 valves; Stone & Webster, 6 valves



Fig. 3. Stevens Hotel, Oak Room, Chicago, Ill.
HOLABIRD & ROCHE, Chicago, Architects
Back-of-the-house departments and those directly serving guests have tube service to the management and the bookkeepers

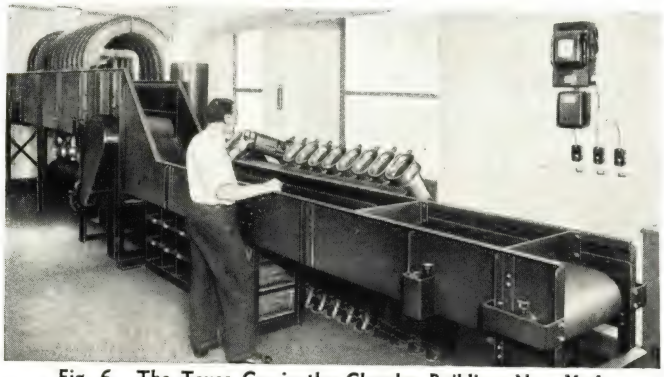


Fig. 6. The Texas Co. in the Chrysler Building, New York

WILLIAM VAN ALEN, Architect

This Central Station links together, with 4x7 in. oval tube lines, the head offices of the Texas Co. spread over 13 floors; transmitting mail, telegrams and documents by shortest route at 30 ft. per second.

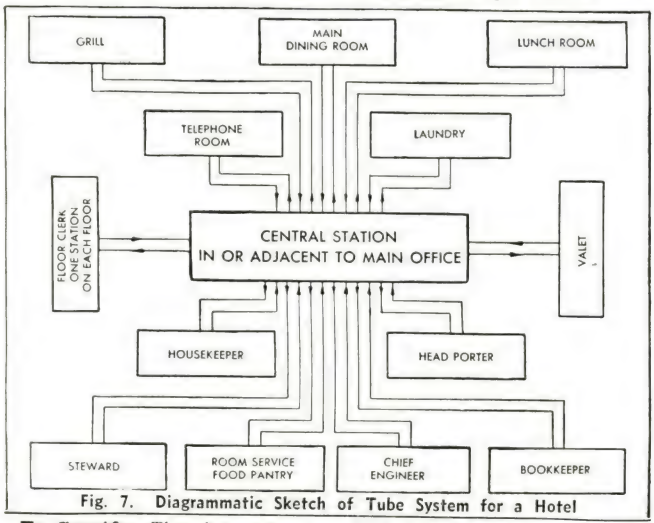


Fig. 7. Diagrammatic Sketch of Tube System for a Hotel

To Specify—Though requirements differ, G&G Atlas Pneumatic Dispatch Tubes can be made to fit every need. It is suggested that the architect or engineer consult us on proposed installations, so that we can work together towards a satisfactory solution of the problem. Send for Data Sheet showing inside measurements of standard carriers and space requirements for tube lines and schematic diagrams for small banks, hospitals, manufacturers and wholesalers, airports, and retail store tube room.



Fig. 9. Columbia Presbyterian Medical Center, New York

JAMES GAMBLE ROGERS, Architect

In hospitals, a G&G Atlas Pneumatic Tube System will carry records, bills, reports, bandages and medicine (including liquids in bottles). A central station in or adjacent to Record Room can receive and dispatch carriers to and from In-Patients Nurses' Station on each floor; Out-Patients' Station in each clinic; Bookkeeper-Cashier; Superintendent; Laboratory; Dietitian; Admittance Office; Storekeeper, etc. A diagrammatic sketch showing a typical hospital installation will be sent on request.

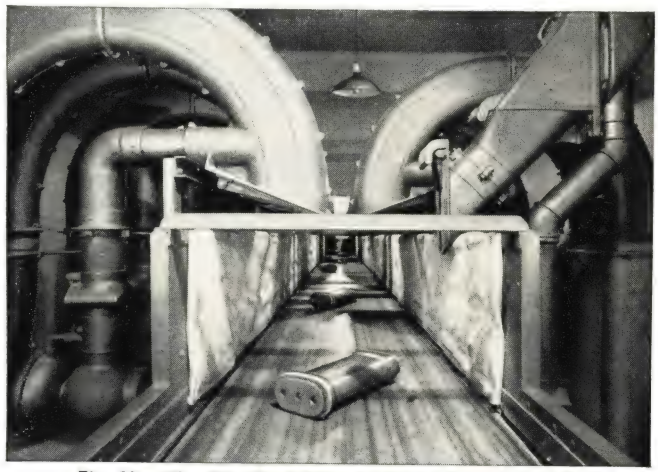


Fig. 10. The City Bank Farmers Trust Co., New York

CROSS & CROSS, Architects CLYDE R. PLACE, Engineer

Central Tube Station where 54 4x7 in. lines converge. Speeds transactions over many floors of this 71 story 935 ft. building, providing safe, confidential, quiet service and relieves elevator congestion.

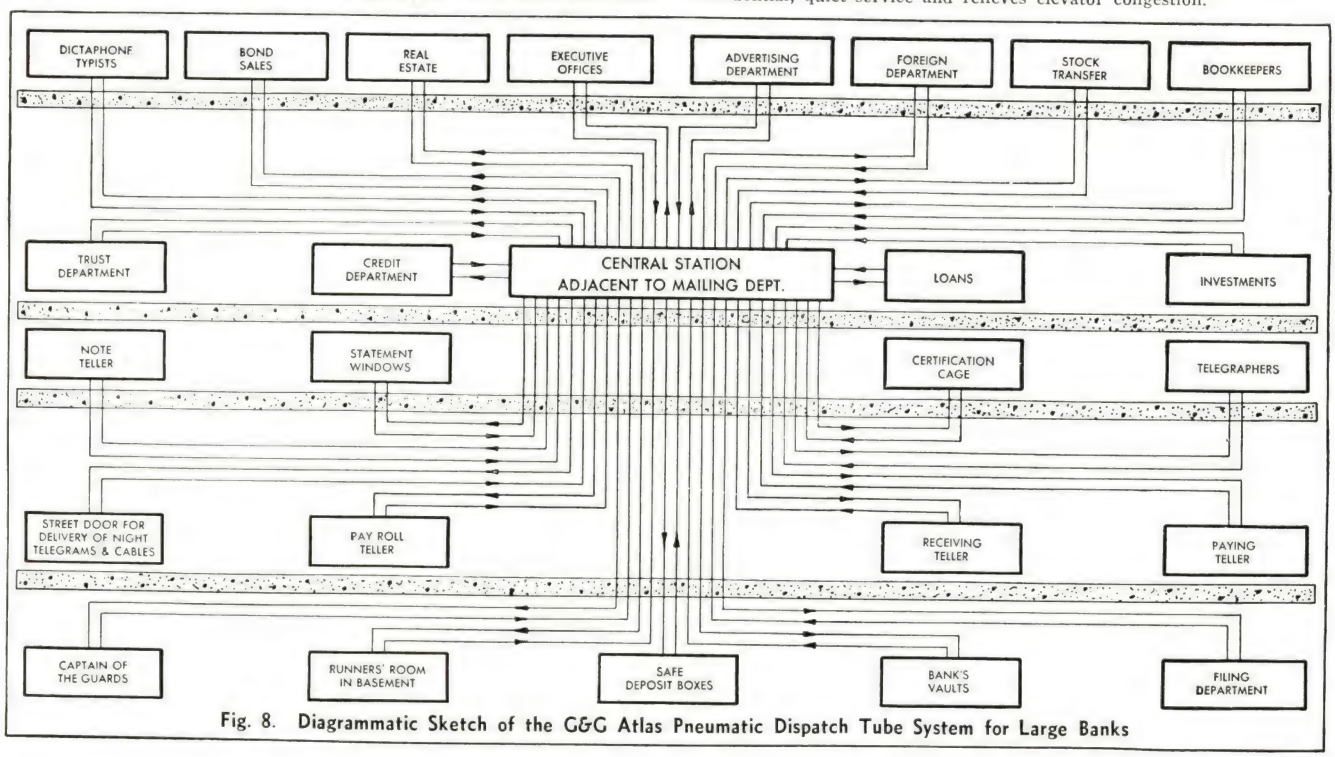


Fig. 8. Diagrammatic Sketch of the G&G Atlas Pneumatic Dispatch Tube System for Large Banks

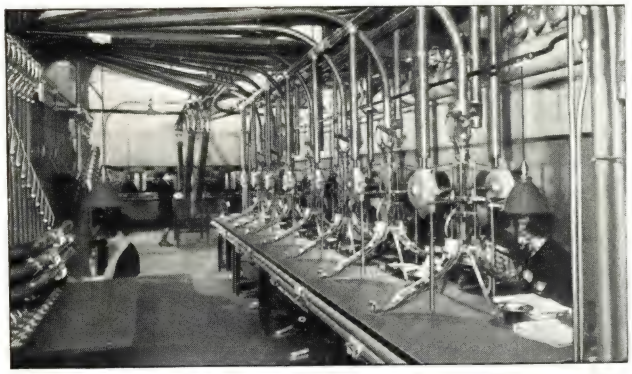
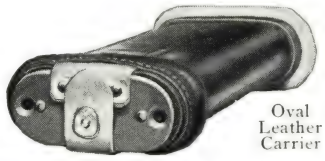


Fig. 11. The Halle Bros. Co. (Department Store), Cleveland, Ohio
WALKER & WEEKS, Cleveland, Architects
C. A. WHEELER, Chicago, Fixture Architect
Tube room, Huron Prospect Addition. 78 lines (provision for 32 more), with G&G Atlas Power-Saving Control Valves, serve selling and non-selling departments. Grouped cashiers' desks with G&G Atlas Positive Consecutive Carrier Ejectors on the right

Carriers for Pneumatic Tubes



Round Carrier with "Lift the Dot" Loop



Oval Leather Carrier



Fibre Covered Round Carrier

Preliminary Data

The preliminary data necessary to the study of a pneumatic tube installation is as follows:

(1) Plans showing the proposed location of stations and the motor and exhauster.

(2) Inside measurements of carriers required to contain the material to be transported. This will determine the size of the tubes; for example: 1¼, 1½, 2¼, 3, 4 and 5-in. round; 3x6 and 4x7-in. oval. Send for data sheet of standard carrier sizes.

(3) The length of carrier used will determine the radii of bends. Round carriers can be obtained from 3 1/16 to 12 in. long, and oval carriers can be had from 8½ to 14 in. inside length.

3x6 and 4x7-in. oval tubes are used in factories and other buildings where the article to be dispatched more conveniently fits this shape carrier. 3 or 4-in. round tubes are provided for handling larger quantities than are possible with 2¼-in. lines.

Round tubes, of 1¼-in. outside diameter, with 3¼-in. fibre carriers are used in banks for sending quotations and brief messages. 3x6-in. and 4x7-in. oval tubes with 13-in. leather carriers are generally used because it is preferred not to fold pass books, stock certificates, bonds, leases, etc.

Retail stores use 2¼-in. round tubes with 5-in. brass carriers between the sales counters and the tube room and the 3-in. lines with 10-in. leather carriers for non-selling departments.

The size of carriers must be determined as a preliminary, because it governs the diameter of the tube lines and the radii of the bends. Pneumatic tube lines are installed to handle carriers of a selected diameter and length. Other carriers of same diameter, but of shorter length, can also be used, but not longer carriers. The shorter carriers are much more desirable for small documents.

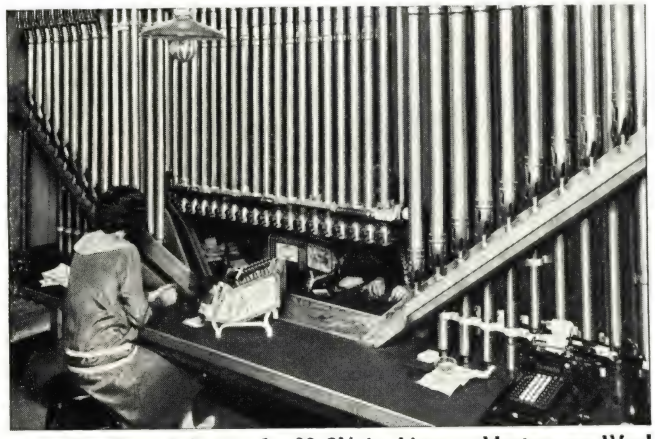


Fig. 12. Central Station for 39 2¼-in. Lines at Montgomery Ward & Co., Fort Worth, Tex.
Other G&G Atlas installations for this company are at Spokane, Wash., Dallas, Tex., Sioux City, Iowa, and Oklahoma City, Okla. 193 Atlas Power Control Valves used in these installations.

Partial List of Installations

(Complete List on Request)

NAME OF JOB	LOCATION	ARCHITECT
Sears, Roebuck & Co.	Atlanta, Ga.	Martin C. Schwab
Johns Hopkins Hospital	Baltimore, Md.	James E. Sperry
St. Paul Garage	Baltimore, Md.	Wyatt & Nolting
S. S. Pierce Co. (Grocers)	Boston, Mass.	
Sears, Roebuck & Co.	Boston, Mass.	Martin C. Schwab
Stone & Webster, Inc.	Boston, Mass.	Company's Engineers
D. M. Read Company	Bridgeport, Conn.	Monks & Johnson
Abraham & Straus	Brooklyn, N. Y.	Starrett & VanVleck
Brooklyn Edison Co.	Brooklyn, N. Y.	Company's Engineers
Oppenheim Collins & Co. (5)	Brooklyn, N. Y.	
N. Y. C. R. R. Passenger Dep.	Buffalo, N. Y.	Fellheimer & Wagner
Bismarck Hotel	Chicago, Ill.	Rapp & Rapp
Foreman State Building of First Nat'l Bank	Chicago, Ill.	Graham, Anderson, Probst & White
Stevens Hotel	Chicago, Ill.	Holabird & Roche
Children's Hospital	Cincinnati, Ohio	Matthews & Short
The Halle Bros. Co.	Cleveland, Ohio	Walker & Weeks
Medical Arts Garage	Cleveland, Ohio	Graham, Anderson, Probst & White
Union Trust Co. (Term. Br.)	Cleveland, Ohio	Graham, Anderson, Probst & White
McKesson Crowdus Drug Co.	Dallas, Tex.	Whitson & Roberts
Montgomery Ward & Co.	Denver, Colo.	Company's Engineers
Iowa-Des Moines Natl. Bk. & Tr. Co.	Des Moines, Ia.	Proudfoot, Rawson & Thomas
Parke-Davis Company	Detroit, Mich.	Smith, Hinchman & Grylls
American Tobacco Co.	Durham, N. C.	
Montgomery Ward & Co.	Fort Worth, Tex.	Company's Engineers
Conde Nast Publishing Co.	Greenwich, Conn.	
Wise, Smith & Co.	Hartford, Conn.	
L. S. Ayres	Indianapolis, Ind.	
American Can Company	Jersey City, N. J.	
Public Service Corp. of N. J.	Jersey City, N. J.	
New York Telephone Co.	Kingston, N. Y.	
Braun Corp., Ltd.	Los Angeles, Calif.	Walker & Eisen
Northwestern Natl. Bank	Minneapolis, Minn.	Graham, Anderson, Probst & White
Mil. Co. Emergency Hospital	Milwaukee, Wis.	VanRyn & De Gelleke
Sun Life Assur. Co.	Montreal, Que.	Darling & Pearson
S. S. Kresge Dept. Store	Newark, N. J.	Starrett & VanVleck
Sterling Library at Yale	New Haven, Conn.	James Gamble Rogers
American Bank Note Co.	New York, N. Y.	
American Women's Ass'n	New York, N. Y.	Benj. Wistar Morris
The Bank of Manhattan Trust Co.	New York, N. Y.	Morrell Smith Walker & Gillette E. F. Abell
Charles D. Barney & Co.	New York, N. Y.	Benj. Wistar Morris
Bellevue Hospital	New York, N. Y.	McKim, Mead & White
Bonwit Teller & Co.	New York, N. Y.	
Hanover Bk. & Tr. Co.	New York, N. Y.	Buchman & Kahn
Chase Nat. Bk. of the City of N. Y.	New York, N. Y.	Graham, Anderson, Probst & White
City Bank Farmers Tr. Co.	New York, N. Y.	Cross & Cross
Columbia Pres. Med. Center	New York, N. Y.	James Gamble Rogers
Consolidated Gas Co.	New York, N. Y.	Company's Engineers
John Davis & Co. (4 stores)	New York, N. Y.	
A. De Pinna Co.	New York, N. Y.	Starrett & Van Vleck
R. G. Dun & Co.	New York, N. Y.	
Chase Nat. Bk., Equitable Trust Branch	New York, N. Y.	Trowbridge & Livingston
Guaranty Trust Co.	New York, N. Y.	E. F. Abell
Hamburg-American Line	New York, N. Y.	Lansman & Smith
Knox Hat Company	New York, N. Y.	Mr. Nevins
R. H. Macy & Co.	New York, N. Y.	Robert D. Kohn
Metropolitan Life Ins. Co.	New York, N. Y.	Waid & Corbett
National City Bank of N. Y.	New York, N. Y.	
National City Building	New York, N. Y.	McKim, Mead & White
New York Hospital—Cornell Med. Center	New York, N. Y.	Coolidge, Shepley, Bulfinch & Abbott
New York Stock Exchange (Stock Clear. Corp.)	New York, N. Y.	Company's Engineers Walker & Gillette
New York Trust Co.	New York, N. Y.	Clinton, Russell, Holton & George
Pine Street Realty Co. (Cities Service Bldg.)	New York, N. Y.	
Police Dept. Boro of Man.	New York, N. Y.	Capt. Thos. E. O'Brien
Rogers Peet & Co.	New York, N. Y.	
State Office Building	New York, N. Y.	Wm. E. Haugaard
Stern Brothers	New York, N. Y.	
The Texas Co. (Chrysler Bldg.)	New York, N. Y.	Wm. Van Alen
Waldorf Astoria Hotel	New York, N. Y.	Schultze & Weaver
Power City Trust Co.	Niagara Falls, N. Y.	C. H. Phelps
Montgomery Ward & Co.	Oklahoma City	Company's Engineers
Oklahoma-Biltmore Hotel	Oklahoma City, Okla.	Hawk & Parr & Development Swerive Corp.
Public Service Corp. of N. J.	Orange, N. J.	Company's Engineers
George Allen, Inc.	Philadelphia, Pa.	Clarence E. Wunder
Bioren & Co.	Philadelphia, Pa.	A. H. Brockie
Bonwit, Teller & Co.	Philadelphia, Pa.	Clarence E. Wunder
Fidelity Phila. Trust Co.	Philadelphia, Pa.	Simon & Simon
Strawbridge & Clothier	Philadelphia, Pa.	
W. J. Gilmore Drug Co.	Pittsburgh, Pa.	Joseph F. Kuntz
Joseph Horne & Co.	Pittsburgh, Pa.	C. A. Wheeler
McCurdy & Company	Rochester, N. Y.	R. B. Sherburne
Rochester Times Union	Rochester, N. Y.	
Missouri Pacific R. R. Co.	St. Louis, Mo.	Company's Engineers
Montgomery Ward & Co.	Sioux City, Iowa	Company's Engineers
Montgomery Ward & Co.	Spokane, Wash.	Company's Engineers
Yale & Towne Mfg. Co.	Stamford, Conn.	
Mitsui & Co., Ltd.	Tokyo, Japan	Trowbridge & Livingston
Grasslands Hospital	Valhalla, N. Y.	Walker & Gillette
Library of Congress	Washington, D. C.	David Lynn
Potomac Elec. & Power Co.	Washington, D. C.	W. B. Wood
Woodward & Lothrop	Washington, D. C.	
State Mutual Life Assur. Co.	Parker, Thomas & Rice	Worcester, Mass.
Ward Melville Shoe Co.	George E. Strehan	Worcester, Mass.

THE RIVET-GRIP STEEL CO.

Rivet-Grip System of Bank Vault Reinforcement

2341 Carnegie Avenue, CLEVELAND, OHIO

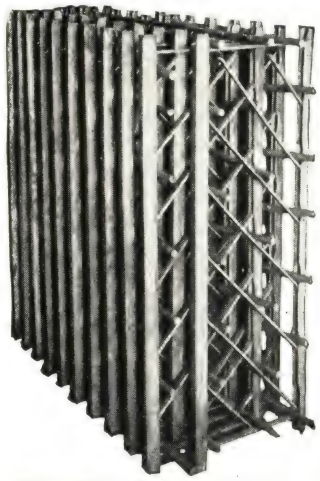
SALES OFFICES

BALTIMORE, MD., York Safe & Lock Co., 7 W. Redwood St.
BOSTON, MASS., York Safe & Lock Co., 98 Sudbury St.
BUFFALO, N. Y., Kenmore Builders' Supply Co., 2646 Delaware Ave.
CHICAGO, ILL., York Safe & Lock Co., 217 W. Monroe St
DETROIT, MICH., Capital Steel Corp., 622 Polk Directory Bldg.
INDIANAPOLIS, IND., Hugh J. Baker & Co., 602 W. McCarty St.
LANSING, MICH., Capital Steel Corp., 236 Tussing Bldg.
MINNEAPOLIS, MINN., The Hustad Co., 529 So. 7th St.
NEW YORK, N. Y., York Safe & Lock Co., 55 Maiden Lane
PHILADELPHIA, PA., York Safe & Lock Co., 711 Chestnut St.
SALT LAKE CITY, UTAH, Chas. F. Porter, Kearns Bldg.
SAN FRANCISCO, CAL., Herman Safe Co., Main and Howard Sts.
YORK, PA., York Safe & Lock Co., P. O. Box 418

Products

RIVET-GRIP BANK VAULT REINFORCEMENT.

Also manufacturers of T-Bar Truss Steel Joints; Rivet-Grip Rigid, Shop-fabricated Truss Bridge Roadway Reinforcement; and R-G Steel Deck Floors (description on request).



Rivet-Grip Reinforcement—Vertical Type

Rivet-Grip Vaults

The high regard which bank architects and engineers have for Rivet-Grip vaults and the prestige which the system has attained are evidenced by the fact that the *Rivet-Grip System has been installed in nearly twice as many Federal Reserve vaults as any other type of vault reinforcement offered on the market since the Federal Reserve vault tests.* It is significant that in every instance where Rivet-Grip was purchased by a Federal Reserve Bank, either an official of the bank, its architect, or vault engineer represented the bank at the Federal Reserve tests, and the sale of Rivet-Grip was due to recommendations carried back by eye witnesses, after seeing the performance of Rivet-Grip in these severe tests.

Balanced Protection for Bank Vaults—The first requisite for security in a bank vault is *balanced protection*—equal protective strength throughout. In other words, the walls, floor and roof should be no less secure than the vault door. In the Rivet-Grip System, this balanced protection is obtained through a new system of steel reinforcement, which is fabricated in various sizes to give the walls and slabs a protective value equivalent to that of any particular door from 4 to 48 in. in thickness.

Design—The Rivet-Grip System consists of an interlocking network of heavy shop-fabricated frames and plain round bars, embedded and interlocked through practically the full thickness of the concrete work.

There are no weak points in a Rivet-Grip protected vault. The frames interlock at all corners. The door connections are as strong as the vault door itself. The scientific design of Rivet-Grip reinforcement insures balanced protection throughout.

The Rivet-Grip frames are composed of two parallel, heavy Rivet-Grip main sections, joined at close intervals by lighter diagonals, which form the web of the frames. The joint, or Rivet-Grip, is formed under a 30-ton pressure which forces the metal in the main sections around the knobs on the diagonals, joining these members so securely that the diagonals will break in tension before loosening at the Rivet-Grip.

The loose bars are laced through the frames perpendicular to the plane of the web members. They are held in position automatically and need not be wired.

All Rivet-Grip reinforcement is accurately fabricated and comes to the job true to detail. There are two types of installations: *vertical,* for use in walls from 12 to 30 in. thick, and *horizontal type,* for use in walls from 27 to 60 in. thick.

Structural and Economic Advantages

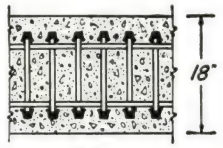
In addition to its protective value, many structural and economic advantages help to explain the wide choice of Rivet-Grip System.

Lowest Insurance Ratings—Rivet-Grip walls and slabs receive the lowest insurance ratings.

Flexibility of Arrangement—The spacing and general arrangement of the frames may be varied to give the exact degree of protection desired.

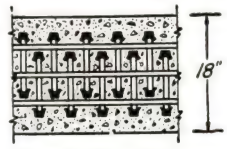
Lower Cost—The Rivet-Grip System of vault reinforcement costs less than any other adequate and effective system and the ease with which it is installed materially lowers construction cost.

For 6-in. Door



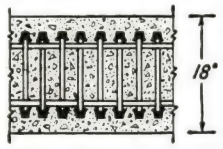
Type C-553—4 in. on centers. Wt., 18.8 lb. per sq. ft. (without lining)
Type C-553—6 in. on centers. Wt., 13.8 lb. per sq. ft. (with lining)

For 10-in. Door



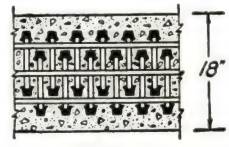
Type B-553—2½ in. on centers. Wt., 27 lb. per sq. ft. (without lining)
Type C-553—4 in. on centers. Wt., 18.8 lb. per sq. ft. (with lining)

For 8-in. Door



Type C-553—3 in. on centers. Wt., 23.6 lb. per sq. ft. (without lining)
Type C-553—5 in. on centers. Wt., 15.8 lb. per sq. ft. (with lining)

For 15-in. Door



Type B-753—2 in. on centers. Wt., 42 lb. per sq. ft. (without lining)
Type B-653—2½ in. on centers. Wt., 31.3 lb. per sq. ft. (with lining)

Suggested Types of Rivet-Grip System Vertical Reinforcement to Balance Various Thicknesses of Vault Doors

No. 10 Rating—Vaults with 18-in. concrete walls and slabs with Rivet-Grip Type B-553 2½ in. spacing reinforcement and without a steel lining are privileged to receive the maximum or No. 10 insurance rating at lowest insurance rate.

Specifications

Reinforcement—The reinforcement shall be the Rivet-Grip System bank vault reinforcement type, as produced by THE RIVET-GRIP STEEL COMPANY, Cleveland, Ohio.

All units shall interlock at all intersections of walls, and of walls and slabs, and special provision shall be made at door openings to strengthen connections between door frames and vestibules and reinforced concrete walls.

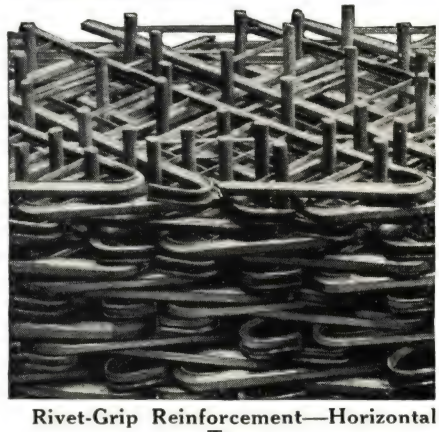
All units shall be completely shop-fabricated and shipped ready to place. They shall be tagged with an erection mark corresponding to the marks on the drawings furnished by the manufacturer.

Note: This specification applies only to the vertical type. Specifications covering our horizontal type are especially written for each individual vault.

Service

THE RIVET-GRIP STEEL COMPANY furnishes complete placing drawings, lump sum estimates for reinforcement, delivered or installed, and suggested layouts for any vault.

Illustrated hand-book on the design and construction of modern reinforced vaults furnished on request.



Rivet-Grip Reinforcement—Horizontal Type

THE CONSOLIDATED EXPANDED METAL COMPANIES

Steelcrete Building, WHEELING, W. VA.

SALES OFFICES AND WAREHOUSES

BOSTON, MASS., 137 Washington Street, Somerville
BUFFALO, N. Y., 2 Ganson Street
CHICAGO, ILL., 2531 Arthington Street
CLEVELAND, OHIO, 13107 St. Clair Avenue
NEW YORK, N. Y., 103 Park Avenue
PHILADELPHIA, PA., 1075 Germantown Avenue
DETROIT, MICH., 4015 Michigan Avenue
PITTSBURGH, PA., 6626 Hamilton Avenue
FOREIGN SALES OFFICE, 152 West 42nd Street, NEW YORK, N. Y.

Product

THE STEELCRETE SYSTEM BANK VAULT CONSTRUCTION.

For Steelcrete Concrete Reinforcing Mesh and Industrial Mesh and Framing Accessories for open mesh partitions, window guards, etc., see Manufacturers' Index.



Section of Steelcrete Bank Vault

Placed either horizontally or vertically, Steelcrete forms a thick entanglement of steel that is proof within all practical limits against torch, drill, shock, fire and explosives. Concrete is poured through and around the steel matrix to form a wall of great structural strength



DRILL PROOF



TORCH PROOF



BLAST PROOF



FIRE PROOF



SHOCK PROOF

Planning for Adequate Vault Protection

In planning a vault, maximum resistance to burglarious and mob attacks together with structural strength are the fundamental considerations. Modern methods of attack have made it necessary to incorporate these features to produce a completely protected self-contained unit of safety. The walls, roofs and floor of a vault constitute over 90% of the area subject to attack and it is obvious that just as serious consideration be given to the proper protection of these vulnerable points as is given to the selection of the vault door.

Steelcrete 5-Point Protection

The Steelcrete System is composed of thousands of strands of steel, thoroughly embedded in concrete, producing a network that effectually resists cutting flame, drill, explosives, fire and falling loads. In this entanglement of steel and concrete 5 points of protection are provided: (*point* 1) drills fail to penetrate; (*point* 2) the cutting flame is helpless against concrete; (*point* 3) explosives lose their force in absorption by the thousands of steel strands; (*point* 4) the thickness of the wall, ceiling and floor slabs minimizes the transmission of heat from the exterior to contents of the vault; (*point* 5) stronger structurally than steel alone or concrete alone because of the reinforcing principle employed.

Great Structural Strength

The Steelcrete Bank Vault is built up of steel units, extending layer after layer through the entire vault walls, roof and floor, no single unit of which weighs more than one man can carry. Constructed in this manner, it is a self-contained unit of great structural strength, which successfully withstands the impact of falling girders, heavy safes, and other terrific impact loads, often the result of fire. The tremendous structural strength of a Steelcrete Vault Roof Slab was recently brought out in a series of tests, when a slab having a total depth of 18 in. carried a load of more than 1 ton per sq. ft. on a span of 30 ft. Tests conducted under the direction of the architects of the Federal Reserve Board have shown that a steel entanglement properly embedded in concrete constitutes the strongest and the most economical protection against attack. As a result of these tests the Steelcrete System was installed in the largest bank in the United States—the New York Federal Reserve Bank.

SAFE SUPERIMPOSED LOAD CARRYING CAPACITIES OF STEELCRETE VAULTS FOR VARIOUS THICKNESSES OF ROOF SLABS

Total thickness, inches		Load in pounds per square foot			
Roof slabs	Steelcrete mats	Span 15 feet	Span 20 feet	Span 25 feet	Span 30 feet
18	16	2125	1095	621	*363
24	20	3320	1725	988	584
36	32	6544	3464	2034	1257

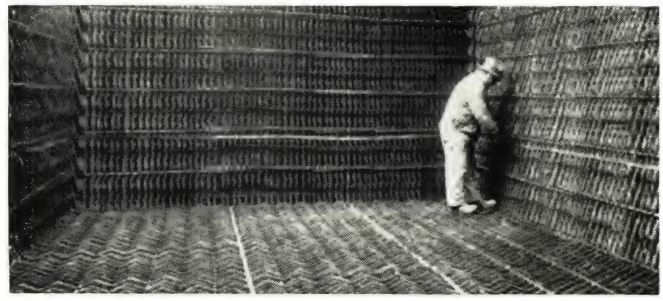
The figures above represent safe loads determined from accepted formulas used in design of reinforced concrete, providing for a factor of safety of 4, together with standard assumption of values for steel and concrete. Loads governing ultimate failure of slab would represent values four to six times the above given loads.

*Tested to 2169 lb. per sq. ft.

Most Economical Protection

The Steelcrete System is adaptable to all buildings and all requirements, and can be used with utmost economy in both small and large bank vaults, the cost being governed entirely by the width of the sheet, the spacing between sheets and the size of the vault.

Steelcrete System of vault reinforcing offers maximum protection per dollar invested.

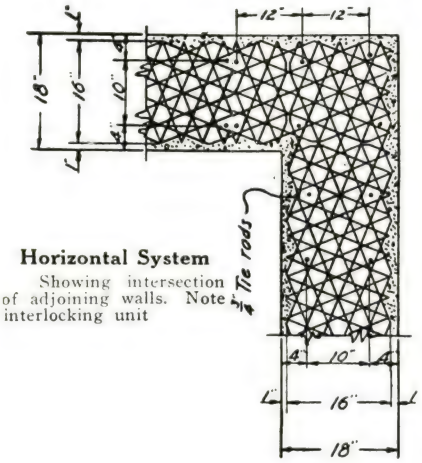


Easily Erected by Any Skilled Contractor

The simplicity of the Steelcrete System makes it possible for any skilled contractor to successfully handle the erection. Working drawings making for rapid field erection are furnished by the manufacturers for each installation and the field engineers of the manufacturers keep in constant touch with the work, insuring an entirely satisfactory installation.

Horizontal System of Protection

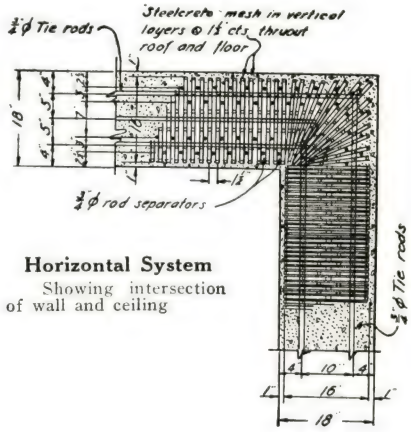
The protection afforded per dollar invested in the Steelcrete Horizontal Type Vault equals or exceeds that of any other protective systems, offering the bank full security with the utmost economy.



Horizontal System
Showing intersection of adjoining walls. Note interlocking unit

Specifications for Horizontal System—(Typical detail drawings and complete specifications on request.)

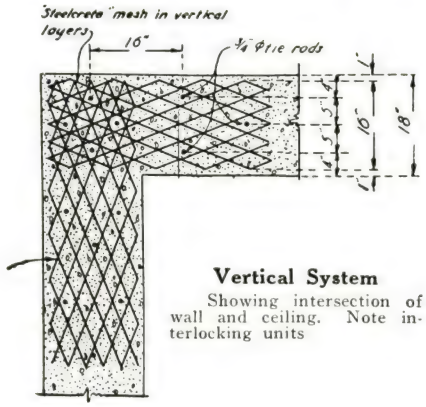
Reinforcement for Vault—The reinforcing embedded in the walls shall consist of Steelcrete Mats .... inches in thickness composed of 3-1-100 Steelcrete and ¾-in. diameter tool resisting bars as furnished by THE CONSOLIDATED EXPANDED METAL COMPANIES, Wheeling, W. Va. The arrangement of the Steelcrete Mat floor and ceiling of the ..... vault shall conform to Type H. The Steelcrete Armor Mat shall be placed in the center of the wall, and be built up in the field in strict accordance with the detailed drawings.



Horizontal System
Showing intersection of wall and ceiling

Vertical System of Protection

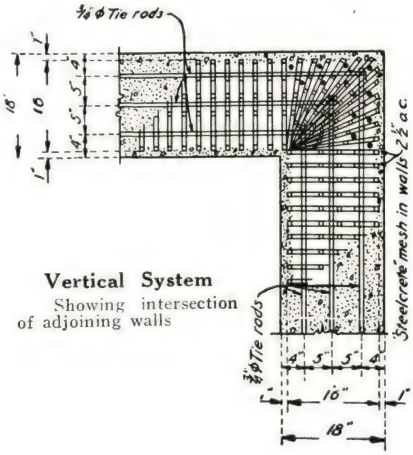
The Steelcrete Vertical System was developed in answer to a demand for a vault reinforcing system offering, like the horizontal system, high protection per dollar of cost, but with a greater spacing between units.



Vertical System
Showing intersection of wall and ceiling. Note interlocking units

Specifications for Vertical System—(Typical detail drawings and complete specifications on request.)

Reinforcement for Vault—The reinforcing embedded in the walls shall consist of Steelcrete Mats .... inches in thickness built up of 3-1-100 Steelcrete and ¾-in. diameter tool resisting bars as furnished by THE CONSOLIDATED EXPANDED METAL COMPANIES, Wheeling, W. Va. The arrangement of the Steelcrete Mat floor and ceiling of the ..... vault shall conform to Type V. The Steelcrete Mat shall be placed in the center of the wall, and be built up in the field in strict accordance with the detailed drawings.



Vertical System
Showing intersection of adjoining walls

Door Openings

The vault door openings for both horizontal and vertical systems are governed by the manufacturer of the door.

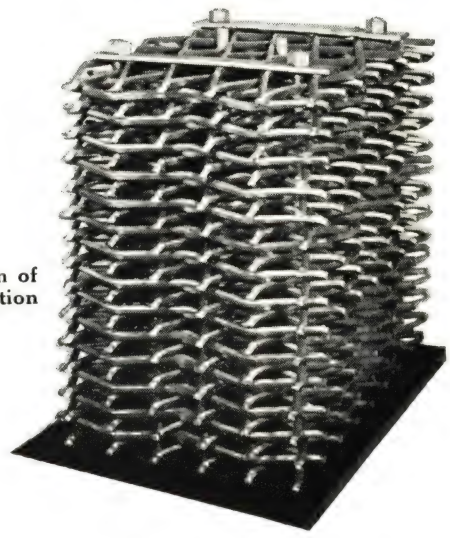


Vertical System of Steelcrete Protection

Steelcrete Service

The manufacturers furnish field drawings, lump sum estimates and by arrangement will supervise the installation of the Steelcrete units. Drawings showing typical details for both horizontal and vertical system furnished on request.

A comprehensive book on Modern Vault Construction can also be obtained.



Horizontal System of Steelcrete Protection

THE LOCK-STEEL CO.

G. G. GREULICH, President

TELEPHONE
Atlantic 1890

725 Grant Building, PITTSBURGH, PA.

SALES OFFICES

BOSTON, MASS., 64 Sudbury Street—Telephone, Capitol 1510
BIRMINGHAM, ALA., 1734 First Avenue, N.—Telephone, Birmingham 3-1550
CHICAGO, ILL., 223-25 West Lake Street—Telephone, Franklin 7932
NEW YORK, N. Y., 400 Broadway—Telephone, CAnal 6-5140
HAMILTON, OHIO, 1540 Grand Boulevard—Telephone, Hamilton 3600

THE LOCK-STEEL SYSTEM OF BANK VAULT REINFORCEMENT

LOCK-STEEL

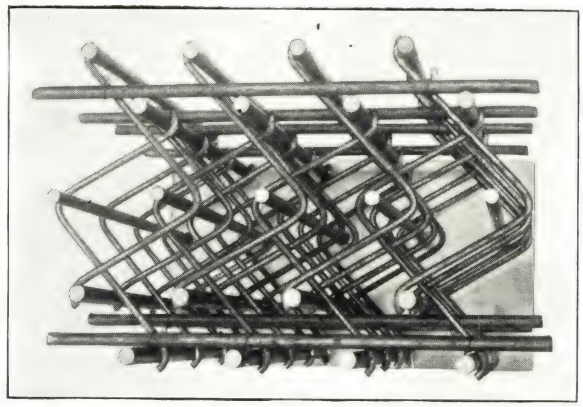
TRADE-MARK

Resists:
Drilling
Chipping
Cutting
Burning
Explosives
Demolition

Provides:
Protection
Security
Resistance
Safety
Strength
Economy

The System

The Lock-Steel system is an easily erected assembly of double interlocked shop-welded units interlaced horizontally and vertically by straight bars. This continuous network of steel throughout the entire concrete portions of the vault makes it practically impenetrable from any form of attack. These units are so simply constructed that one man can place from one to two tons of reinforcement in an 8-hour day.



Typical View of Lock-Steel Looking Down on Group of Assembled Units

Special Features

Design and Construction—The individual units are designed and fabricated especially for each job, the details depending on the vault dimensions and the thickness of walls, floor and ceiling. Each unit consists of two high grade, round steel bars from ¾ to 1⅛ in. in thickness. To these bars ⅜ or $\frac{7}{16}$-in. round steel webs or bars are electro-pressure welded, forming a joint whose strength is greater than that of the component members. These webs, spaced 6 ins. on centers, are bent near the middle, have a V-shaped appearance and project out from, and at right angles to, the main, straight side bars when welded in place. The width of units varies from 12 to 20 inches depending on wall thickness.

Two types of units are made, known as A & B units. These differ only in the position of the webs on the bars. The webs are bent sufficiently off center to form two staggered rows of bars when assembled or interwoven.

Erection Is Fast and Easy—Procedure in erecting wall units consists of placing A & B units vertically and in proper order in the position shown on plans. The projecting webs form overlapping joints, through which locking bars are dropped into position as shown by Fig. 3. The side bars of the units themselves form a second interlock with the webs of the adjoining units, so that the entire assembly forms a continuous doubly interlocked network of steel. This is followed by the horizontal insertion of lacing bars as shown on plans. These bars are usually left loose with exception of those at top and bottom, which are wired to vertical units, thus holding the vertical units at their proper spacing.

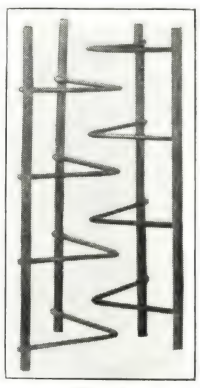


Fig. 1
Individual Units A and B

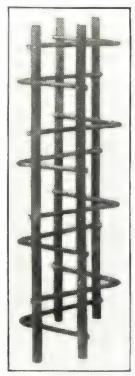


Fig. 2
Pair of Interlocked Units

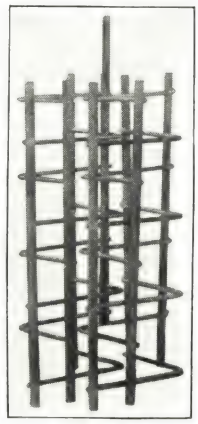


Fig. 3
Two Pairs of Units with Locking Bar Partially Inserted

Units A and B lock into pairs and adjacent pairs are locked to each other by the locking bar passing through alternate projecting and interweaving webs of units forming adjacent pairs

All locking and lacing bars are provided in lengths convenient for insertion, and with ample allowances for overlapping.

Procedure in erecting floor or roof units is similar to walls, in so far as locking and lacing bars are concerned. The units, however, are first wired into pairs, as shown by Fig. 2, the distance between the outside bars corresponding to the out-to-out dimension of reinforcement as required by plans.

Ordinary Concrete May Be Used—The smooth round shapes and the arrangement of members in the Lock-Steel system permits the quick pouring and easy flow of ordinary concrete as commonly used in reinforced construction. No special sizes or shapes of aggregate are required nor need any admixtures be added to the concrete to secure a smooth flow.

Specification

All reinforcement for ..... vaults as shown on Drawing No. ..... shall be the Lock-Steel System, type ..... spacing ..... for ..... inch floor, walls, and roof as manufactured by THE LOCK-STEEL CO., 725 Grant Building, Pittsburgh, Pa.

The manufacturer shall furnish three complete sets of the final approved spacing plans and diagrams.

All reinforcement shall be placed and securely wired in the positions shown on approved spacing plans.

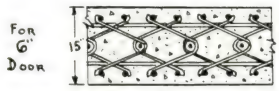
Concrete shall be 1:2:4 mix, or of consistency or slump with sand and size and kind of aggregate as specified for other reinforced concrete portions of the building.

Service

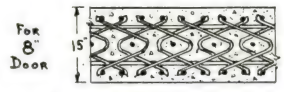
Estimates and tentative designs will be furnished promptly. To facilitate preparation of estimates, the inside concrete dimensions of the vault, the thicknesses of floor, all walls, and roof should be given. The size of concrete door openings should also be furnished, but if not available the probable thicknesses of main and emergency doors and information as to whether round or rectangular will do.

SCHEDULE OF STANDARD TYPES OF LOCK-STEEL

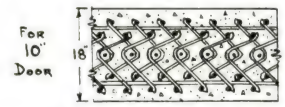
Thickness of steel vault door most suitable for each type of Lock-Steel reinforcement is given opposite each section. (Special types can be furnished)



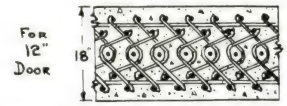
TYPE "U-6" - Spacing 5" ctrs. - 18 lbs per sq ft.



TYPE "U-8" - Spacing 4" ctrs. - 22 lbs per sq ft.



TYPE "U-10" - Spacing 2½" ctrs - 28 lbs per sq ft.



TYPE "U-12" - Spacing 2½" ctrs - 32 lbs. per sq ft.

Exclusive Features

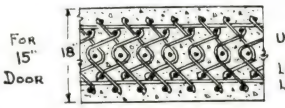
Double Interlock—A simple practical solution of the problem of anchoring or interweaving adjacent units with each other so as to form an integral mass of interlaced steel.

Lock-Steel—Is a system in which the lateral peeling or stripping of appreciable lengths of individual units is impossible. This reinforcement cannot be penetrated nor can any portion of same be removed without first actually cutting the component members into small pieces.

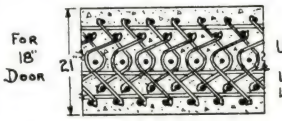
One Hundred Per Cent Interlocked—A vault reinforcing system with all units linked into a continuous armor chain around the entire vault.

Security and Strength—In addition to the above features, Lock-Steel offers exceptional resistance to cutting and burning. The arrangement of web members is specially effective in neutralizing the action of explosives. The arrangement of the main parallel members of the interlocking units is such as to create unusual structural strength.

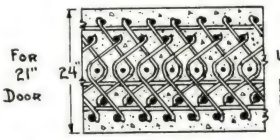
Economy—Ease of handling and erection, facility of pouring concrete and low delivered price of Lock-Steel all contribute to an installation low in final cost.



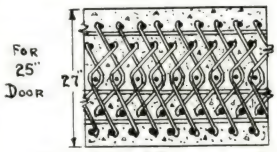
TYPE "U-15" - Spacing 2½" ctrs - 38 lbs per sq ft.



TYPE "U-18" - Spacing 2½" ctrs - 45 lbs per sq ft.



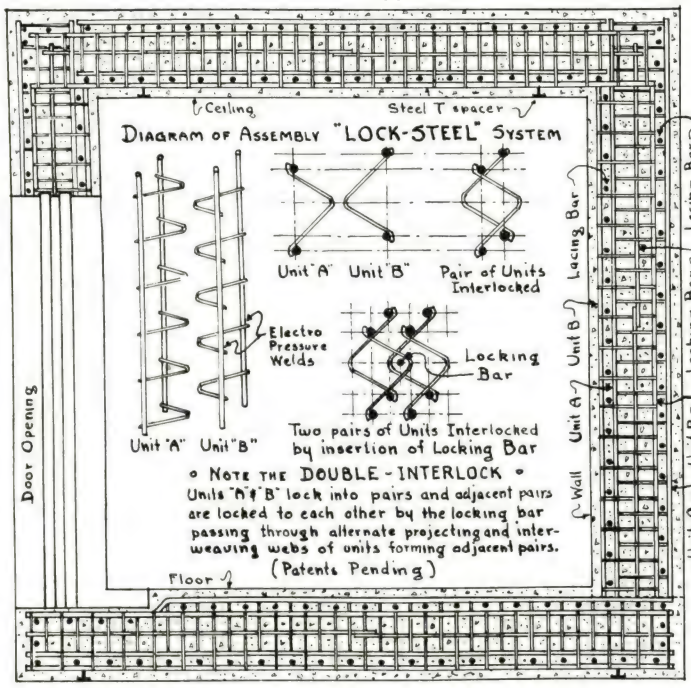
TYPE "U-21" - Spacing 2½" ctrs - 53 lbs per sq ft.



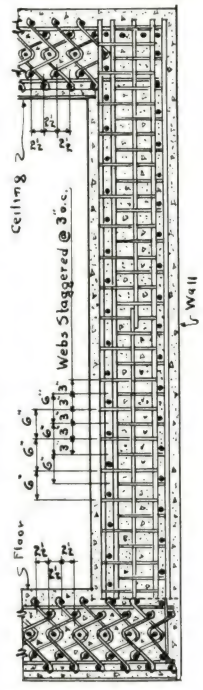
TYPE "U-25" - Spacing 2" ctrs. - 64 lbs per sq ft.

TYPICAL DETAILS: LOCK-STEEL BANK VAULT REINFORCEMENT

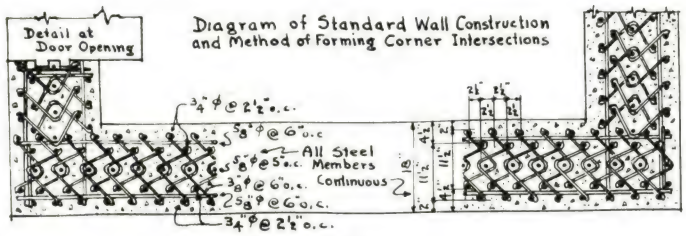
Type "U-10"—2½-in. Spacing—28 Lbs. per Square Foot



TRANSVERSE SECTION



PART LONGITUDINAL SECTION



PART PLAN



UNITS BUNDLED FOR SHIPMENT

Insurance Rating

Vaults reinforced with Lock-Steel Type U-10 reinforcement in 18-in. concrete walls will take a No. 10 or the best insurance rating without a steel lining.

Special Types

For unusual conditions Lock-Steel System Units can be made up for walls ranging from 12 to 30 ins. in thickness with spacing of units from 1½ to 6 ins. on centers.

Horizontal Types

Are specially designed for exceptionally heavy construction to balance steel doors ranging from 25 to 48 ins. in thickness installed in concrete walls ranging from 27 to 54 ins. in thickness. Data on horizontal types supplied on request.

Note: The basket weave arrangement of the continuous interlocking units is clearly shown by the transverse section at the left. Note also how all units are linked into a continuous armor chain around the entire vault as shown by the part plan.

DIEBOLD SAFE & LOCK COMPANY

FACTORY AND GENERAL OFFICES
CANTON, OHIO
RETAIL STORES
NEW YORK, N. Y. CHICAGO, ILL. DETROIT, MICH. CLEVELAND, OHIO ST. PAUL, MINN. NEW ORLEANS, LA.
REPRESENTED IN LEADING CITIES IN THE UNITED STATES AND CANADA
SOUTHWEST DISTRIBUTER: Southern California Safe Co., LOS ANGELES, CALIF.

LOCAL REPRESENTATIVE

Products

BANK and SAFE DEPOSIT VAULTS and VAULT DOORS, including: Safe Deposit Boxes, Linings and Complete Equipment; FIRE-RESISTIVE VAULT DOORS, plate and filled; FIRE-RESISTIVE SAFES and FILING SAFES; CASHGARD CHESTS, rectangular and round doors.

70 Years of Successful Safe Building

The recognized quality of Diebold Products is the result of experience as designers, engineers and manufacturers of bank vaults and safes since 1859.

During this period many Diebold Safes and Vaults have successfully withstood the severest tests, in actual service, as is attested by the many letters in our files.

Co-operative Service to Architects

Our Engineering Department, together with the entire personnel of our various branch offices, is at the disposal of the architect or contractor.

Sketches and estimates on special work, as well as stock designs will be gladly furnished, without charge.

THE TRIUMPH LINE OF VAULT DOORS

Development of the Triumph Line

Independent tests made by the Underwriters' Laboratories, Inc., published in their Report SP-1.669 on November 30, 1927, on an uninsulated steel plate vault door proved conclusively the need of doors affording much greater protection in this class. The door tested was typical of the old style plate door construction. The old style plate door failed the test at the end of 27½ minutes when the temperature inside the vault reached 300°—and it was fully grouted in the opening and the inside doors closed. With the inside doors open it was found that it would have stood the test only 10 minutes.

The Underwriters reported that the old style plate door offered uncertain protection because proper grouting of door and closing of inside doors could not be guaranteed in actual practice.

Quick to appreciate the need of vault doors offering reliable protection our engineers in conjunction with tests in the Underwriters' Laboratories, Inc., developed the Diebold Triumph Line of Fire-Resistive Vault Doors. The line includes doors offering a minimum of from 29 minutes to 6 hours resistance, based on Underwriters' tests. None of them require inside doors. All of them, except No. 156 (6-hour Label Door), are designed to eliminate a complete grout in installation.

Our engineers discovered that the weakness of the old style door lay in its construction. When exposed to intense heat the buckling and warping of the exposed surfaces opened direct passages into the vault for the entrance of heat and flame. This weakness was overcome in the Triumph line. Comparatively light gauge metal is used for the outer door plate and frame—the surfaces exposed to intense heat. Heavy gauge formed "Z" bars and other members reinforce the outer door plate and frame from the inside, reducing the strains of buckling and warping of the exposed surfaces. It is this principle of construction that prevents the buckling and warping of the exposed outer surfaces of the doors from opening direct passages into the vault. Tongues and grooves on the insulated doors, and box tongues with overlapping plates on the light doors assist in preventing openings into the vault.

The Triumph Line

The Diebold Triumph Line Vault Doors include doors both with and without the Underwriters' labels. Protection is offered for every average risk. This line of doors is shown with full particulars in the following pages.

Tests—All of the Triumph Line Doors, with the exception of the Nos. 215 and 235 Burglar-resistive Doors, have been tested in the following manner: The door is placed in a masonry wall the same as in actual practice and the heat applied for the length of time determined by the classification. A second test is made by heating the door in the furnace for one-half the endurance period. It is removed from the furnace and while in heated condition subjected to a standard fire hose stream under pressure. The door is then reheated in the furnace for the remainder of endurance period.

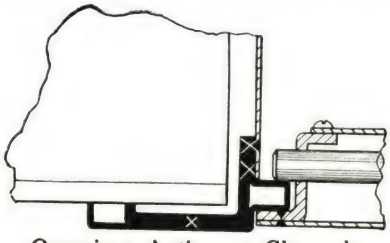
The Diebold Triumph Line Vault Doors have withstood these tests and have proved that they prevent the direct entrance of heat and flame into the vault. Be sure your vault is equipped with a door that offers certified protection in the degree suited to your risk.

Construction—Triumph Line Vault Doors are constructed entirely by the electric welding process. Screws are used to attach removable parts only.

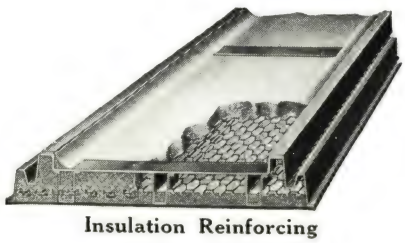
Tests as conclusive as those that have proved the electric welded joint superior to rivets in skyscraper and bridge construction have proved it more suitable for vault door construction.

The Patented Off-set Jamb—The No. 152 Triumph Line Door has a patented off-set jamb construction. This is the first two-hour Underwriters' Label vault door that eliminated the usual installation difficulties. The off-set built into the masonry opening is covered with a point grout of mortar applied quickly with a trowel. The door is easily set and adjusted in the opening without further trouble.

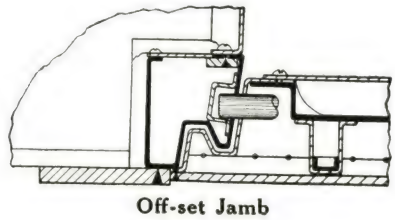
Reinforced Insulation—The cut below shows the method of reinforcing the insulation of Diebold Triumph Line Insulated Vault Doors. Three heavy horizontal cross braces behind the insulation, and attached to the jambs, carry the vertical "U" bars in straps over which a heavy reinforcing cross wire mesh is laid. The vertical "U" bars extend the full height of the door and the reinforcing mesh covers the entire surface. The insulation is supported and reinforced entirely independently of the outer door plate. There is no possible danger of the outer door plate damaging the insulation when it warps and buckles because of exposure to intense heat—it cannot pull the insulation from the jambs.



One-piece Anti-warp Channel



Insulation Reinforcing



Off-set Jamb

Anti-warp Channel—The light-weight doors, "R," "S," "T," "Tile" and "L" and constructed with the anti-warp channel illustrated at the lower left-hand corner of preceding page. This channel is formed from a solid piece of heavy gauge metal and attached to the sides of the vestibule on the front of the door back of the front frame. At all times this anti-warp channel maintains constant contact with the face of the wall, preventing the direct passage of heat and flame into the vault.

Locks—The lock used on all the Triumph Line Vault Doors is the Diebold No. 900 3-tumbler, key-changing combination lock. The lock is equipped with a patented re-locking device. It is capable of millions of changes of combination.

Installation—Triumph Line Vault Doors are built with a removable back frame attached with screws to the vestibule body. The back frame is removed, the door set in the opening and leveled, and the frame drawn to the wall with the screws.

GENERAL RECOMMENDATIONS FOR FIRE-RESISTIVE VAULT CONSTRUCTION

The following recommendations will in a general way be helpful in the construction of fire-resistive vaults. They are general in nature since the individual conditions that surround the building of every vault cannot be foreseen.

Before the vault is built, the services of a competent architect or contractor should be secured to determine the degree of protection required, to make the proper allowances for floor strength, to determine the structural strength required of the vault in relation to the whole structure and to arrange for the proper footings for the vault.

Plan of Vault

At the bottom of this page are shown vertical and horizontal sections through model fire-resistive vaults with dimension lines indicated by letters. The following paragraphs will explain them in detail:

"W" Width of Vault—The maximum width should not exceed 10 ft. When a greater width than 10 ft. is required, interior columns, girders or division walls should be used.

"D" Depth of Vault—The inside depth of the vault is optional.

"O" Masonry Opening for Vault Door—The actual dimensions are determined by the door used.

"S" Vault Wall Thickness—The wall thickness of structure supported vaults, that is vaults supported by the framework of buildings of fire-resistive construction, shall be as follows:

For vaults requiring six hours or more heat resistance—

(1) Reinforced concrete 10 in.

(2) Brick or plain concrete 12 in.

(3) Protected steel or reinforced concrete frame with reinforced concrete panels 10 in. Brick or plain concrete panels 12 in.

For vaults requiring two hours heat resistance—

(1) Reinforced concrete 6 in.

(2) Plain brick 8 in.

(3) Hollow clay tile or concrete block 12 in.

(4) Protected steel or reinforced concrete frame with reinforced concrete panels 6 in. Brick or plain concrete panels 8 in. Hollow clay tile or concrete block panel 12 in.

The wall thickness for ground supported vaults, that is, vaults supported directly on the ground and independently of the building in which they are located, should be constructed in accordance with the following table:

MINIMUM WALL THICKNESSES—GROUND SUPPORTED VAULTS

Six-hour Vaults

Number of stories counting from top down	Kind of wall construction			
	Reinforced concrete, in.	Brick or plain concrete, in.	Protected steel or reinforced concrete frames: Reinforced concrete panels, in.	Protected steel or reinforced concrete frames: Brick or plain concrete panels, in.
Top	10	12	10	12
2nd	10	12	10	12
3rd	10	12	10	12
4th	12	16	10	12
5th	12	16	12	16
6th	12	20	12	16
7th	.....	.....	12	16
8th	.....	.....	12	16
9th	.....	.....	12	16
10th	.....	.....	14	16

Two-hour Vaults

Number of stories counting from top down	Kind of wall construction					
	Reinforced concrete, in.	Brick, in.	Hollow clay tile or concrete block, in.	Protected steel or reinforced concrete frames: Reinforced concrete panels, in.	Protected steel or reinforced concrete frames: Brick or plain concrete panels, in.	Protected steel or reinforced concrete frames: Hollow clay tile or concrete block panels, in.
Top	6	8	12	6	8	12
2nd	8	12	12	8	12	12
3rd	10	12	16	10	12	16
4th	10	16	20	10	12	16
5th	12	16	.....	12	16	20
6th	12	16	.....	12	16	20
7th	.....	.....	.....	12	16	20
8th	.....	.....	.....	12	16	20
9th	.....	.....	.....	12	16	20
10th	.....	.....	.....	12	16	20

Structural Independence

The vault walls should be structurally independent of the building wherever possible. If connected in any manner, the connection should be so made that in the event of the collapse of the building, the building members may move or fall without affecting the stability or fire-resistive qualities of the vault. In fire-resistive vault construction, provision should be made for expansion of the interior building members since severe thrust may be exerted on the vault structure.

Where building members join those of the vault, they shall project into the vault not more than 4 in. and in no case should the wall thickness be less than 8 in. at these points. All beams or bearing members adjoining the vault should be designed to release freely in event of failure. Where the outside walls of the building are used to serve as a portion of the vault wall, the vault walls should be effectively bonded to the building wall.

"F" Thickness of Front Walls—The thickness of the front wall, at the point allowed for the opening of the vault door, is determined by the door used.

"H" Height of Vault—The inside height of the vault should not exceed 11 ft.

"R" Roof of Vault—The roof should be at least 8 in. thick of reinforced concrete or protected structural steel with reinforced concrete slab or filler of adequate strength and fire resistance. The roof should be designed for a live load of at least 350 lb. per sq. ft. to take all of impact loading. Where local conditions are especially severe, loads of from 500 to 1000 lb. per sq. ft. should be provided for.

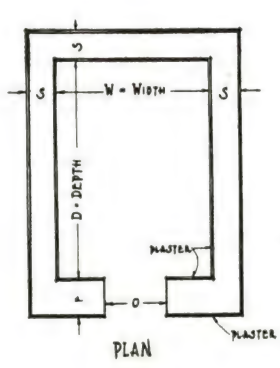
"P" Parapet—If the roof of the vault is more than 12 in. below the roof of the building, the vault walls should be parapeted at least 12 in. above the vault roof and the space thus formed filled with sand, gypsum or similar material, to act as a cushion against impact from falling materials and also to serve as further insulation against accumulation of burning debris on the vault roof. Adequate drainage shall be provided for this space above the roof.

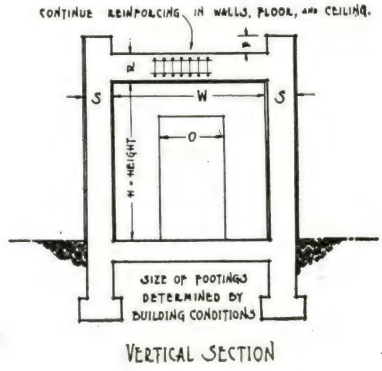
Material for Vault

Solid wall construction is recommended for vaults where the maximum resistance to heat is required. Solid walls offer more resistance to the impact of falling bodies such as machinery, safes and fixtures.

These factors are of vital importance in considering the type of vault to be built. In case of a severe fire the vault must be structurally strong to withstand the shock of falling bodies.

Concrete, on account of its monolithic character, is admirably suited for vault construction. Brick masonry can also be laid so as to be practically monolithic in character. If it is carefully laid in this manner, it may be successfully used for vault construction. From structural considerations, steel frame work is advisable when vaults are built more than a few stories high.





RECOMMENDED RECORD ROOM CONSTRUCTION

The record room must have no other opening than the one protected by a record room door. No wood or other combustible material should be used in the construction of a record room or for its floor or trim.

In the right hand column are shown a vertical and a horizontal section of a record room illustrating how the building walls become part of the structure supported vault when built in accordance with the general recommended construction as outlined below. The recommended construction is general in character. Before the record room is built, the services of a competent architect or builder should be secured.

"W, D and H" Dimensions—The width, depth and height of the vault are optional with the exception that the height should not exceed 15 ft. and the total volume should not exceed 50,000 cu. ft.

"F" Front Wall Thickness—The thickness of the front wall of the record room is determined by the type of door used. A record room door bearing the Underwriters' fire classification one-half hour label requires a vestibule 9 in. deep. The wall at the opening must be built to take this door in order to secure the benefit of the Underwriters' Label. If other doors are considered, the thickness of the front wall at the opening will be determined by the door used.

"S" Thickness of Side and Rear Wall—Structural considerations require that the side and rear walls should offer a minimum of two hours heat resistance. The recommended minimum for the thickness of these walls is: Reinforced concrete 4 in.; plain concrete or concrete blocks 6 in.; brick 8 in.

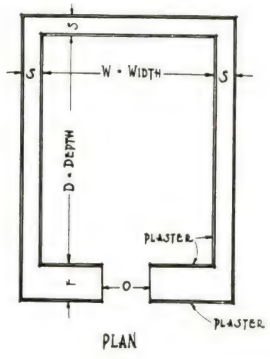
Construction

The record room may be constructed in such a manner that it uses the floor, ceiling and one or more walls of the building as its own, providing none of the walls has a fire resistance less than the walls of the record room itself.

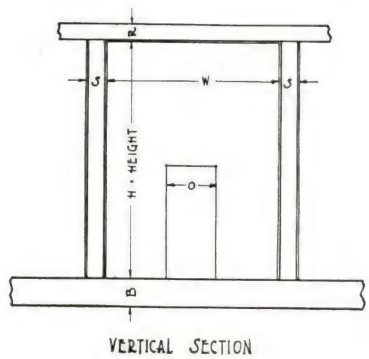
The vertical joints should be well anchored or bonded and the joining of all walls with the building and with each other secured.

The record room must have no other opening than the one protected by a record room door.

If vertical shafts of the building, such as elevator shafts, are adjacent to the record room they should be separated by walls having a fire resistance equal to the walls of the record room.



PLAN



VERTICAL SECTION

HOW TO SELECT THE TYPE OF VAULT DOOR

No. 1 For a Fire-resistive Vault

(A)—For a ground supported vault entirely independent of the building. A ground supported vault is intended to afford full protection for its contents even in the event of complete destruction of the building.

A 2-hour vault door (Diebold style No. 152) is recommended for the vaults on all floors except the bottom floor.

A 6-hour vault door (Diebold style No. 156) is recommended for the vault on the bottom floor due to the soaking heat from the accumulation of hot and burning debris around the vault after the collapse of the building.

(B)—For a structure supported vault entirely dependent upon the frame work of the building. Structure supported vaults may be located on any floor of a modern fire-resistive building. They are designed to afford complete protection for the contents assuming that the building will not collapse in the event of a fire.

A 2-hour vault door (Diebold style No. 152) is recommended for the structure supported vault since it will be subjected only to the heat of the burning combustible materials on the one floor on which the vault is located.

A 6-hour vault door (Diebold style No. 156) is recommended where the structure supported vault is located near a concentration of combustible materials such as records (in libraries and court houses), merchandise (in warehouses and store rooms) and other severe risks.

No. 2 For a Record Room

The record room is an enclosure of fire-resistive construction intended for use where the volume of records is too large and not of sufficient importance to justify economically the provision of either vaults or safes, but still is sufficiently valuable to warrant a certain amount of special protection.

A record room should be used only in a building of modern fire-resistive construction.

A one-half hour Diebold style "L" Record Room Door is recommended for the record room. If inside doors are considered an advantage the Diebold styles "R," "S" and "T" Vault Doors are recommended.

No. 3 for a Burglar-resistive Vault

The minimum degree of burglar protection required for the vault of a commercial institution can best be determined by the rate of burglary insurance based on the volume of insurance to be carried.

It is recommended that the minimum protection should be a Class "D" vault requiring a solid steel door 1½ in. thick (Diebold style No. 215).

Where additional burglary protection is required, see the No. 235 Class "E" Burglar-resistive Vault Door, or write for recommendations and specifications on Diebold Bank Vault Doors.

GOVERNMENT VAULT AND CLOSET DOORS

Built to Government Specifications and Drawings, M-352-F. Detailed information on request.

WALL SAFE

Diebold Wall Safe No. 160 is designed for the protection of papers and valuables from fire and theft. It is 10½ in. high, 15 in. wide, 8⅛ in. deep outside; 9⅞ in. high, 14⅜ in. wide, 7⅜ in. deep inside. Shipping weight, 100 lbs.

It is well adapted to installation in apartments and private residences.

FIRE-RESISTIVE VAULT DOOR—STYLE NO. 152

Recommended Use

Style No. 152 Vault Door is designed for severe fire risks. It should be used for ground supported vaults on the upper stories of buildings where floors may give way during the fire, or in structure supported vaults in modern fire resistive buildings.

It is recommended as the minimum protection for vaults in any location that are used for the housing of vital and irreplaceable records such as tracings, surveys, vital statistics, etc.

UNDERWRITERS' LABORATORIES INSPECTED VAULT DOOR FIRE CLASSIFICATION 2 HR No

Manufacturer's Specifications

(1) **Label** — Underwriters' Laboratories Inspected Vault Door Fire Classification 2 hours.

(2) **Clear Opening**—29 7/16 in. wide by 77 23/32 in. high.

(3) **Over All Door Thickness**—3 1/8 in.

(4) **Door Construction**—1/8-in. front plate, 2 in. of Diebold fire-resistive insulation increasing to 3 in. along edges, and 1/16 in. inside cover plate. Insulation reinforced as indicated on vertical and horizontal sections.

(5) **Masonry Opening**—32 in. wide by 79½ in. high with 2½-in. by 4-in. offset.

(6) **Wall Thickness**—20 in. including finish. Minimum thickness is 8 in. for 2-hour label door.

(7) **Extreme Swing of Door**—37 in.

(8) **Vestibule Body Over All**—30 3/8 in. wide by 78 3/8 in. high.

(9) **Installation**—A light mortar grout only is required. See detail masonry drawing.

(10) **Front Frame Over All**—42 9/16 in. wide by 87 5/16 in. high.

(11) **Back Frame**—Removable.

(12) **Bolts** — Ten ¾-in. bolts, five at front and five at hinge side.

(13) **Lock** — Diebold 3-tumbler combination lock with patented re-locking device.

(14) **Bolt Handle**—A drop handle with bronze knob and black bakelite grip.

(15) **Hinges**—Three heavy malleable iron pin hinges.

(16) **Jambs**—On all four sides of the door and vestibule the jambs are formed with a deep tongue and groove.

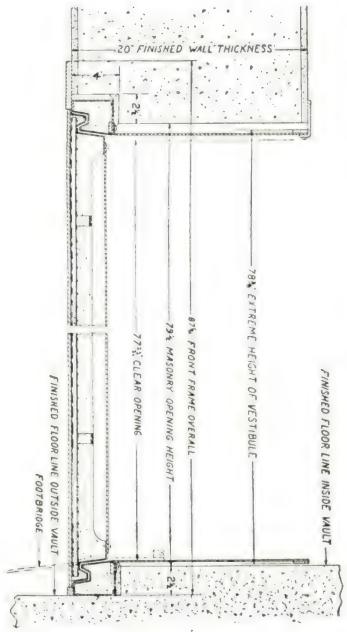
(17) **Foot Bridge**—An inclined metal foot bridge at the bottom of the door is hinged at the front to the sides of the vestibule.

(18) **Finish**—Olive green duco with gold decorations. Hinge tips, combination dial, and ring and handle knob are brushed bronze. Lock and bolt handle grips are black bakelite.

(19) **Shipping Weight**—1000 lb.

Note: *This door can be furnished special to fit a wall of any thickness over 8 in., and can be finished in special colors.*

To Specify This Door Write—"Diebold Standard Style No. 152 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is *right swing.*

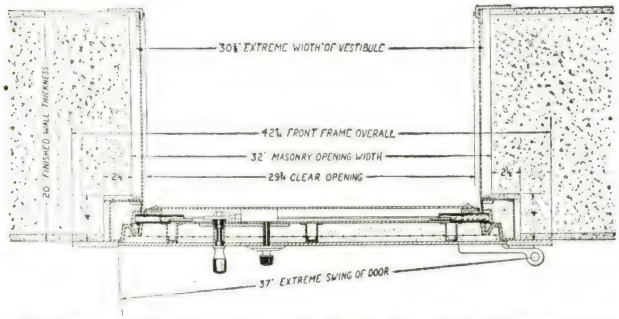


Vertical Section Through Style No. 152 Fire-resistive Vault Door

Showing masonry, clear opening dimensions and floor levels

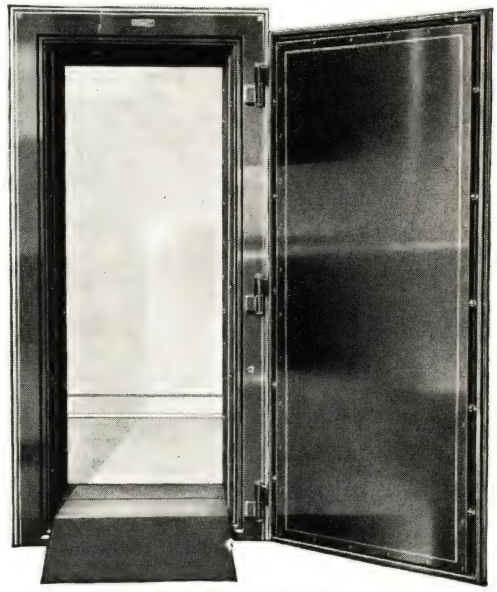


No. 152 Fire-resistive Door—Closed



Horizontal Section Through Style No. 152 Fire-resistive Vault Door

Illustrating construction and showing masonry with clear opening dimensions



No. 152 Fire-resistive Door—Open

Instructions for Installing

(1) Dimensions of wall openings should be as shown on masonry plans for this entrance.

(2) Uncrate door and remove rear flanges.

(3) Thoroughly soak face of rabbet and point edge with rich lime mortar as shown by Figure 3 below.

Caution: *The pointing of rabbet should be thoroughly and carefully done to insure full protection of the door. The joint between wall and door must be tight.*

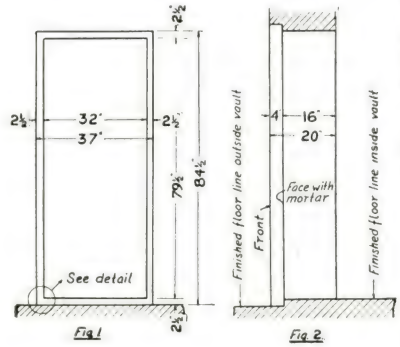
(4) Place door and frame in position in opening.

(5) Replace rear flanges.

(6) Open and close door to see that it hangs plumb and swings easily. If the door strikes on bottom, shim up under the hinge side of vestibule; if door strikes on top, shim up under the opposite corner.

(7) If when the door is properly placed, the back flanges do not lie up flat against the inside face of the wall, fill in the space between it and the wall with filler strips.

(8) Fill in uneven spaces between flanges and walls with cement or plaster.



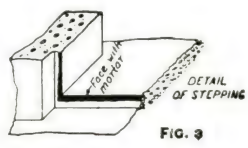


FIG. 3

FIRE-RESISTIVE VAULT DOOR—STYLE No. 156

Description

UNDERWRITERS' LABORATORIES INSPECTED VAULT DOOR FIRE CLASSIFICATION 6 HR. No.

Style No. 156 Fire-resistive Insulated Vault Door is intended for severe fire risks. It affords a minimum of six hours heat resistance based on the standard vault door test.

The door must be fully grouted with cement in the opening.

The reinforcement of the insulation in the door is entirely independent of the outer door plate. Therefore the strains that may be set up in the outer frame and door plate cannot affect the insulation, which is firmly supported from the inside of the door.

The tongue and groove jamb construction is used on all four sides of the door. There is an inclined metal foot bridge with rubber tread hinged on the jambs at the bottom of the door.

Manufacturer's Specifications

(1) Label—Underwriters' Laboratories Inspected Vault Door Fire Classification 6 hours.

(2) Clear Opening—32 in. wide by 77¾ in. high.

(3) Over-all Door Thickness—6⅛ in.

(4) Door Construction—⅛ in. front plate, 4⅞ in. of Diebold fire-resistive insulation and 1/16 in. inside cover plate. Insulation reinforced by two layers of steel reinforcing anchored to door cross braces.

(5) Masonry Opening—See drawings in next column.

(6) Extreme Swing of Door—39 7/16 in.

(7) Installation—Follow instructions in next column.

(8) Front Frame Over All—49 in. wide by 91⅞ in. high.

(9) Bolts—Ten ¾-in. diameter bolts, five at front and five at hinge side.

(10) Lock—Diebold 3-tumbler combination lock with patented re-locking device.

(11) Bolt Handle—A drop handle with bronze knob and black bakelite grip.

(12) Hinges—Three heavy malleable iron pin hinges.

(13) Jambs—On all four sides of the door and vestibule the jambs are formed with a deep tongue and groove.

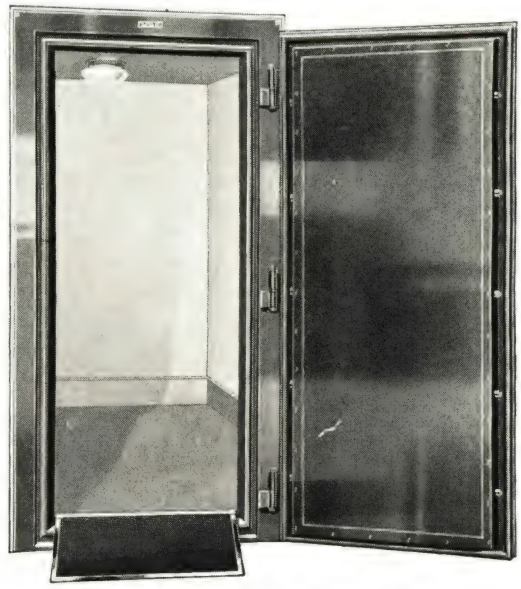
(14) Foot Bridge—An inclined metal foot bridge at the bottom of the door.

(15) Finish—Olive green duco with gold decorations. Hinge tips, combination dial, and ring and handle knob are brushed bronze. The lock and bolt handle grips are black bakelite.

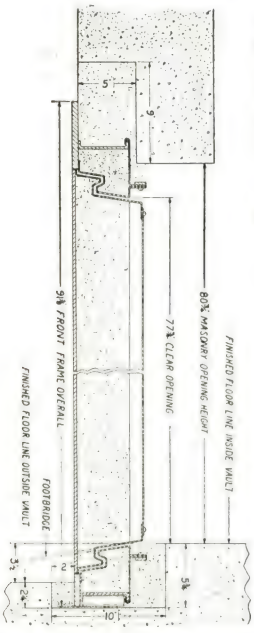
(16) Shipping Weight—1650 lb.

Note: *This door will fit any wall thickness over 10 in. and can be finished in special colors.*

To Specify This Door Write—"Diebold Standard Style No. 156 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is *right swing.*



No. 156 Fire-resistive Door—Open

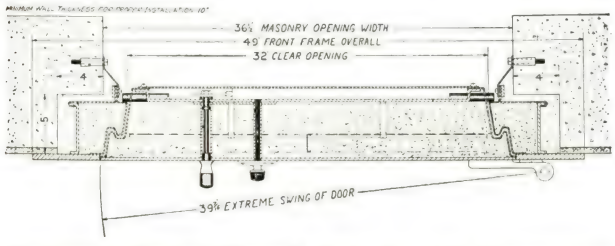


Vertical Section Through Style No. 156 Fire-resistive Vault Door

Showing masonry, clear opening dimensions and floor levels



No. 156 Fire-resistive Door—Closed



Horizontal Section Through Style No. 156 Fire-resistive Vault Door

Illustrating construction and showing masonry with clear opening dimensions

Instructions for Installing

(1) Provide wall opening of dimensions shown on masonry plans for this entrance.

Note: *Make opening as closely as possible to given dimensions. Necessary allowances have been made for clearances.*

(2) Make a grout of about two parts clean sand and one of portland cement and fill recess marked "A" on drawing below about ⅓ full.

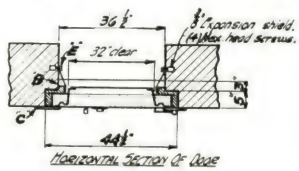
(3) Set door in opening and adjust door and frame plumb and level and wedge or prop frame in set position. Open and close door to see that it hangs plumb and swings easily; unless the frame has been properly set, the door will have a tendency to open or close of its own accord and further adjustments in leveling will be necessary until door remains in any set position.

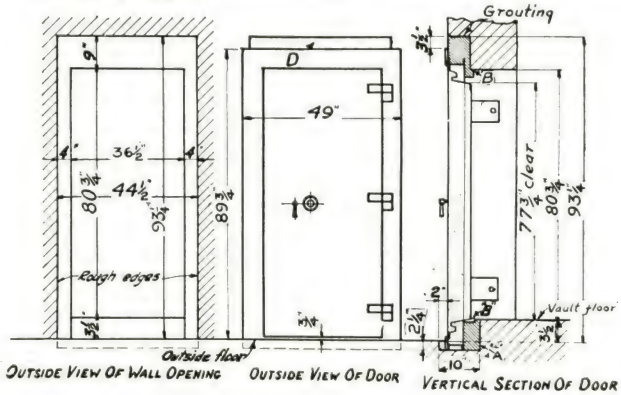
(4) Secure door in place by attaching plates and anchor bolts "E."

(5) Block off with wooden strips or frame gaps at points marked "B" and "C" if necessary.

(6) Make a grout of same proportions as above but thin enough to be poured through opening "D" and flow readily into all the crevices between door frame and wall. Fill to top level of flange below opening "D" and fill opening "D" with concrete, brick or heavy concrete mortar.

(7) Allow forms to remain in position for at least four days, or until grout has set firmly, before removing forms to complete finishing plaster, etc.





RECORD ROOM DOOR—STYLE "L"

Recommended Use

The name "record room" identifies an enclosure of fire-resistive construction intended for use where the volume of records is too large and not of sufficient importance to justify economically the provision of vaults or safes, but where valuables warrant a certain amount of special protection. It should be used only in buildings of modern fire-resistive construction.

The record room is recommended for records classified as "important" by the National Fire Protection Association in its 1928 report. Included in this classification are statistical studies, derived accounting records and the great volume of operating records, particularly those of informative character, whose purpose is to maintain a check upon efficiencies.

While the records in this classification could be reproduced from the original sources it would cause considerable expense and labor. For these reasons record room protection is recommended.



Description

Style "L" Triumph Record Room Door bears the Underwriters' Laboratories Inspected Record Room Door Label, fire classification ½ hour.

It is designed to afford a minimum of ½ hour heat resistance without inside doors. It is unnecessary to grout the style "L" door in the opening.

The style "L" Triumph Line Record Room Door is the first improvement in a century in light fire-resistive vault doors.

Manufacturer's Specifications

(1) Label—Underwriters' Laboratories Record Room Door fire classifications ½ hour.

(2) Clear Opening—28½ in. wide by 75¾ in. high. Entrance into vault is flush.

(3) Over-all Door Thickness—2¼ in.

(4) Door Construction—$\frac{1}{16}$-in. outer door plate to which the four ⅛-in. "Z" shaped bars forming the jambs are electrically welded, reinforced by three ⅛-in. "Z" shaped horizontal cross braces electrically welded to the door plate, and insulated cover plate on inside of door.

(5) Masonry Opening—33 in. wide by 79 in. high.

(6) Wall Thickness—9 in. including finish. Minimum thickness is 9 in. for ½-hour label.

(7) Extreme Swing of Door—30¼ in.

(8) Vestibule Body Over All—30½ in. wide by 76$\frac{13}{16}$ in. high.

(9) Installation—No grouting required.

(10) Front Frame Over All—38¼ in. wide by 80$\frac{13}{16}$ in. high.

(11) Back Frame—Removable.

(12) Bolts—Five bolts of ¾-in. dia. at front and interlocking channel at hinge side the full height of the door.

(13) Lock—Diebold 3-tumbler combination lock with patented re-locking device.

(14) Bolt Handle—A drop handle with bronze knob and black bakelite grip.

(15) Hinges—Two heavy malleable iron pin hinges.

(16) Jambs—The jambs of the vestibule are welded into a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.

(17) Finish—Olive green duco with gold decoration. Hinge tips, combination dial, and ring and handle knob are brushed bronze. The combination lock and bolt handle grips are black bakelite.

(18) Shipping Weight—375 lb.

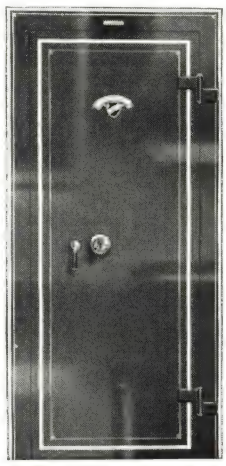
Note: *This door can be furnished special to fit a wall of any thickness over 9 in. and can be finished in special colors.*

To Specify This Door Write—"Diebold Standard Style 'L' Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is *right swing.*

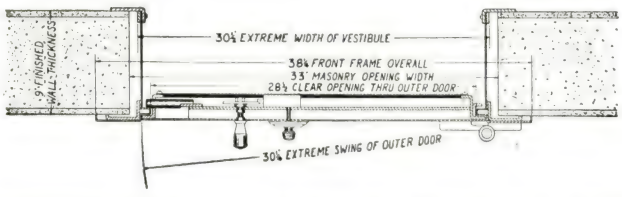


Vertical Section Through Style "L" Record Room Door

Showing masonry with clear opening dimensions and floor levels

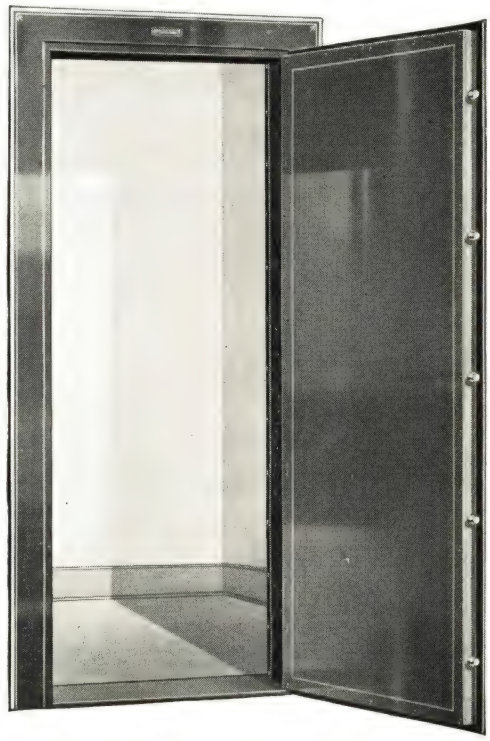


Style "L" Record Room Door—Closed



Horizontal Section Through Style "L" Record Room Door

Illustrating construction and showing masonry with clear opening dimensions



Style "L" Record Room Door—Open

FIRE-RESISTIVE VAULT DOORS—STYLES "R" AND "S"

Recommended Use

Styles "R" and "S" Fire-resistive Vault Doors are recommended wherever inside doors are required for auxiliary protection in record rooms. The inside doors with key locks are useful for day-time operation.

The style "S" door is built with a wide opening for record rooms where busses are used.

The doors have a flush entrance from the office into the vault permitting easy use of busses and transportable record trays.

Both of these doors are adaptable for installation in vaults where the wall openings are already built.

Description

These doors with inside doors but without grouting offer forty to forty-five minutes protection.

Contrast the protection of these doors with the old style plate doors that offered twenty-seven minutes protection when fully grouted and with inside doors, based on tests by the Underwriters' Laboratories.

The anti-warp channel reinforcing the front frame and the deep box tongue of the jambs seals the doors against the direct passage of heat into the vault.

The interlocking channel on the hinge side the full height of the door effectually locks and seals these doors against the entrance of heat on this side.

Manufacturer's Specifications

Style "R"

(1) Clear Opening through Inner Doors—27 in. wide by 75⅜ in. high.

(2) Clear Opening through Outer Door—28½ in. wide by 75¾ in. high.

(3) Over-all Outer Door Thickness—2¼ in.

(4) Masonry Opening—33 in. wide by 79 in. high.

(5) Wall Thickness—18 in. including finish. Wall must be 15½ in. thick to allow inside doors to pocket.

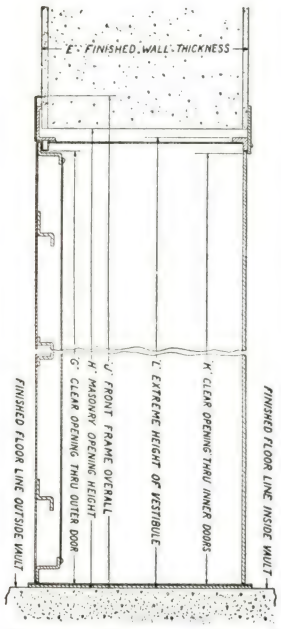
(6) Extreme Swing of Door—30¼ in.

(7) Vestibule Body Over All—30⅝ in. wide by 77 in. high.

(8) Installation—No grouting required.

(9) Front Frame Over All—38¼ in. wide by $80\frac{13}{16}$ in. high.

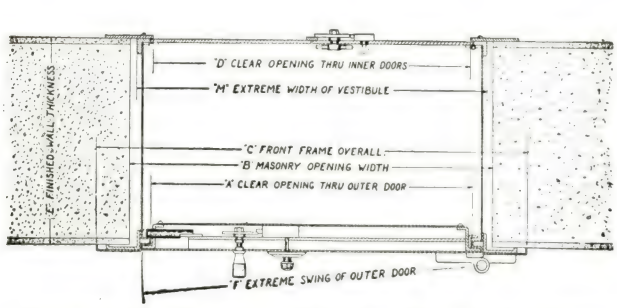
(10) Back Frame—Removable.



Vertical Section Through Styles "R" and "S" Fire-resistive Vault Doors
Showing masonry clear opening dimensions and floor levels

DIMENSION SCHEDULE, INCHES

	"R"	"S"		"R"	"S"
A	28½	35½	G	75¾	75¾
B	33	40	H	79	79
C	38¼	45¼	J	$80\frac{13}{16}$	$80\frac{13}{16}$
D	27	34	K	75⅜	75⅜
E	18	20	L	77	77
F	30¼	37¼	M	30⅝	37⅝



Horizontal Section Through Styles "R" and "S" Doors
Illustrating construction and showing masonry with clear opening dimensions

Style "S"

(1) Clear Opening through Inner Doors—34 in. wide by 75⅜ in. high.

(2) Clear Opening through Outer Door—35½ in. wide by 75¾ in. high.

(3) Over-all Outer Door Thickness—2¼ in.

(4) Masonry Opening—40 in. wide by 79 in. high.

(5) Wall Thickness—20 in. including finish. Wall must be 18½ in. thick to allow inside doors to pocket.

(5) Extreme Swing of Door—37¼ in.

(7) Vestibule Body Over All—37⅝ in. wide by 77 in. high.

(8) Installation—No grouting required.

(9) Front Frame Over All—45¼ in. wide by $80\frac{13}{16}$ in. high.

(10) Back Frame—Removable.

Styles "R" and "S"

(11) Construction of Outer Door—$\frac{1}{16}$-in. outer door plate to which the four ⅛-in. "Z" shaped bars forming the jambs are electrically welded reinforced by three "Z" shaped horizontal cross braces electrically welded to the door plate.

(12) Construction of Inner Doors—Each door has double inner doors ⅛ in. thick locked at top, bottom and front with strap boltwork checked with a flat key lock. Boltwork is operated by a drop T handle.

(13) Bolts—Each door has five bolts of ¾-in. dia. at front and interlocking channel at the hinge side the full height of the door.

(14) Lock—The outer doors have a Diebold 3-tumbler combination lock with patented re-locking device.

(15) Bolt Handle—Each door has a bolt handle with bronze knob and black bakelite grip.

(16) Hinges—Two heavy malleable iron pin hinges.

(17) Jambs—The jambs of the vestibule are formed and welded into a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.

(18) Finish—Each door is finished in olive green duco with gold decorations. Hinge tips, combination dial and ring and handle knob are brushed bronze. The combination lock and bolt handle grips are black bakelite.

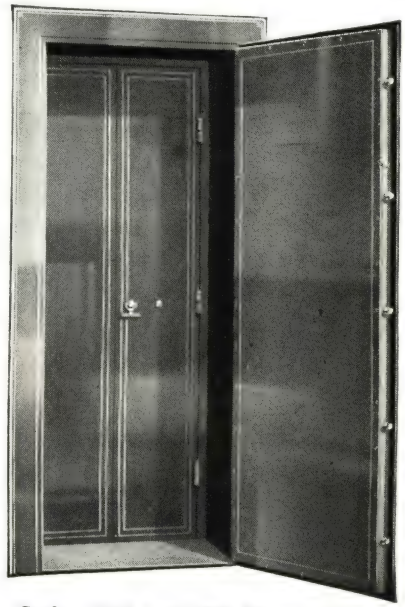
(19) Shipping Weight—Style "R" 500 lb.; style "S" 650 lb.

Note: *These doors can be furnished special to fit any wall thickness over 15½ in. for the "R" and 18½ in. for the "S" and can be finished in special colors.*

To Specify These Doors Write—"Diebold Standard Style 'R' or Style 'S' Vault Door." Specify the swing of the doors as right or left as you face them. The door illustrated is *right swing.*



Styles "R" and "S" Fire-resistive Doors —Closed



Styles "R" and "S" Fire-resistive Doors—Open

FIRE-RESISTIVE VAULT DOOR—STYLE "T"

Recommended Use

The style "T" fire-resistive vault door is recommended wherever double outside doors and inside doors are required for record rooms. The double outside doors swing in the minimum of space—the inside doors are useful for daytime operation.

The style "T" door has a flush entrance from the office into the vault permitting easy use of busses and transportable record trays—it is built with a wide opening for this purpose.

This door is adaptable for installation in vaults where the wall openings are already built.

Description

The style "T" door with inside doors but without grouting offers forty to forty-five minutes protection. Contrast the protection of this door with the old style plate door that offered twenty-seven minutes protection when fully grouted and with inside doors, based on tests by the Underwriters' Laboratories, Inc.

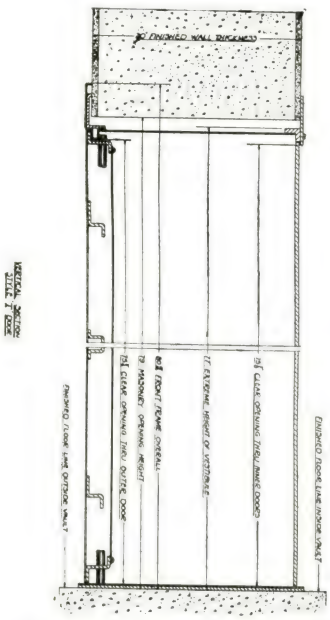
The anti-warp channel reinforcing the front frame, the deep box tongue of the jambs, interlocking channel on the hinge side the full height of the door, and the deep striker on the left-hand door, seal this door against the direct passage of heat into the vault.

Manufacturers' Specifications

(1) Clear Opening Through Inner Doors—35 in. wide by 75⅜ in. high.

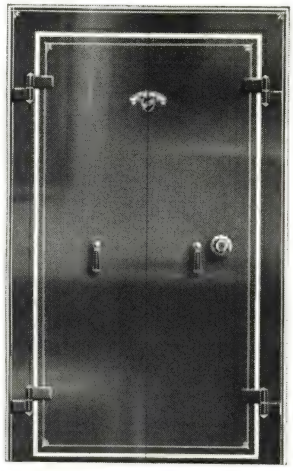


Style "T" Fire-resistive Vault Door—Open

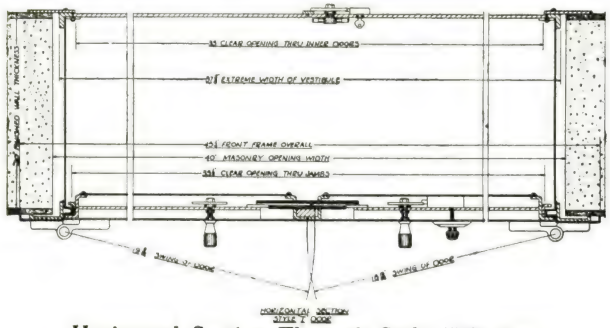


Vertical Section Through Style "T" Door

Showing masonry, clear opening dimensions and floor levels



Style "T" Fire-resistive Vault Door—Closed



Horizontal Section Through Style "T" Door

Illustrating construction and showing masonry with clear opening dimensions

(2) Clear Opening Through Outer Door—35½ in. wide by 75¾ in. high.

(3) Over-all Outer Door Thickness—2¼ in.

(4) Masonry Opening—40 in. wide by 79 in. high.

(5) Wall Thickness—20 in. including finish. Wall must be 19 in. thick to allow inside doors to pocket.

(6) Extreme Swing of Outer Doors—Right-hand door, $18\frac{13}{32}$ in. Left-hand door, $19\frac{3}{32}$ in.

(7) Vestibule Body Over All—37⅝ in. wide by 77 in. high.

(8) Installation—No grouting required.

(9) Front Frame Over All—45¼ in. wide by $80\frac{13}{16}$ in. high.

(10) Back Frame—Removable.

(11) Construction of Outer Door—⅛-in. outer door plate to which the four ⅛-in. "Z" shaped bars forming the jambs are electrically welded reinforced by three "Z" shaped horizontal cross braces electrically welded to the door plate.

(12) Construction of Inner Doors—Each door has double inner doors ⅛ in. thick locked at top, bottom and front with strap boltwork, checked with a flat key lock. Boltwork is operated by a drop "T" handle.

(13) Bolts—Right-hand outer door has five ¾-in. bolts at front and one ¾-in. at top and one ¾-in. at bottom with flange the full height of the door at the rear.

Left-hand door has one ¾-in. bolt at front, one ¾-in. bolt at bottom, one ¾-in. bolt at top with flange extending the full height of the door at the rear and a striker extending the full height of the door at the front.

(14) Lock—The outer doors have a Diebold 3-tumbler combination lock with patented relocking device.

(15) Bolt Handle—Each door has a bolt handle with bronze knob and black bakelite grip.

(16) Hinges—Two heavy malleable iron pin hinges.

(17) Jambs—The jambs of the vestibule are formed and welded into a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.

(18) Finish—Each door is finished in olive green duco with gold decorations. Hinge tips, combination dial and ring and handle knob are brushed bronze. The combination lock and bolt handle grips are black bakelite.

(19) Shipping Weight—690 lb.

Note: *This door can be furnished special to fit any wall thickness over 19 in. and can be furnished in special colors.*

To Specify These Doors Write—"Diebold Standard Style 'T' Vault Door."

FIRE-RESISTIVE VAULT DOOR—STYLE "TILE"

Recommended Use

The "Tile" Fire-resistive Vault Door is stocked standard to fit a wall 9 in. thick including finish. In walls of this thickness or less inside doors are impracticable. They will not pocket in the vestibule and it is objectionable to swing them into the vault or allow them to extend through the front frame.

The ½-hour Underwriters' Label Record Room Door must be built with a vestibule 9 in. deep or greater. Since the "Tile" Door affords twenty-nine minutes protection based on tests in the Underwriters' Laboratories it is especially suited for those locations where it is impractical to build a 9-in. front wall.

Description

This door offers twenty-nine minutes protection without any grouting in contrast to the old style plate vault doors that offer only ten minutes protection when fully grouted. Based on tests in the Underwriters' Laboratories.

The anti-warp channel reinforcing the front frame and the deep box tongue of the jambs seal the door against the direct passage of heat into the vault.

The cover plate over the boltwork adds to the appearance of the door and prevents the soiling of clothing on the working parts.

With the necessity of grouting eliminated there is no difficulty in installing the door.

Manufacturer's Specifications

(1) Clear Opening—28½ in. wide by 75¾ in. high.

(2) Over-all Door Thickness—2¼ in.

(3) Door Construction—⅛-in. outer door plate to which the four ⅛-in. "Z" shaped bars forming the jambs are electrically welded reinforced by three "Z" shaped horizontal cross braces electrically welded to the door plate.

(4) Masonry Opening—33 in. wide by 79 in. high.

(5) Wall Thickness—9 in. including finish.

(6) Extreme Swing of Door—30¼ in.

(7) Vestibule Body Over All—30½ in. wide by 76⅛ in. high.

(8) Installation—No grouting required.

(9) Front Frame Over All—38¼ in. wide by 80⅛ in. high.

(10) Back Frame—Removable.

(11) Bolts—Five bolts of ¾-in. dia. at front and interlocking channel at rear the full height of the door.

(12) Locks—Diebold 3-tumbler combination lock with patented re-locking device.

(13) Bolt Handle—A drop handle with bronze knob and black bakelite grip.

(14) Hinges—Two heavy malleable iron pin hinges.

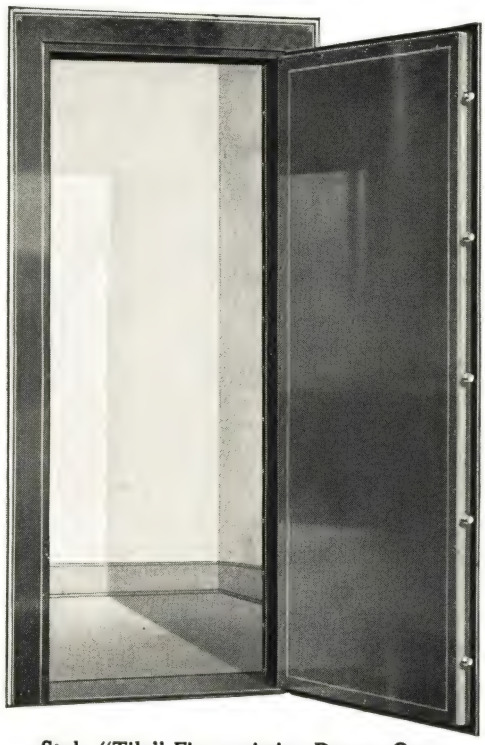
(15) Jambs—The jambs of the vestibule are formed on three sides from a solid piece with a deep tongue striker. The frame of the door is formed from "Z" bars electrically welded.

(16) Finish—Olive green duco with gold decoration. Hinge tips, combination dial, and ring and handle knob are brushed bronze. The lock and bolt handle grips are black bakelite.

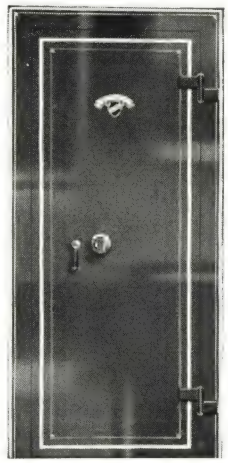
(17) Shipping Weight—375 lb.

Note: *This door can be furnished special to fit any wall thickness and can be finished in special colors.*

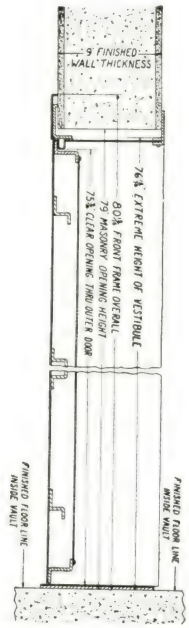
To Specify This Door Write—"Diebold Standard 'Tile' Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is *right swing.*



Style "Tile" Fire-resistive Door—Open

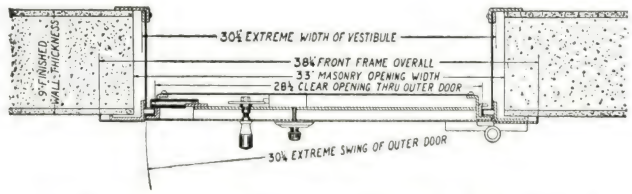


Style "Tile" Fire-resistive Door—Closed



Vertical Section Through Style "Tile" Fire-resistive Vault Door

Showing masonry, clear opening dimensions and floor levels



Horizontal Section Through Style "Tile" Fire-resistive Vault Door

Illustrating construction and showing masonry with clear opening dimensions

BURGLAR-RESISTIVE VAULT DOOR—STYLE NO. 215

Recommended Use

The style No. 215 Burglar-resistive Vault Door is designed for vaults built for protection from burglarious attack. Subject to the Class "D" Mercantile Burglary Insurance rates it reduces insurance premiums. It is recommended wherever this type of protection is required for securities or valuables.

Home owners will find it especially suited for silver and trunk storage vaults; manufacturers will find it desirable for the protection of templates, dies, chemicals and valuable parts and tools.

Where greater burglary protection is required see our No. 235 Vault Door and write for specifications of Diebold Bank Vault Doors.

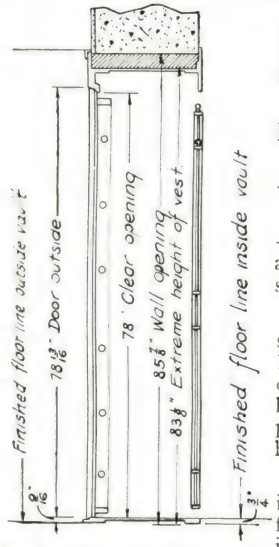
Description

This door meets the requirements for Class "D" Mercantile Burglary Insurance.

It is hung on a goose-neck crane hinge operating on ball bearings. It is seated in its jamb with a two-point compressor system operated by a hand wheel with six hexagonal bakelite grips.

The door is standard with two 3-tumbler combination locks equipped with re-locking device, for additional protection.

A plate of 5-ply hardened chrome steel protects the locks and bolt throwing handle from burglarious attack by drilling.



Vertical Section through Style No. 215 Burglar-resistive Vault Door
Showing masonry clear opening and floor level dimensions

Manufacturer's Specifications

(1) Clear Opening into Vault—32 in. wide by 78 in. high.

(2) Over-all Door Thickness—The door is 3⅛ in. thick on edge and measures 12 in. over compressor system.

(3) Door Construction—The solid steel thickness of the door is 1½ in. built up of 1-in. and ½-in. open hearth steel plates. A 5-ply hardened chrome steel drillproof plate protects the locks and bolt handle.

(4) Masonry Opening—44½ in. wide by 85⅞ in. high. Notice floor levels on sectional drawings in this column.

(5) Wall Thickness—20 in. including finish. If steel lining is to be attached to door write for special masonry drawing.

(6) Extreme Swing of Door—39 3/16 in.

(7) Vestibule Body Over All—Constructed of 11-gauge steel; 40¾ in. wide by 83⅛ in. high.

(8) Installation—The vestibule must be braced and grouted in the opening with cement.

(9) Architraves—48½ in. wide by 87 in. high over all, constructed of ⅜ in. by ¾ in. by 1⅞ in. angles mitred at corners and beveled on inner edges.

(10) Front Frame—Steel plate 7 in. by ⅜ in.

(11) Back Frame—Steel angles with removable steel bar.

(12) Bolts Outside Door—Twelve bolts of 13/16 in. dia., double acting.

(13) Outer Bolt Frames—1 in. wide by 1⅝ in. high.

(14) Inner Bolt Frames—1⅞ in. wide by 1⅝ in. high.

(15) Locks—Two Diebold 3-tumbler combination locks with re-locking device.

(16) Bolt Throw Handle—A drop handle with steel knob and black bakelite grip.

(17) Crane Hinge—Semi-steel 5½ in. wide by 1⅜ in. thick. Hinge barrels are 2¼ in. and 2½ in. dia.

(18) Compressor System—Single horizontal.

(19) Hand Wheel—Six spokes with black bakelite grips. Over-all diameter 16⅛ in.

(20) Foot Bridge—None. Flush entrance into vault.

(21) Door Stop—A nickel plated door stop with rubber bumper is furnished for setting in the floor.

(22) Day Gate—A standard No. 7 Diebold Day Gate is furnished constructed of ½-in. rods set on 1¾-in. centers through ½-in. by 1½-in. girts and provided with a self-closing hinge. The gate is furnished with a key lock operated with key from outside and thumb latch from inside. An alarm bell is attached to lock.

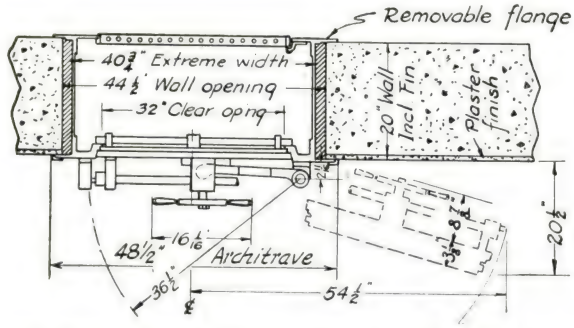
(23) Finish—Edge moulding is satin nickel; front of door and frame, jambs, crane hinge and vestibule inside are olive green duco; compressor system, boltwork and day gate are buffed nickel; locks are satin bronze.

(24) Over-all Crated Size—2 ft. 11½ in. deep by 7 ft. 4 in. high by 4 ft. 6 in. wide.

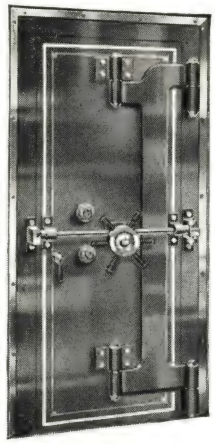
(25) Shipping Weight—3000 lb.

Note: Satin nickel finish plates can be furnished for the outside face of the door and frame, as an extra, when specified. The depth of the vestibule may be changed.

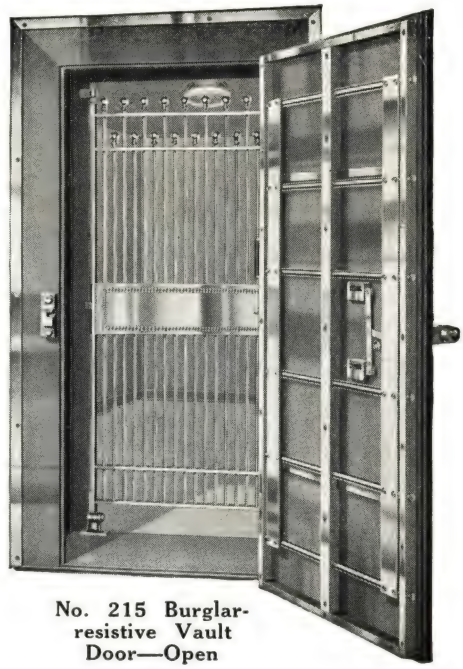
To Specify This Door Write—"Diebold Standard Style No. 215 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is *right swing.*



Horizontal Section through Style No. 215 Vault Door
Illustrating construction and showing masonry with clear opening dimensions



No. 215 Burglar-resistive Vault Door—Closed



No. 215 Burglar-resistive Vault Door—Open

BURGLAR-RESISTIVE VAULT DOOR—STYLE NO. 235

Recommended Use

Style No. 235 Burglar-resistive Vault Door is designed for vaults built for protection from burglarious attack. Burglary insurance premiums are substantially reduced since it meets the Class "E" Mercantile Burglary Insurance classification. It is recommended wherever this type of protection is required for securities or valuables.

Jewelers will find it profitable because of reduced insurance premiums; manufacturers, wholesalers, jobbers, and large retailers will find it desirable for the protection of valuable stock, formulas and payrolls.

It is ideal for banks and financial institutions needing a separate vault for the protection of accounts and records from fire and burglary. It will harmonize nicely with the main bank vault door.

Where additional burglary protection is required write for specifications of Diebold Bank Vault Doors.

Manufacturers' Specifications

(1) Clear Opening Into Vault—32 in. wide by 78 in. high.

(2) Over-all Door Thicknesses—The door is 8¼ in. thick on edge and measures 14⅜ in. over compressor system.

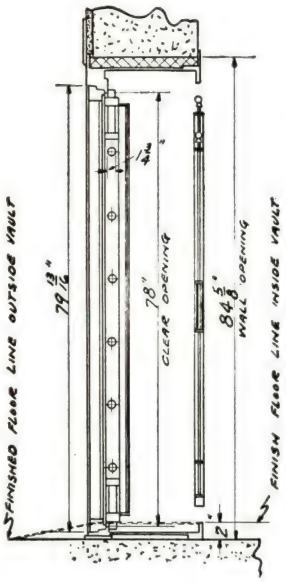
(3) Door Construction—The solid steel thickness of the door is 3½ in. built up of ½ in. open hearth 2 in. torch resisting, ½ in. 5-ply chrome, and ½ in. open hearth plates.

(4) Masonry Opening—40 in. wide by 84⅝ in. high. Notice floor levels.

(5) Wall Thickness—20 in. including finish. If steel lining is to be attached to door write for special masonry drawing.

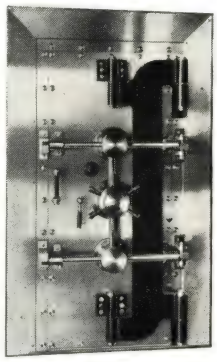
(6) Extreme Swing of Door—42⅛ in.

(7) Vestibule Body Over All—The vestibule body is constructed of ¼-in open hearth plates with 2 in. by 2 in. by ¼ in. anlges at the corners. It is 37¾ in wide by 82⅝ in. high.

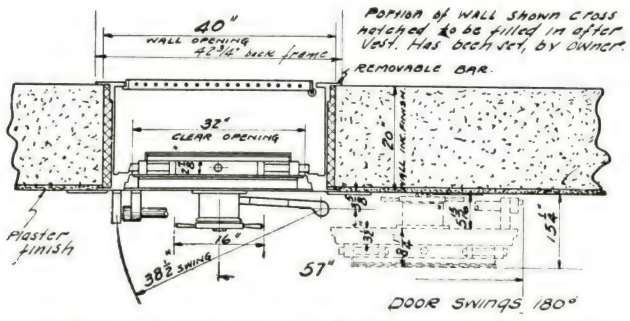


Vertical Section Through Style No. 235 Vault Door

Showing masonry, clear opening and floor level dimensions



No. 235 Burglar-resistive Vault Door—Closed



Horizontal Section Through Style No. 235 Vault Door

Illustrating construction and showing masonry with clear opening dimensions

(8) Installation—The vestibule must be braced and grouted in the opening with cement.

(9) Architraves Over All—56⅛ in. wide by 91$\frac{13}{16}$ in. high over all constructed of ¼ in. by 8 in. plates mitered at corners and beveled on inner edges.

(10) Front Frame—Steel plate 5 in. by ½ in.

(11) Back Frame—2½ in. by 2½ in. by ¼ in. steel angles with removable steel bar 5 in. by ¼ in.

(12) Locking Bolts—18 bolts, 1¾ in. diameter, operated by gears.

(13) Outer Bolt Frames—1¾ in. wide by 2⅞ in. high.

(14) Inner Bolt Frames—1¼ in. wide by 2⅞ in. high.

(15) Glass Frame—The boltwork is covered with ¼ in. plate glass in a steel angle frame, 1⅞ in. by 1⅞ in. by ¼ in. locked with a key lock.

(16) Lock—One Diebold Peerless 4-tumbler key-changing combination lock.

(17) Bolt Throw Handle—Lever handle with bronze knob and hard rubber grip.

(18) Crane Hinge—Semi-steel, 8 in. wide by 1¼ in. thick. Hinge barrels are 2½ in. and 3 in. diameter.

(19) Compressor System—Double, four-point, with three drums and 1½ in. diameter rods.

(20) Hand Wheel—Six spokes with black bakelite grips. Overall diameter 16 in.

(21) Foot Bridge—Inclined, covered with corrugated rubber.

(22) Door Stop—A nickel plated door stop with rubber bumpers is furnished for setting in the floor.

(23) Day Gate—A standard No. 7 Diebold Day Gate is furnished, constructed of ½-in. rods set on 1¾ in. centers through ½ in. by 1½ in. girts and provided with a self closing hinge. The gate is furnished with a key lock operated with key from outside and thumb latch from inside. An alarm bell is attached to lock.

(24) Finish—Architraves, satin nickel.
Front of door and frame, satin nickel.
Jambs and bolt frames, polished steel.
Crane hinge, black Duco, satin finish.
Vestibule, inside, auto gray.
Compressor system, satin nickel.
Bolt work and glass frame, polished steel.
Finish plates under bolt work, satin nickel.
Day gate, buffed nickel.
Lock, satin bronze.

(25) Over-all Crated Size—3 ft. 2 in. deep by 7 ft. 3 in. high by 4 ft. 4 in. wide.

(26) Shipping Weight—6100 lb.

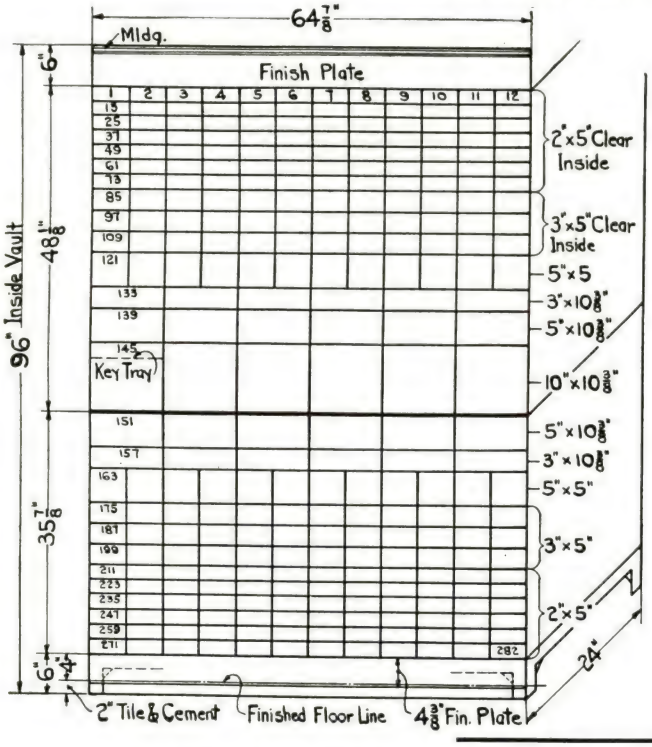
Note: *This door can be furnished to fit any wall thickness.*

To Specify This Door, Write—"Diebold Standard Style No. 235 Vault Door." Specify the swing of the door as right or left as you face it. The door illustrated is *right swing.*



No. 235 Burglar-resistive Vault Door—Open

SAFE DEPOSIT AND BOND BOXES



From the following information, together with the sketch, can be figured the number of safe deposit boxes or bond boxes, or any combination of both that will fit any given size space.

Formula for figuring the total number of boxes of average sizes in a given space: Multiply height in feet by the width in feet of the available space, and then by 6¾. This will give you the total number of boxes of average size.

Note: For computing size of sections, figure all verticals ⅜ in., including the outside shell. Figure the horizontals ⅛ in., except top and bottom of sections which are ¼ in.

SCHEDULE No. 1—SAFE DEPOSIT BOXES

*Boxes	Clear inside dimensions, in.		
	Height	Width	Depth
156	2	5	$22\frac{13}{32}$
72	3	5	$22\frac{13}{32}$
24	5	5	$22\frac{13}{32}$
12	3	$10\frac{3}{8}$	$22\frac{13}{32}$
12	5	$10\frac{3}{8}$	$22\frac{13}{32}$
6	10	$10\frac{3}{8}$	$22\frac{13}{32}$

*Total, 282 boxes.

SCHEDULE NO. 2—BOND BOXES

Clear inside dimensions, in.		
Height	Width	Depth
$1\frac{25}{32}$	$4\frac{11}{16}$	$21\frac{1}{2}$
$2\frac{25}{32}$	$4\frac{11}{16}$	$21\frac{1}{2}$
$4\frac{25}{32}$	$4\frac{11}{16}$	$21\frac{1}{2}$
$2\frac{25}{32}$	$10\frac{1}{16}$	$21\frac{1}{2}$
$4\frac{25}{32}$	10	$21\frac{1}{2}$
$9\frac{23}{32}$	10	$21\frac{1}{2}$

Specifications

Construction—Top and bottom ¼ in.; horizontals ⅛ in.; verticals ⅜ in.; doors ½ in.

Locks—Double nose flat customer and guard key or corrugated customer and guard key, Underwriters' certified approved pickproof lock.

Bond Boxes—Heavy reinforced metal with lids hinged two-thirds way back. Lids swing 180 degrees—hasp fastener. Heavy wire drop handle each end. Finished inside and out in baked black enamel.

General Finish—Doors, satin nickel inside and out; lock cases, satin bronze; lock noses, satin brass; hinges, buffed bronze; exposed edges of all sides, top and bottom, and horizontal partitions, polished steel; interior of section painted maroon; exterior of section painted gray.

VAULTS AND VAULT DOORS

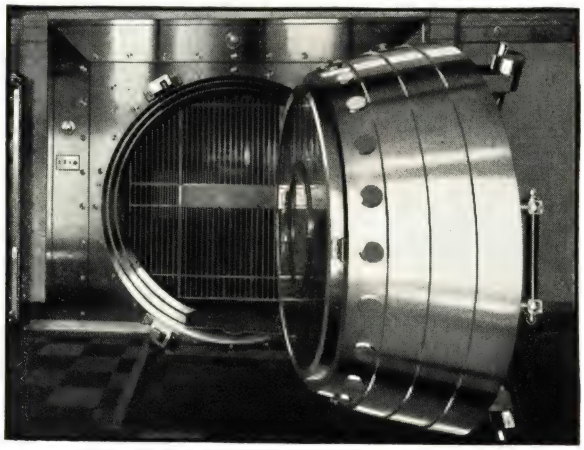
Complete Diebold Bank Vaults are in use in many of the largest banks throughout the United States. These include all styles and sizes from the simplest to the most elaborate. In this work all necessary equipment, such as safe deposit boxes, linings, etc., can be furnished. Our engineering department, together with the entire personnel of our various branch offices, is at the disposal of the architect or contractor. Sketches and estimates on special work, as well as stock designs, will be gladly furnished without charge. In addition to our lines of standard vault doors described below, we are prepared to build any style or size to meet special conditions.

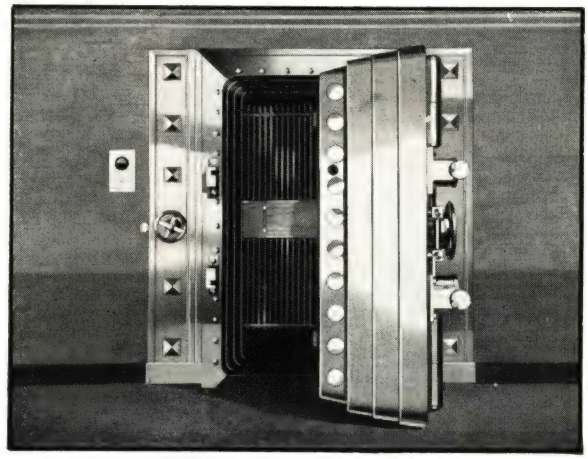
DIMENSIONS OF DIEBOLD STANDARD BURGLAR-PROOF VAULT FRONTS

Door No.	Solid steel, thickness in.	Wall opening, in.		Depth of vestibule (without lining), in.	Clear opening between jambs, in.		Outside over all, in.	
		High	Wide		High	Wide	High	Wide
Rectangular Doors								
215	$1\frac{1}{2}$	$85\frac{7}{8}$	$44\frac{1}{2}$	20	78	32	87	$48\frac{1}{2}$
235	$3\frac{1}{2}$	$84\frac{5}{8}$	40	20	78	32	$91\frac{13}{16}$	$56\frac{1}{8}$
507	7	93	49	20	$78\frac{3}{32}$	$32\frac{3}{16}$	95	60
610	10	93	49	20	$78\frac{3}{32}$	$32\frac{3}{16}$	$101\frac{3}{4}$	72
612	12	$95\frac{1}{2}$	$52\frac{1}{2}$	20	78	34	$105\frac{3}{4}$	80
616	16	98	56	21	78	34	$107\frac{7}{8}$	$82\frac{11}{16}$
1642	16	102	64	21	82	42	$112\frac{1}{4}$	$91\frac{7}{16}$
620	20	99	60	24	80	38	$109\frac{3}{16}$	$88\frac{25}{32}$
625	25	$111\frac{1}{2}$	$72\frac{3}{4}$	$27\frac{1}{2}$	84	40	$116\frac{21}{32}$	$97\frac{3}{4}$
Circular Doors								
1010	10	96	$96\frac{1}{2}$	20	80	80	$102\frac{1}{4}$	119
1016	16	100	100	24	80	80	106	$123\frac{3}{4}$
1020	20	106	106	27	82	82	$109\frac{1}{4}$	126
1025	25	$111\frac{3}{4}$	$111\frac{1}{2}$	33	84	84	115	133

Comparison of Circular and Rectangular Doors

The illustrations below show two characteristic Diebold Vault Door installations. Both doors, the one circular, the other rectangular, afford the same protection to the bank's vault. Both are massive, impressive and beautiful. Our purpose in showing these two doors is to accord you an opportunity of making a fair comparison. Each harmonizes with appropriate types of bank design. The rectangular door occupies a minimum of space and is particularly desirable where space is at a premium. Where sufficient space is available at the proper location the circular door makes an unusually fine showing. Naturally, preference will be based on the surrounding conditions.





THE NEW DIEBOLD ELECTRIC RECARDESK SAFE

Automatic—Electrically Operated



Button "O" opens the safe
Button "C" closes the safe
Button "R" reverses operation of door
Note crank shaft for emergency manual operation

Safe in Working Position
Right : Safe closed

24-Hour Protection for Records Where They Are Used
In event of a daytime fire "Push the Button and run"

Records Should Be Protected Where They Are Used

The new Diebold Electric Recardesk Safe is entirely automatic in its operation. It is opened and closed by pushing a button. Power is automatically shut off when either operation of the door is complete. All power is automatically cut off when the bolts are thrown and the door locked.

This safe is especially adapted for card records, and is equally desirable for either hand or machine posting. The sliding desk top permits quick access to any file and is invaluable as a working surface for posting and sorting.

A few of the places where this safe is most needed are:
Savings departments of banks and trust companies
Building and loan associations
Installment credit merchants
Election boards
Inventory control records and payroll records

3x5-in. signature card index files are optional and may be installed as shown when ordered as extras.

Approximate card capacity of each safe may be computed from the following table, medium weight cards, 1¾-in. fan, 11 indexes for each 100 cards:

Number of Trays	Size of card, in.		Number of cards per safe
	Wide	High	
10	5	8	15,000
8	6	8	12,000
6	8	8	9,000
6	8	10	9,000
5	10	10	7,500

Write for complete descriptive literature.

FIRE-RESISTIVE SAFES



Dominator Safe

Dominator Line
Underwriters' "A" and T-"20" label built in 9 models.

Commander Line
Underwriters' "B" and T-"20" label built in 7 models.

Guardian Line
Diebold certified 1-hour label, built in 3 models.

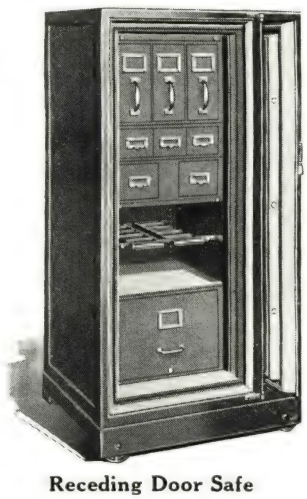
Commercial Line
Diebold certified 2-hour label, built in 8 models.

Recardesk Safes
Diebold certified 2-hour label, built in 4 models, operated both electrically and manually.

Receding Door Safe
Diebold certified 2-hour label, built in 2 models.

Finishes
The standard finish is a beautiful satin olive green duco.

Write for complete descriptive literature.



Receding Door Safe

EMBEZZLEMENT AND HOLD-UP PROTECTION

Diebold Tellers Safety Lockers provide tellers and cashiers with individual protection balanced with their responsibility. The teller gains positive control over all money in his care—no one else can gain access to his locker; the possibility of collusion among employees is removed—responsibility is definitely fixed.



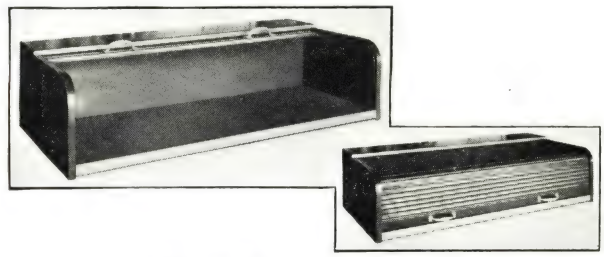
Tellers Safety Locker
Can be installed in new or old fixtures

Operated electrically or with Diebold Delayed Control Timelock hold-up protection is afforded by establishing the principle of removed control over the operation of the lock. Obeying the bandit's commands to the letter the door is deadlocked for a predetermined period and the loss of money prevented.

Diebold Tellers Safety Lockers are units of daily utility. Sufficient currency is handy for normal use—surplus funds are protected at all times. When the teller leaves for lunch, or leaves the office temporarily, there is a convenient button that locks up all exposed money. Only the teller who has exclusive control over the locks can open the locker.

These lockers may be operated manually, electrically or with the electrical Diebold Lake Erie Tear Gas System of Bank Hold-up Protection.

Write for detailed information for including Tellers Safety Lockers in fixture plans.



Roll Top Tellers Safety Locker
Can be installed in new or old fixtures

BANK HOLD-UP PROTECTION

The Diebold-Lake Erie Tear Gas System

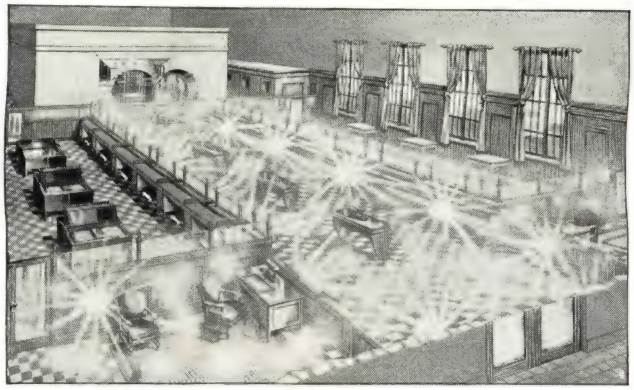
Without danger to human life:

(1) Hold-ups are prevented.

(2) Attempted hold-ups are defeated.

Principles of Protection

Bank banditry is increasing every day. Daily papers record the bandits' progress. The only way it can be stopped is through protection on the premises that will defeat the bandits when they come, and keep them away.



Bank Lobby Illustrated at Instant Tear Gas Is Released
Note Tellers Safety Lockers

Holdups can only be *prevented* by a system of protection that is positive in *defeating* them. The Diebold-Lake Erie System accomplishes both without danger to human life.

The Diebold-Lake Erie Tear Gas is a defense against banditry known to and feared by criminals—it blocks their path to a quick get-away and liberty. Thus banks protected with this system find the bandits passing them by for easier victims.

Attempted hold-ups are defeated by release of tear gas which instantly floods the banking room, driving the bandits out of the bank, incapacitated and easy subjects for police attention. In this condition the bandits are easily defeated and can be captured without the injuries and death caused by gun battles.

Underwriters' Laboratories Approval

The Underwriters' Laboratories of Chicago have approved this system of Bank Hold-up Protection and it is installed in accordance with their requirements. They have approved the Tear Gas employed as being non-toxic and without permanent effects.

Insurance

Banks equipped with this approved system of protection are entitled to a substantial reduction in holdup insurance premiums—a convincing testimonial of its worth in preventing and defeating hold-up attacks.

Installation and Operation

Foot control stations are installed within easy reach of all tellers and hand control stations at strategic points throughout the bank. Any one station releases the entire system. A self-contained and self-supervised electric circuit is used.

Release outlets are built into fixtures in accordance with Underwriters' specifications at selected locations to afford full and instant coverage of the lobby, entrances and exits with the tear gas.

Both hand and foot controls are especially designed to avoid possibility of accidental release of the tear gas.

We will be glad to mark prints of plans for the installation of this system in accordance with Underwriters' requirements, without obligation.

THE BANK VAULT INSPECTION CO.

SAMUEL P. YEO, President

Day and Night Depositories for Banking Institutions

(Systems Patented and Copyrighted)

MAIN OFFICE
5 South 18th Street, PHILADELPHIA, PA.
NEW YORK OFFICE, 175 Fifth Avenue
CHICAGO OFFICE, 6 North Michigan Avenue
SALES ENGINEERS IN ALL OF THE PRINCIPAL CITIES

"Yeo—The Original Rotary" Night Depository

The "Yeo Rotary" Night Depository is now in continuous service in over 1275 United States and foreign banks. Adopted and used by largest chain banks in America.

General Details—Types to meet all requirements.
Simple in operation.
Strong and safe because of "Rotary" design (patented).
Massive in construction.
Beauty and refinement in design.
No sensitive or auxiliary devices used.
No upkeep cost. Nothing to get out of order.
Electrical protection (optional).

Low Insurance Rates

Entire "Yeo" equipment carries the lowest insurance rates. Approved by Underwriters' Laboratories, Inc.

Service

In addition to our one-year guarantee, our expert service men are available to render immediate service.

You are under no obligation when requesting our A. I. A. folder, or a personal call from one of our engineering staff.



Victory Model—Very Large Bag Capacity—Wall Installation

Inserting Yale key in control lock of rotary. A slight pull on cylinder will rotate it to open position



Window Installation—Rotary Cylinder in Open Position

Depositor placing sealed bag in cylinder



Curb Installation—Making Deposit from Car



DeLuxe Model Entrance

Standard

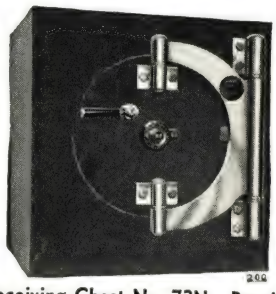
(With full protection for average banks)
Weight—750 lb.
Face plate—statuary bronze or stainless steel, 18½ in. high, 21¾ in. wide
Letters—1¼ in. raised cast or Tiffany illuminated
Cylinder—cast bronze or stainless steel with electric steel centers
Housing—electric steel
Insurance—lowest rate "B" classification
Electric protection—provision for electric-protection companies to apply their system

Right:

Victory Model Entrance

The Super Model

(For large banks who buy heavy equipment)
Weight—1000 lb.
Face plate—statuary bronze, 21½ in. high, 21½ in. wide
Letters—1¼ in. raised cast or Tiffany illuminated
Cylinder—cast bronze. Extra heavy walls, 3 in. minimum thickness
Housing—electric steel
Insurance—very lowest rate; "B" classification
Electric protection—provision for electric-protection companies to apply their system



Receiving Chest No. 72N—Burglar-proof—Latest Design

Weight—1800 lb.
Size—30 in. high, 28 in. wide, 27 in. deep
Body—1 in. thick
Door—3 in. solid thickness
Bolts—6, 1-in. diam.
Locks—Yale 025½ combination; Yale dual control dial lock
Electric protection—cavity left in door for electric-protection companies to apply their liners
Antidynamite device—applied to bolt work procures 10% insurance reduction
Time lock—2-movement Yale time lock can be applied if desired



Universal Model Entrance

(For banks with limited budget)
Weight—400 lb.
Face plate—statuary bronze, 18½ in. high, 21½ in. wide
Letters—1¼-in. raised cast bronze or Tiffany illuminated
Cylinder—bronze with electric steel centers
Housing—electric steel





Fig. 1

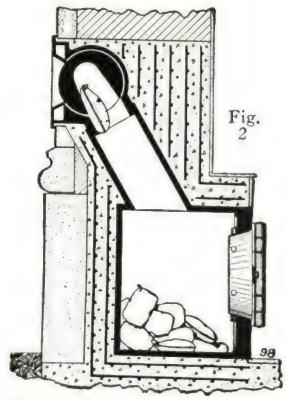


Fig. 2

When It Is Opened It Is Sealed

Rotating deposit entrance is always sealed against attack. (Fig. 1). Cylinder, in locked position, seals wall opening (Fig. 2)

HERRING-HALL-MARVIN SAFE CO.

GENERAL SALES OFFICE AND FACTORY
HAMILTON, OHIO

BRANCH OFFICES
NEW YORK, N. Y., 400 Broadway
CHICAGO, ILL., 223-225 West Lake Street
BIRMINGHAM, ALA., 1734 First Avenue North
SAN FRANCISCO, CAL., 214 California Street

THE COMPANY, ITS PRODUCTS AND SERVICE

This company manufactures a complete and comprehensive line of bank vaults, fire resistive vault doors, filing safes classes A and B, burglarproof chests, night depositories and other like equipment. Suggestive features are detailed on the following pages.

Information about design, construction and costs will be furnished to architects without entailing any obligation for such service as may be involved.

For nearly a century the HERRING-HALL-MARVIN SAFE CO. has built into its product the same undeviating quality.



FIREPROOF VAULT DOORS

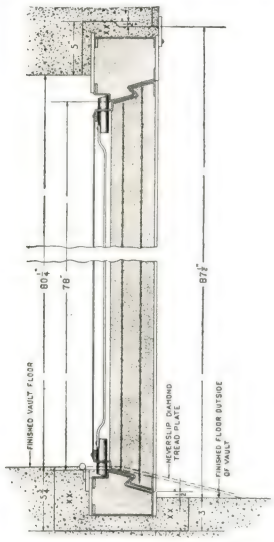
No. 7830—Six Hour Label

Certified six hour label vault door No. 7830 passed the test of the Underwriters' Laboratories, Inc., with application of heat for six hours up to 2140 degrees. The highest temperature recorded was 238 degrees, which is 62 degrees below the Laboratories' requirement.

No. 7830



This insulated vault entrance is made with steel jambs, and represents the best and newest developments in fire-resistive construction.



Vertical Section Showing Masonry Plan

Specifications—Trim, 89 $\frac{9}{16}$ in. high by 47 $\frac{7}{16}$ in. wide; clear opening through vestibule, 78 in. high, 30 in. wide. Dimensions and shape of required wall opening are shown on sectional drawings.

This door will be furnished in any width up to 33 in. clear opening.

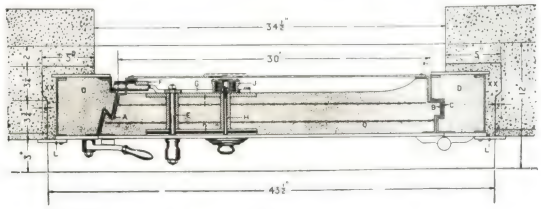
The door is locked by means of six bolts $\frac{7}{8}$-in. diam., and by the interlocking flange at the back. The lock and its connections are protected by a drillproof plate.

The jambs are built with two flanges with tenon and groove at top, front and bottom, and interlocking flange with spring seal at rear.

A hinged never-slip foot bridge with incline is furnished.

Shipping weight, approximately 1650 lbs.

No. 7830 can be furnished with inside doors.



Horizontal Section, Showing Masonry Plan

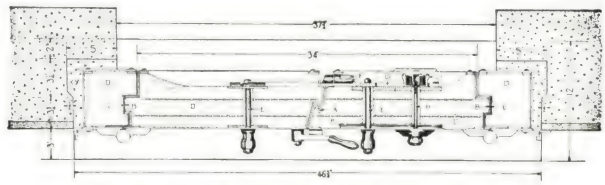
No. 7834—Six Hour Label

This double door is for use where a very wide vault entrance is required. It will be furnished in widths up to 53$\frac{3}{8}$ in. clear opening.



No. 7834

This six hour vault entrance is built in a similar manner to No. 7830.



Horizontal Section, Showing Masonry Plan

For the vertical section and masonry plan of No. 7834, see the vertical section of No. 7830 in column 1.

Specifications—Trim 89 $\frac{9}{16}$ in. high, 51 $\frac{5}{16}$ in. wide. Clear opening through vestibule 78$\frac{1}{8}$ in. high by 34 in. wide. *This clear opening may be increased in width up to 53$\frac{3}{8}$ in.*

The right-hand door is locked by means of six bolts $\frac{7}{8}$-in. diameter, and by the interlocking flange at back. Lock and connections protected by drillproof plate. The left-hand door is locked by up and down bolts, by overlap of right-hand door at front and by interlocking flange at back.

Tenon and groove, interlocking flange with spring seal, and footbridge, like No. 7830. Shipping weight, approximately 1900 lbs.

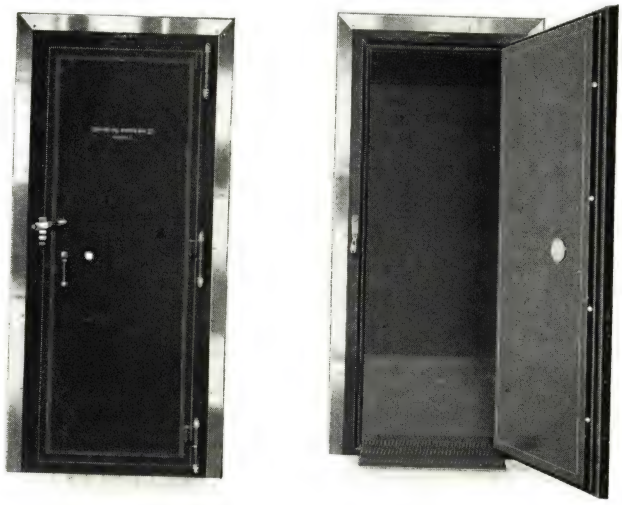
MINIMUM WALL THICKNESSES FOR SIX HOUR VAULTS AS SPECIFIED BY NATIONAL FIRE PROTECTION ASSOCIATION

Number of stories counting from top down	Reinforced concrete, in.	Brick or plain concrete, in.	Protected steel or reinforced concrete frames, in.	
			Reinforced concrete panels	Brick or plain concrete panels
Top	10	12	10	12
2nd	10	12	10	12
3rd	10	12	10	12
4th	12	16	10	12
5th	12	16	12	16
6th	12	20	12	16
7th			12	16
8th			12	16
9th			12	16
10th			14	16

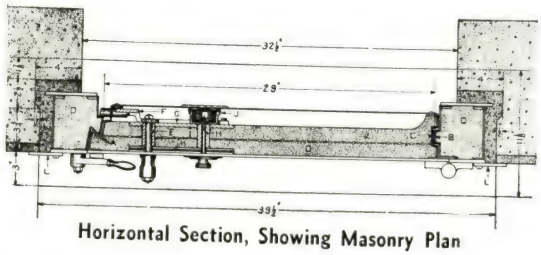
Note: These specifications apply to ground supported vaults whose construction is independent of the building in which they are located. Wall thicknesses of structural supported vaults that are supported by the framework of buildings of fire-resistive construction must not be less than those specified for the top stories of ground supported vaults.

No. 7629—Two Hour Label

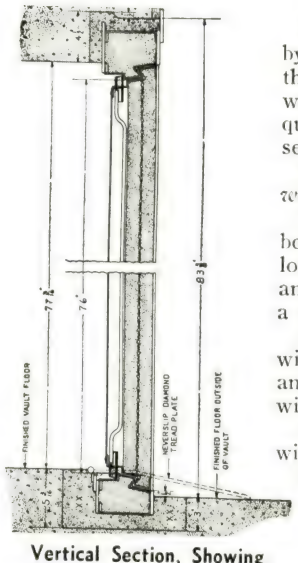
Certified two hour label vault door No. 7629 passed the test of the Underwriters' Laboratories, Inc., with application of heat for two hours up to 1850 degrees.



The highest temperature back of the door was 170 degrees, 130 degrees below the Laboratories' requirements.



Horizontal Section, Showing Masonry Plan



Vertical Section, Showing Masonry Plan

Specifications—Trim 85 7/16 in. high by 43 3/16 in. wide; clear opening through vestibule, 76 in. high, 29 in. wide. Dimensions and shape of required wall opening are shown on sectional drawings.

This door will be furnished in any width up to 33 in. clear opening.

The door is locked by means of six bolts ¾-in. diam., and by the interlocking flange at the back. The lock and its connection are protected by a drillproof plate.

Jambs are built with two flanges with tenon and groove at top, front and bottom, and interlocking flange with spring seal at rear.

A hinged never-slip foot bridge with incline is furnished.

Shipping weight, approximately 1350 lbs.

No. 7629 can be furnished with inside doors.

No. 7634—Two Hour Label

This double door is for use where a very wide vault entrance is required. It will be furnished in widths up to 53 3/8 in. clear opening.

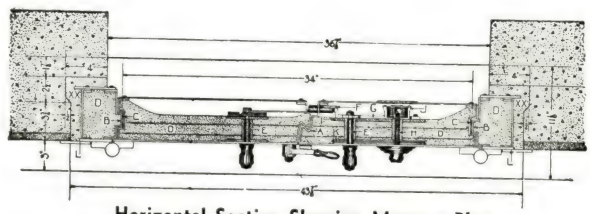


No. 7634

Specifications—Trim, 85 7/16 in. high, 48 7/16 in. wide; clear opening through vestibule 76 in. high, 34 in. wide. *This clear opening may be increased in width up to* 53 3/8 in.

The right-hand door is locked by six bolts ¾-in. diameter and by the interlocking flange at the back. Lock and connections protected by drillproof plate. The left-hand door is locked by up and down bolts, by overlap of right-hand door at front and by interlocking flange at back.

Tenon and groove, interlocking flange with spring seal, and footbridge, like No. 7830. Shipping weight, approximately 1550 lbs.



Horizontal Section Showing Masonry Plan

MINIMUM WALL THICKNESSES FOR TWO HOUR VAULTS AS SPECIFIED BY NATIONAL FIRE PROTECTION ASSOCIATION

Number of stories counting from top down	Reinforced concrete	Brick	Hollow clay tile or concrete block	Protected steel or reinforced concrete frames		
				Reinforced concrete panels	Brick or plain concrete panels	Hollow clay tile or concrete block panels
Top	6	8	12	6	8	12
2nd	8	12	12	8	12	12
3rd	10	12	16	10	12	16
4th	10	16	20	10	12	16
5th	12	16		12	16	20
6th	12	16		12	16	20
7th				12	16	20
8th				12	16	20
9th				12	16	20
10th				12	16	20

These specifications apply to all ground supported vaults whose construction is independent of the building in which they are located. Wall thicknesses of structural supported vaults that are supported by the framework of buildings of fire-resistive construction must not be less than those specified for the top stories of ground supported vaults, except that the minimum thicknesses of walls of hollow clay tile or concrete block for a two hour vault may be 8 in.

Fireproof Doors with Vestibules

Vault doors No. 14, 16, 17, 19, 20, 21, 22 and 28 are equipped with a *special relocking device with the inspection label of the Underwriters' Laboratories, Inc. A discount of 10 per cent is allowed from all premiums on burglary insurance covering the contents of vaults where these doors are used.*

Nos. 20, 21 and 22 have interlocking back flange.

Specifications—***No. 22***—Trim, 83¾ in. high, 38½ in. Wide. Wall opening required, 81½ high, 34½ in. wide, 20 in. deep. Clear opening through vestibule 77¾ in. high, 29 in. wide. Inside doors pocket in vestibule 17¾ in. deep. Twelve bolts, 1-in. diam., locking through solid bolt frame on sides, top and bottom and through center of door, and checked by four-tumbler combination lock.

No. 21—Same as No. 22 excepting bolt work. Six bolts, 1-in. diam., locking at ten points through solid bolt frame.

No. 20—Same as Nos. 22 and 21 excepting that bolt work operates through angle bolt frame.



No. 20



No. 22

No. 17—Trim, 80$\frac{5}{16}$ in. high, 35⅜ in. wide. Wall opening required, 79 in. high, 32 in. wide, 20 in. deep. Clear opening through vestibule, 75½ in. high, 26½ in. wide. Inside doors pocket in vestibule 16¼ in. deep. Five bolts, 1-in. diam., locking at eight points through angle bolt frame and checked by four-tumbler combination lock.



No. 16

No. 19—Same as No. 17 excepting bolt work. Three bolts, 1-in. diam., locking at six points through angle bolt frame.

No. 16—Trim, 80$\frac{5}{16}$ in. high, 31⅝ in. wide. Wall opening required 78 in. high, 29 in. wide, 20 in. deep. Clear opening through vestibule, 75½ in. high, 22½ in. wide. Inside doors will pocket in vestibule 14¼ in. deep. Two bolts 1-in. diameter, locking at four points through angle bolt frame.

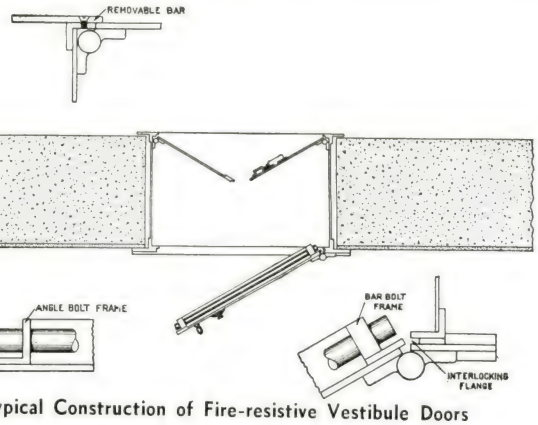
No. 14—Trim, 83¼ in. high, 49 in. wide. Wall opening required 81⅜ in. high, 44 in. wide, 20 in. deep. Clear opening through vestibule, 76¾ in. high, 36½ in. wide. Inside doors will pocket if vestibule is increased to 22½ in. depth—this will increase clear width of opening through vestibule to 38½ in. Bolts, 1-in. diam., locking each door through solid bolt frames.



No. 17



No. 14



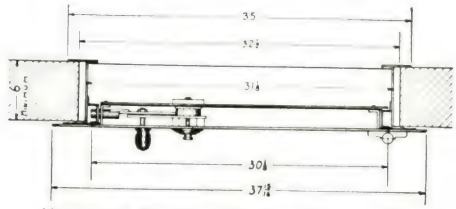
Typical Construction of Fire-resistive Vestibule Doors

No. 63—Half Hour Label

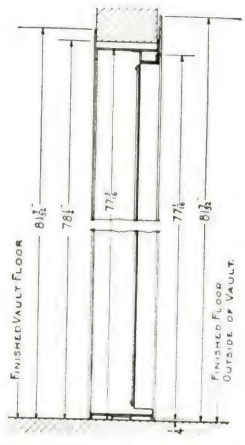
This vault door is intended for use in record rooms and carries the ½ hour label of the Underwriters' Laboratories, Inc. It is furnished with or without inside doors and with vestibule 6 in. or more in depth according to the thickness of the wall.



No. 63



Horizontal Section, Showing Masonry Plan



Vertical Section Showing Masonry Plan

Specifications—Trim 81$\frac{5}{16}$ in. high, 37$\frac{1}{16}$ in. wide. Wall opening required 78½ in. high, 32½ in. wide. Clear opening through vestibule 76$\frac{1}{16}$ in. high, 28¾ in. wide.

This door will be furnished with label, with clear opening up to 32 in. wide.

Four bolts ⅞-in. diam. at front with interlocking flange at rear of door. Insulated steel cover plate over bolt work. Bolt work checked by four-tumbler combination lock.

Inside doors, when used, pocket in vestibule 18 in. deep. Clear opening through inside doors, 27⅛ in.

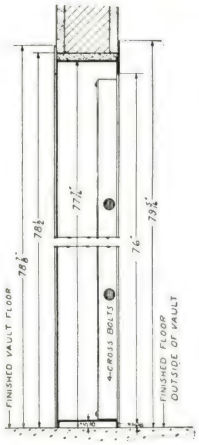
Horizontal and vertical sections of this door are shown without inside doors. These sections also give the dimensions of wall openings.

No. 62

This vault door is intended for use in tile, brick or light concrete walls. It is furnished with or without inside doors.



Horizontal Section, Showing Masonry Plan



Vertical Section, Showing Masonry Plan

Specifications—Trim, 79⅞ in. high, 32⅝ in. wide. Wall opening required 78½ in. high, 30¾ in. wide, 5½ in. deep. Clear opening through vestibule, 75½ in. high, 26½ in. wide. The depth of vestibule may be increased for walls of greater thickness.

Four bolts ⅞-in. diameter at front with interlocking flange at rear. Steel cover plate over bolt work. Bolt work checked by four-tumbler combination lock. Inside doors, when used, pocket in vestibule 16¼ in. deep. Clear opening through inside doors, 26 in. Horizontal and vertical sections are shown without inside doors. These sections also give the dimensions of wall openings.

In appearance No. 62 closely resembles No. 63.

Planning for Vault Doors

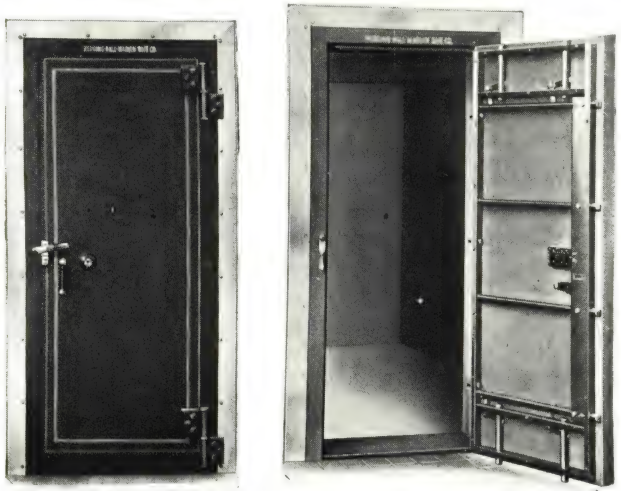
Printed drawings showing the masonry openings for all vault doors will be furnished promptly upon request either directly by the company or through its representatives in over three hundred cities.

Height, width and depth of vestibule doors can be changed to meet special requirements. In requesting quotations on either standard or special doors, please send full information concerning height, width and depth of wall opening available and the clear height and width required for passage through the vestibule.

Fur Vault Doors

These doors have been specially designed to meet the burglary insurance requirements for Class E and Class D vaults respectively:

Specifications—***No. 697***—This door is of solid steel 3 in. in thickness. Outside dimensions of vestibule, 80 in. high, 32 in. wide, 13¾ in. deep for a finished concrete wall 12¾ in. thick. Clear opening, 78 in. high, 30 in. wide. When used in reinforced concrete wall 12 in. thick or with ½-in. steel lining this door meets the requirements of the current insurance manual for a class E mercantile rating.



Fur Vault Door for Mercantile Uses

The door is locked in position by means of eight bolts, 1¼-in. diam., and by three locking dogs at the rear. Bolts checked by one four-tumbler combination lock *with relocking device, certified by Underwriters' Laboratories, Inc.—10% deduction from burglary insurance premiums for this device.* Door hung on ball bearing pin hinges with pressure handle at front. Weight, 3270 lbs.

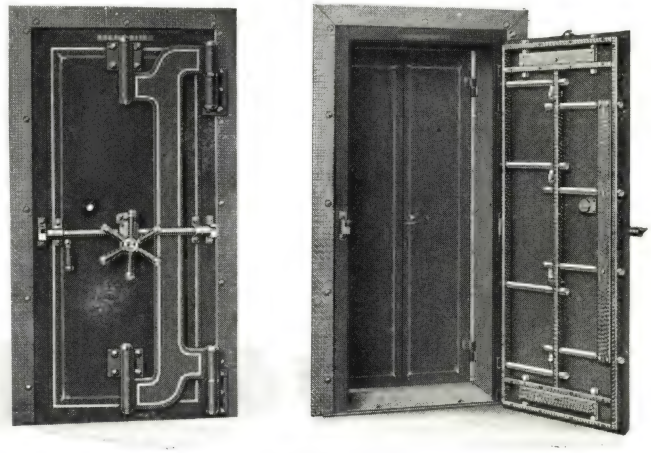
Vestibule may be fitted with polished or nickelplated moulding bars. Inside doors will be furnished if required. Depth of vestibule and height and width of door may be varied as required.

No. 696—This door is like No. 697 except in the following particulars: solid thickness of steel, 1½ in.; bolts, 1⅛-in. diam.; weight, 2200 lbs. Built for 9-in. wall with class D rating.

Light Door with Crane Hinge

Vault door No. 28 will be furnished with the certified relocking device.

Specifications—***No. 28***—Trim 86⅛ in. high, 44 in. wide. Wall opening, 81⅝ in. high, 34 in. wide, 20 in. deep. Clear opening through vestibule, 78½ in. high, 28½ in. wide. Inside doors will pocket in vestibule 18 in. deep. Thickness of door plate ½ in. Twelve bolts 1-in. diameter as shown on illustration. Weight, approximately 1500 lbs. Door hung on gooseneck crane hinge with single horizontal pressure system. Six-spoke pilot wheel. Moulding bars 4⅞ in. wide.



No. 28

Wall Safes

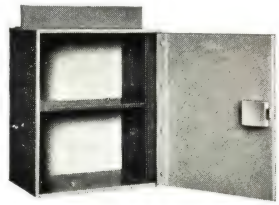
Wall safes Nos. 1 and 2 have solid cast bodies with inside measurements as follows:

No. 1—6¾ in. high, 10¾ in. wide, 7⅛ in. deep; No. 2—9¾ in. high, 14¼ in. wide, 7⅛ in. deep; both with doors with turning lugs and combination locks.

No. 42—13½ in. high, 11 in. wide, 7 in. deep inside with ½-in. steel door locked with either key or combination locks as required.



Wall Safe No. 2



Wall Safe No. 42

Certified Fireproof Filing Safes

Twenty-seven sizes of label safes are furnished with either A or B labels of the Underwriters' Laboratories, Inc.



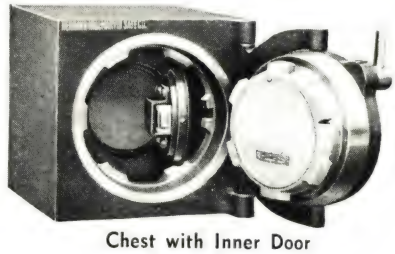
Herring - Hall - Marvin filing equipment is fully adjustable and interchangeable and is made in all standard sizes.

All label safes bear the *T-20 insurance label.*

Left:
Filing Safe—Class B and T-20 Labels

Burglarproof Chests

Herring-Hall-Marvin burglarproof chests comply with specifications for Class H bank burglarly rate and Class E mercantile rate. *They have inspected relocking devices with the label of the Underwriters' Laboratories, Inc., carrying 10% reduction from insurance premiums.*

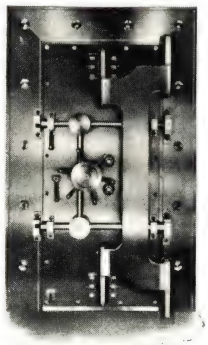


Chest with Inner Door

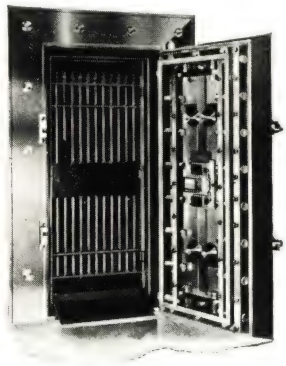
BANK VAULTS AND EQUIPMENT

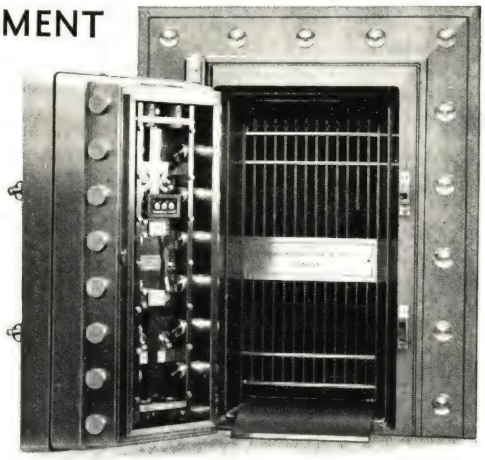
The Sales Engineering Department will furnish the fullest co-operation in the way of drawings, plans, cost data and other valuable information to architects who are planning bank work.

Vault equipment is designed to meet the individual requirements of banks, and therefore, is not catalogued.



Seven Inch Door





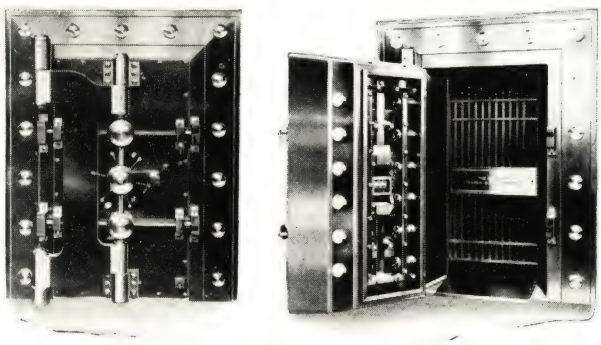
Another Typical Heavy Door

A careful study will be made in each case and plans will be submitted showing the dimensions and layout of vaults of every description, the construction of circular or rectangular vault doors, the arrangement and layup of safe deposit boxes and steel lockers, and full details concerning partitions, grilles, paneled ceilings and walls, and other requirements of the finished vaults of a modern bank.

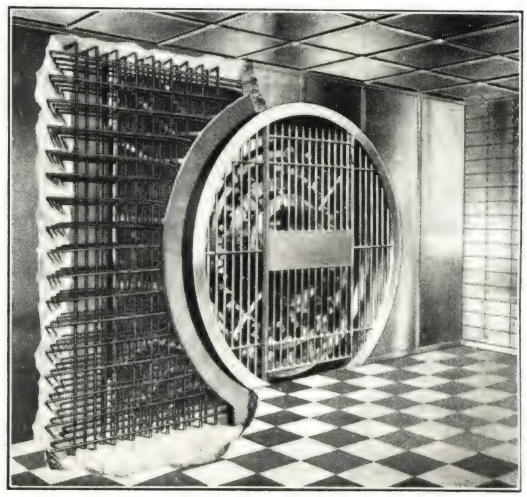
Vault doors are built to resist successfully every known method of attack, especially by cutting torch or high explosive. Design, materials and methods of construction are based on thorough scientific research coupled with the experience of nearly a century of successful manufacture.

Herring-Hall-Marvin builds either doors of the single flange type, or stepped doors with more than one flange. The relative appearance of these is indicated in the reproductions of actual installations shown on this page and on the first page of this section. The work of the Herring-Hall-Marvin factory is characterized not only by care in fabrication and precision in fit of parts but also by outstanding excellence of finish.

The interlocking cast vestibule, developed by the HERRING-HALL-MARVIN SAFE CO., is a marked advance in engineering design over the older or box type. This vestibule is formed of a heavy channel shaped casting with wide ribs. The horizontal steel reinforcing rods of the wall are brought to within the flanges and ribs of the casting and return stirrups, passed through the casting, tie the vault entrance immovably into the concrete so that the vestibule becomes an integral part of the wall construction itself thus gaining great strength and rigidity, and reducing width and height of the necessary opening through concrete defense of the vault. Complete bond between vestibule and walls of vault is illustrated below.



Interlocking Type



NIGHT DEPOSITORIES

The Rotary Night Depository consists of the following:

(1) A cast manganese bronze cylinder and housing which may be set either in the outside wall of the bank, or in the entrance lobby, or at any other convenient point.

(2) A heavy steel chute of ample size through which the bag is dropped from the cylinder entrance to the night safe inside the building. The inside of this chute contains a series of serrated baffles which will effectually prevent the withdrawal of any object. A hinged baffle door is located at the bottom of the chute.

(3) The night safe, which will be made of any size to meet the needs of the user.



The entrance cylinder and housing are of torchproof manganese bronze. The cylinder is rotated by the opening of a bronze door on the face plate, and both cylinder and door are checked by a drillproof paracentric key lock.



Auxiliary Door

The safe is made 1 in. in thickness to comply with the requirements for a Class B insurance rating, and both safe and chute are required to be incased in reinforced concrete. The cast steel front of the safe and the circular cast steel door are drillproof, and are 3½ in. in net thickness.

Insurance Rating

This safe is constructed throughout to take the Class B insurance rating, which is the best accorded to devices of this kind. The following paragraph is quoted from the Current Insurance Manual:

"Safe and chute are incased on all sides with at least 6 in. of concrete, reinforced with steel rods at least ⅝ in. thick and spaced not more than 4 in. on centers. Reinforcing rods along chute are held in place by angle irons properly spaced."

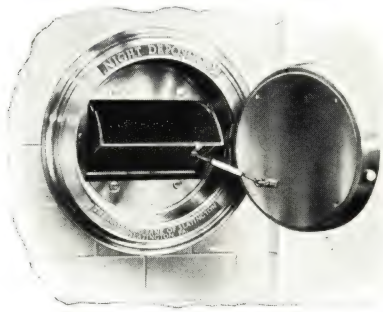
By varying the length and direction of the chute it can be adapted to existing buildings and can be so placed as to be easy of access.

Dimensions—The following dimensions of head and chute are of special interest in planning for the installation of a Herring-Hall-Marvin Rotary Depository: Bronze face plate 21 in. wide, 16 in. high; depth of cylinder housing back of face plate 11½ in.; total diameter of cylinder housing 14 in.; width of cylinder housing including studs 16 in.; outside width of chute 13 in.; outside thickness of chute from front to back 6½ in. The chute should be set at an angle of not more than 30 degrees from the perpendicular. The safe should be so placed as to secure the greatest possible length of chute. The door may be located as required on the safe so that a portion of the safe may be set into the banking room floor in order to secure the desired length of chute.



Circular Depository

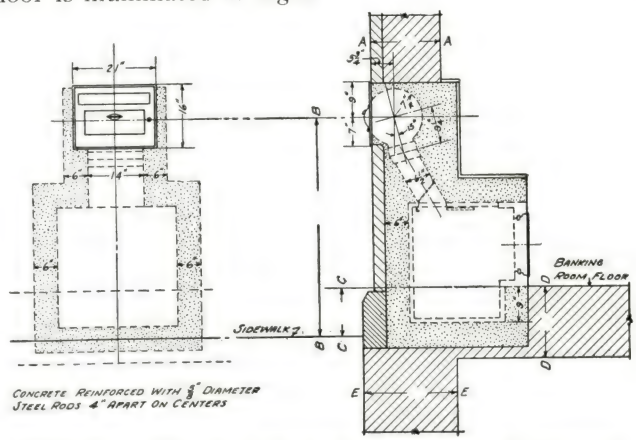
This entrance consists of a cast bronze front $20\frac{3}{16}$-in. diameter, with heavy door 2 in. thick. This door is a torch resisting bronze casting, containing layers of drillproof steel. A drillproof paracentric key lock is used. The bronze door automatically opens the inner steel receptacle which rotates in a 1-in. steel housing. The circular depository takes a Class B insurance rating.



Right:
Night Depository with Circular Face Plate

Simplex Depository

The Simplex Night Depository is designed to meet the demand for a low priced device. It consists of a bronze casting with a door of the same material, hinged at its lower edge and opening outward. To this door is attached a receptacle which rotates in such manner that the chute beneath it is always closed to access from without. The chute connects with a burglarproof safe inside the bank in the same manner as that described for the Rotary Depository. The face of the door is illuminated at night.



Projection of Street Level Installation of Rotary Showing Dimensions Required

Accessories

Canvas bags with zipper tops and Yale paracentric key padlocks are supplied in quantity as desired.

Bronze electric light housing with glass front may be substituted for name plate.

Auxiliary door, as shown on illustration, will be supplied if required. This door insures against the possibility of bags being deposited and left in the cylinder, as the cylinder must be clear and the door closed before key can be withdrawn.

Electric protection for connection with the bank's burglar alarm system.

THE MOSLER SAFE CO.

GENERAL SALES OFFICES AND FACTORIES
HAMILTON, OHIO

OTHER PRINCIPAL OFFICES

BOSTON, MASS., 84 Sudbury Street
CHICAGO, ILL., 58-60 Lake Street
NEW YORK, N. Y., 373 Broadway
PITTSBURGH, PA., 296 Union Trust Building

Mosler Products and Service

BANK VAULT DOORS; INSULATED STEEL VAULT DOORS; BOOK and STORAGE VAULT DOORS; SAFE DEPOSIT BOXES; NIGHT DEPOSIT SAFES; HOTEL and CLUB SAFES; COUNTER HEIGHT SAFES; ARMORED STEEL CHESTS; WALL SAFES.

Also Silver and Fur Storage Vaults, Safes for Steel Files, General Office Safes, Steel Filing Units and Security Lockers.

Full information covering the complete Mosler line will be sent promptly upon request. Wire, write or telephone the nearest Mosler office for conferences, suggestions, plans, specifications and estimates.

MOSLER INSULATED FLAT SILL DOORS WITH UNDERWRITERS' LABELS

A new product of unusual interest to architects and building owners.

With this latest development in insulated doors, the vault floor level is the same as the floor outside of the vault. This involves a very material saving in building construction and floor weight where the vault floor must otherwise be built higher than the oustide of the vault. The convenience of being able to move trucks, etc., in and out of the vault is a distinct advantage in this new type door.

Mosler No. F.S. 68 Underwriters' Labeled—6-hour Flat Sill Vault Door

Size—Standard clear door opening, 32 in. wide by 78 in. high. This door can be furnished up to 42 in. wide by 78 in. high and also up to 54 in. wide by 78 in. high folding door or double door design for special requirements. (See installation diagram below for details of wall opening, etc.)

Door Thickness—Six and three-quarter inches composed of main door with interlocking tongue and groove on sides and top with flat bottom sill. Fire-resisting insulation same as used in Mosler Class "A" fireproof type safes is used in the main door and jamb. The door is equipped with a Mosler patent valve door, thermostatically-controlled to operate as soon as fire exposure occurs.

Jambs—Steel jambs. Tongue and groove at front, top and rear. Flat bottom with Mosler patent valve heat interrupter.

Underwriters' Label—Labeled for 6-hour fire resistance.

Bolts—Seven round locking bolts, one inch in diameter, operating three to the front, one each to the top and bottom and two to the rear. Bolts operated by lever handle with octagonal bakelite grip.

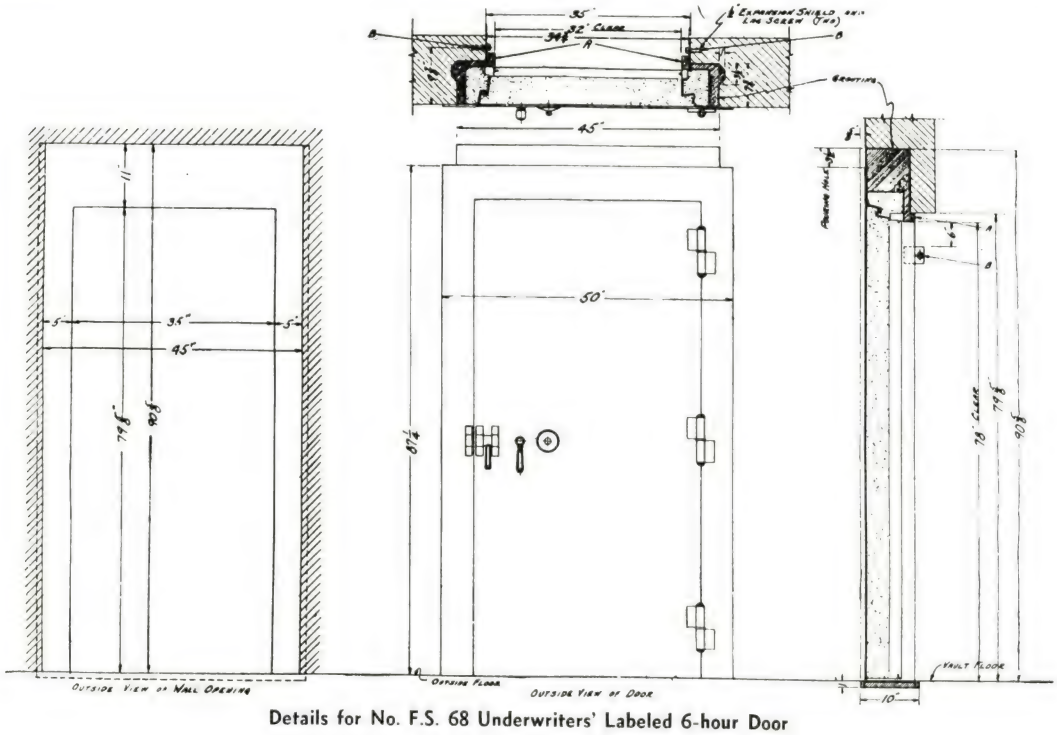
Lock—Mosler four-tumbler combination lock capable of 100,000,000 changes of combination. Is equipped with shouldered spindle and protected by a five-ply hard plate and supplementary hardened guard plate same as specified by Underwriters' Laboratories for T20 label on Mosler "A" label fireproof type safes.

Pressure Bar—Door is seated in closed position by means of pressure bar device at front edge of door. This is operated by a handle matching up with bolt operating grip.

Finish—All exposed surfaces of door and jambs finished in Mosler standard olive green lacquer, ornamented with gold striping. Pressure bar device and all other exposed metal parts on outside door finished in nickel.

Swing of Door—Standard swing is with hinges on the right unless otherwise ordered.

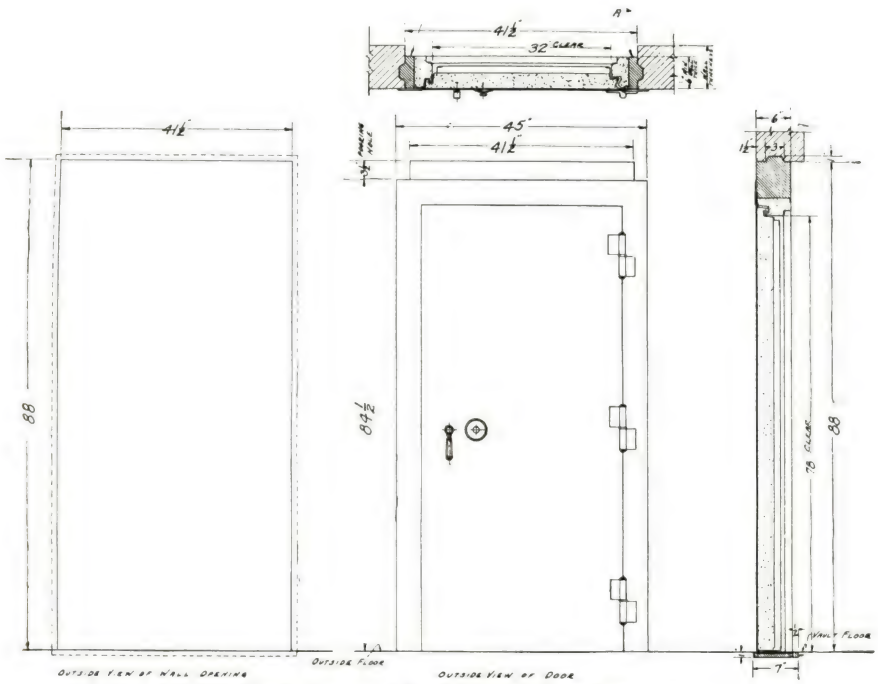
Note—Door is designed to fit finished wall of any thickness, exceeding 9 in., but in order that the vault walls may afford protection equal to the door they must be not less than 12 in. thick.



Details for No. F.S. 68 Underwriters' Labeled 6-hour Door

Mosler No. F.S. 28—2-hour Flat Sill Vault Door

This door is similar to the No. F.S. 68 door described on the preceding page except that it is designed for the 2-hour classification. For details see the illustration below.



Details for No. F.S. 28 Flat Sill 2-hour Door

Mosler No. F.S. 18 Underwriters' Labeled 1-hour Record Room Door

Size—Standard clear opening, 30 in. wide by 78 in. high. (See installation diagram below for details of wall opening and other dimensions).

Door Construction—⅛-in. outer door plate with ⅛-in. "Z" angles and "U" shaped sections electrically welded to form bolt frames.

Jambs—Jambs of vestibule formed on three sides with deep recess to receive door.

Label—Underwriters' labeled for 1-hour fire resistance.

Rear Flanges—Removable to permit installation of door after completion of vault walls.

Bolts—¾ in. diameter. Three bolts in front, three in rear. All operated by lever handle covered with octagonal bakelite grip.

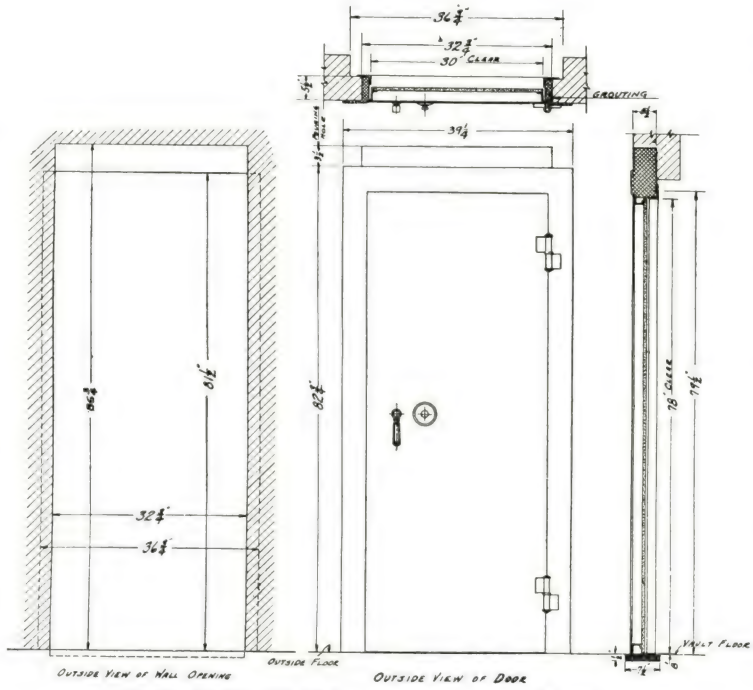
Lock—Mosler three-tumbler combination lock capable of many thousand changes of combination. Lock mounted on hard five-ply drill-resisting plate.

Hinges—Two heavy solid rolled steel hinges.

Insulation—The bolt work is covered with a specially formed steel pan containing high temperature fire-resisting insulation.

Finish—Mosler standard olive green lacquer with gold striping. Hinge tips, dial knob, and other exposed parts, heavily nickeled.

Swing of Door—Is standard with hinges at the right unless otherwise ordered.



Details for No. F.S. 18 Underwriters' Labeled 1-hour Door

Mosler Vault Door No. 52

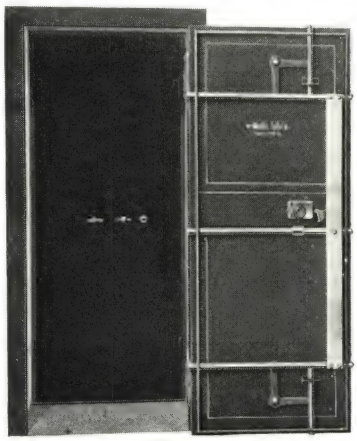
Outer Door—$\frac{7}{16}$ in. thick on all edges and across center for additional lock protection. Five single-acting bolts, 1-in. diam., operating through angle type bolt frames, controlled by Mosler combination lock and equipped with Mosler special relocking device.

Inner Doors—$\frac{3}{16}$ in. thick. Right-hand door equipped with flat vertical boltwork, interlocking at center with left-hand door, controlled by patent key lock.

Wall Opening—77 in. high by 32 in. wide by 20 in. deep.

Opening through Outer Doorway—74 in. high by 28 in. wide.

Finish—Outer and inner doors finished in black. Outer door striped in gold. Inside of vestibule finished in gray. Boltwork, hinge tips, handles and trimmings of door are highly polished and heavily nickel-plated.



Open

No. 52 Mosler Vault Door

Mosler Vault Door No. 53-D

With double outer and inner doors.



Closed

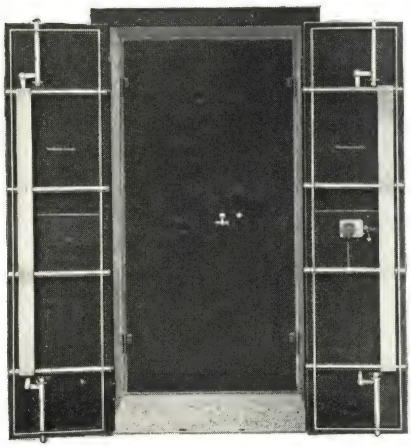
Outer Doors—$\frac{7}{16}$ in. thick on all edges and across center for additional lock protection. Six single-acting bolts, 1-in. diam. on each door, operating through angle type bolt frames, controlled by Mosler combination lock and equipped with Mosler special relocking device.

Inner Doors—$\frac{3}{16}$ in. thick. Right-hand door equipped with flat vertical boltwork, interlocking at center with left-hand door, controlled by a patent key lock.

Wall Opening—81 in. high by 42 in. wide by 22 in. deep.

Opening through Outer Doorway—78 in. high by 38 in. wide.

Finish—Outer and inner doors finished in black. Outer doors striped in gold. Inside of vestibule finished in gray. Boltwork, hinge tips, handles and trimmings of door are highly polished and heavily nickel-plated.



Open

No. 53-D Mosler Vault Door

Circular Door Steel Chests for Chain Stores, Banks and Residences

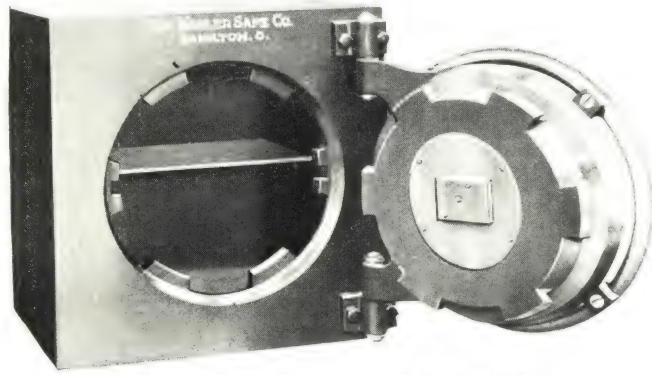
The chest that has passed the Underwriters' Laboratories X60 test for explosives. Made of the highest grade steel castings. Body consists of single castings, doors are one-piece open hearth steel and jambs are ground to provide metal-to-metal contact when doors are closed. A Mosler anti-dynamite or relocking device is incorporated in the combination lock mechanism. Bolting mechanism consists of interlocking lugs. Doors are hung on crane type hinges.

These chests carry the "H" bank insurance rate, which is the best classification obtainable.

Awarded Underwriters' Laboratories, Inc. relocking device label accomplishing a further discount in insurance rates of 10%.

DIMENSIONS AND WEIGHTS OF CIRCULAR DOOR STEEL CHESTS

No.	Outside dimensions, in.				Inside dimensions, in.			Approx. weight, lb.
	Height	Width	Depth		Height	Width	Depth	
			Body	Overall				
0-RC	12	12	13	15½	10	10	8¾	295
1-RC	14	14½	12	14½	12	12½	7¾	320
2-RC	14	14½	15	17½	12	12½	10¾	355
3-RC	20	20	15½	18	17	17	10⅞	845
4-RC	20	24	15	17½	17	21	10⅞	875
5-RC	20	24	24	26½	17	21	19⅜	1210
6½-RC	24	24	24	29⅛	21	21	19⅜	1725
7-RC	30	30	24	29⅛	27	27	19⅜	2200



3-RC Circular Door Armored Steel Chest

Wall Safes for Residences, Etc.

Wall safe has outside measurements of 10 in. high by 15 in. wide. Door of safe, ½-in. steel; body of ⅛-in. steel with angle reinforcements at top, bottom, sides and back. Sides of safe are provided with angles to securely anchor safe and prevent its removal from wall. Finish of door and interior arrangement as desired.



Mosler Wall Safe

ESTABLISHED 1872

THE SCHWAB SAFE COMPANY

Manufacturers of Vault Doors, Safes and Burglarproof Chests

LAFAYETTE, IND.

Products and Service

VAULT DOORS, SAFES, FILING SAFES, FUR SAFES, WALL SAFES and BURGLARPROOF CHESTS.

We maintain at all times a carefully selected group of experts in our line, and will be glad to receive correspondence covering any special requirements, as well as our standard products.

SCHWAB

TRADE-MARK

Catalogue will be sent on request, without obligation.

SCHWAB INSULATED VAULT DOORS (UNDERWRITERS' 2-HOUR LABEL)

Specified where *maximum fire protection is required.*

Schwab's 2-hour Vault Doors have a wide extra margin of safety—the equivalent to approximately a 3½-hour door. No greater protection will *ever* be needed. The strain on a vault door, where only one side is exposed to the fire and heat, is not nearly so gkreat as on a safe where all four sides are exposed. And on an insulated safe, a 4-hour label is maximum.

Both the No. 2674B (single door) and the No. 3674B (double door) are of new type, with interlocking tongue and groove, insulated doors and joint.

It has been tested at the Underwriters' Laboratories, Inc., for:

(1) Ease and practicability of installation.

(2) Fire endurance test.

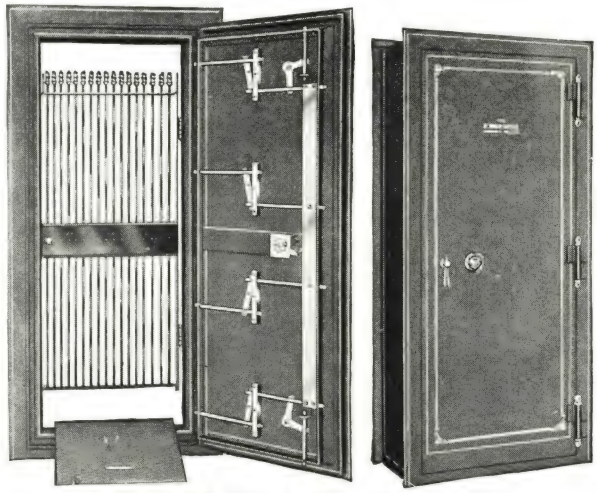
(3) Fire and hose stream test.

The official Underwriters' report says:

"At the close of the test the papers were found to be in good condition with no traces of heat and no discoloration from smoke."

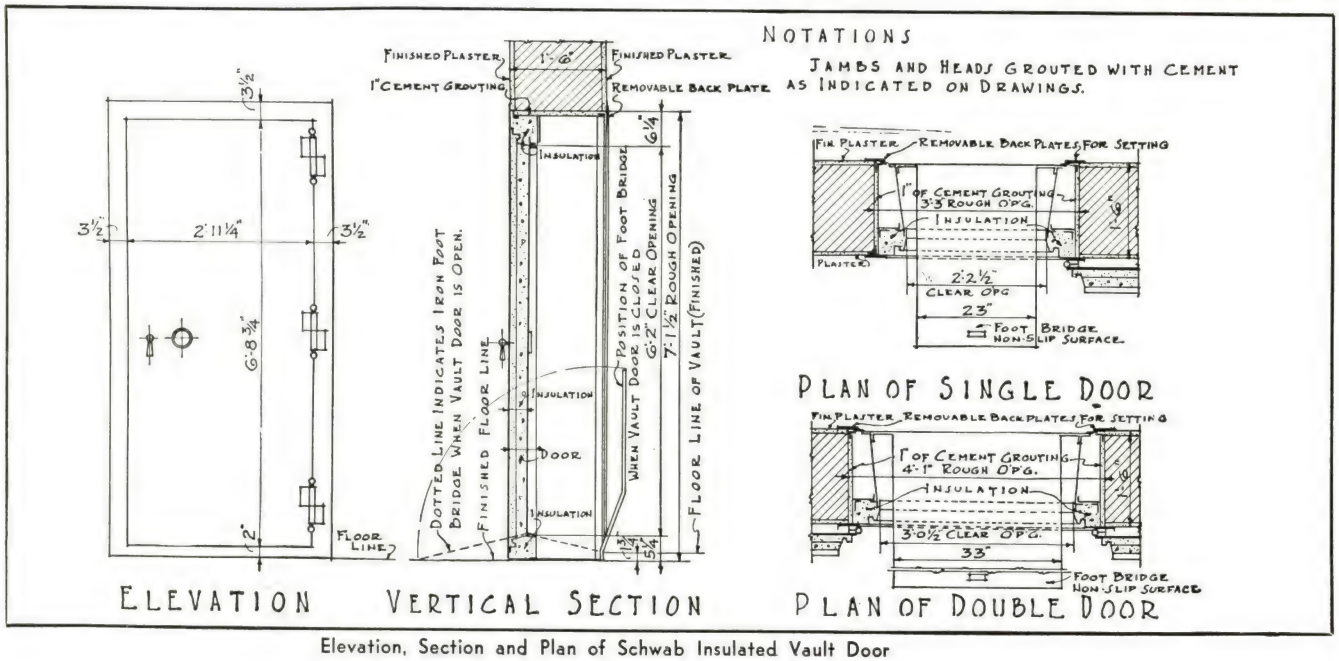
In every Schwab insulated vault door or safe, there is a substantial extra margin of safety.

Send for our complete Architect's Portfolio, containing architects' specifications and details of vault doors, vault construction, Underwriters' requirements, and contractors' and engineers' specifications.



No. 2674B, Schwab 2-Hour Vault Door
No. 3674B is the same with double door

Locking Mechanism—On inside of door are four double acting horizontal bolt bars ⅞-in. diameter cold rolled steel, operated by a cam working forward and backward and two ⅞-in. diameter bolt bars, one up and one down, all extending ¾ in. into jamb, checked by a 4-tumbler combination lock. Lock fastened to reinforcing strip on inside of door, engaging cam operated by handle on outside face of door.



Elevation, Section and Plan of Schwab Insulated Vault Door

Foot Bridge—A ¼-in. thick safety tread steel plate foot bridge, hinged to turn inside when vault door is closed.

Day Gate—The day gate, complete with lock and alarm bell, as illustrated in the open view on this page, can be furnished at additional cost.

Hardware and Finish—Dark olive green lacquer, gold striped. All trimmings and bolt work heavily nickelplated.

Size—Vault doors bearing Underwriters' label can not exceed clear door opening size 38 in. in width, 78 in. in height, nor less than 6 in. in depth. The same fireproof construction can be furnished in larger size doors or in doors with narrower vestibule, but without Underwriters' label attached.

STOCK SIZES SCHWAB 2-HOUR VAULT DOORS

Door No.	Clear opening, in.	Wall opening, in.	App. shipping weight, lb.
Single door No. 2674-B....	26½x74x18	39x85½	1500
Double door No. 3674-B...	36½x74x18	49x85½	1800

Architect's Specification—No. 2674-B, or No. 3674-B—For the convenience of the architect the following specification to cover the New Type Insulated Vault Door is furnished:

Contractor shall furnish and install a [No. 2674-B] [3674-B] Schwab Insulated Fireproof [Single] [Double] Vault Door with interlocking tongue and groove, drawn steel frame and door flanges and jambs, as manufactured by THE SCHWAB SAFE COMPANY, Lafayette, Ind. Outside door shall have four double acting horizontal bolt bars operating on a cam working forward and back and two vertical bolt bars, one operating up and one down, ⅞-in. diameter cold rolled steel, checked by 4-tumbler combination lock. Outer door shall be insulated with 3½ ins. of insulating material tested by the Underwriters' Laboratories, Inc., and bearing the Underwriters' Laboratories 2-hour heat label. Frame and door jambs with interlocking tongue and groove shall be 16 U. S. gauge cold drawn steel and interlocked perfectly, one within the other. Vault shall be finished in dark olive green lacquer finish and striped. All trimming and bolt work shall be heavily nickelplated.

Masonry wall shall be * in. thick with opening for vault door [39] [49] ins. wide and 85½ ins. high.

Rear flange of vault frame shall be removable so that door can be installed after the building is completed.

Inside clearance of door shall be [26½] [36½] ins. wide, 74 ins. high.

Note: Masonry wall must not be less than 6 ins. thick in order to obtain Underwriters' approval.

Note: Our complete Architect's Portfolio, containing specifications and details on vault doors, vault construction, Underwriters' requirements, contractors' and engineers' specifications, will be sent you on request.

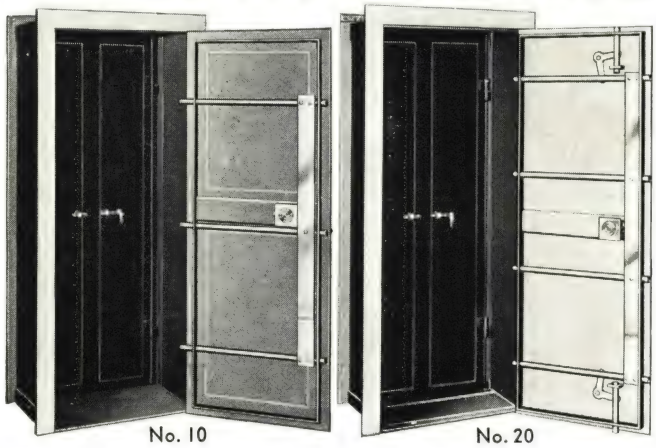
SCHWAB STANDARD FIREPROOF VAULT DOORS

These vault doors do not bear Underwriters' label, with the exception of No. 2774R, listed below, but will meet requirements of the majority of installations.

SPECIFICATION OF STANDARD FIREPROOF VAULT DOORS

Style	Clear opening through vestibule, in.		Rough wall opening, in.			Weight, lbs.	Bolt work on	Bolt frame, in.
	Wide	High	Wide	High	Deep			
Standard Doors								
No. 5.....	22¾	74	28	76½	6	360	3 horizontal single acting	1¼x1½x12
No. 10 with I.D.	25	74	32	77	18	580	3 horizontal single acting	2x2x¼ angle
No. 20 with I.D.	25	74	32	77	18	620	4 horizontal 2 vertical single acting	2x2x¼ angle
No. 19 with I.D.	25	74	32	77	18	700	4 horizontal 2 vertical single acting	1¾x¾ bar
No. 21 with I.D.	25	74	32	77	18	750	4 horizontal 4 vertical double acting	1¾x¾ bar
No. 12 without I.D.	27	74	32	77	–	575	3 horizontal 2 vertical single acting	2x2x¼ angle
No. 25 with I.D.	35	74	42	77	21	800	3 horizontal 2 vertical single acting on each of two folding doors.	2x2x¼ angle
Standard Underwriters Half-Hour Door								
No. 2774R	27	74	32	77	6	575	3 horizontal 2 vertical single acting	2x2x¼ angle

Carried in stock sizes, but can be made proper size to fit any wall opening.



No. 10 No. 20

Installation Requirements, No. 10—For installation, the clear opening in the vault wall should be 77 ins. high, 32 ins. wide, and 18 ins. deep. The vestibule can not be made less than 16 ins. for our standard width vault for the inside doors to pocket in the vestibule.

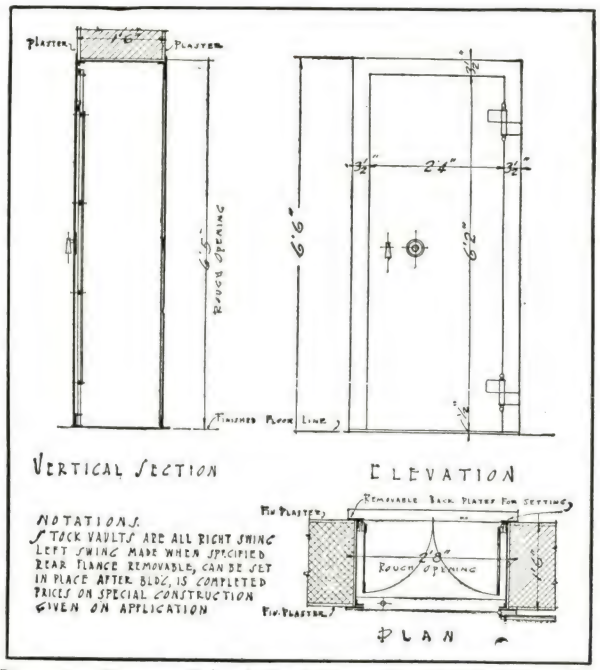
A vault 2 ins. less in width will allow the inside doors to pocket in a 15-in. vestibule; 4 ins. less in width will allow inside doors to pocket in a 14-in. vestibule, and so on.

Locking Mechanism—Outside door has three cross bolts 1-in. diameter cold rolled steel and checked by a 4-tumbler lock. Inside doors have one up and one down bolt checked by a heavy key lock.

Hardware and Finish—Handles, hinge tips, lock dials, cross bolt and carrying bars are polished and heavily nickelplated. Door handsomely finished in dark olive green with gold striping.

Installation Requirement No. 20—This style is similar in construction to No. 10 vault door. Bolt work on this door, however, consists of four horizontal bolts, and one up and one down bolt 1-in. diameter of cold drawn steel.

Estimates—We can build any vault door to specification or duplicate any vault door specified in your plans, regardless of construction. Allow us to figure with you. It will be a pleasure.



Dimension Diagram, Schwab Vault Doors Nos. 10, 19, 20 and 21
No. 12—same, except ordinarily used in narrow wall
No. 25—same, except 42 ins.. wide and 21 ins. thick

Architects' Specifications, No. 10—Contractor shall furnish and install Schwab's No. 10 Fireproof Vault Door manufactured by THE SCHAWB SAFE COMPANY, Lafayette, Ind. Outside door to have three cross bolts, 1-in. diameter cold rolled steel, checked by a 4-tumbler combination lock. Inside doors to have heavy flat bolts and key locks. Vault to be finished in dark olive green with gold striping. All trimmings and bolt work heavily nickelplated. Vault wall opening to be 77 ins. high, 32 ins. wide, 18 ins. deep and must be built square, plumb and level; rear flange of vault frame to be removable so contractor can install vault door after building is completed and not mar the finish. Inside clearance of vault door, 74 ins. high and 28 ins. wide. Approximate weight, 580 lbs.

Architects' Specifications, No. 20—Same as No. 10 with this change in bolt work: Outside door to have four cross bolts, one up and one down bolt, 1-in. diameter cold rolled steel, checked by a 4-tumbler combination lock.

Note: We can furnish special vault doors in either double or single door, with any desired number of bolts and any thickness of door plate up to ½ in. thick.

Can be made with either right or left-hand swing doors and proper size to fit any vault wall opening.

SCHWAB SAFES AND BURGLARPROOF CHESTS

We will gladly furnish specifications or measurements upon request and assist beforehand on any built-in features contemplated in any of your plans.

Safes—Schwab builds perhaps the most complete line of safes of any manufacturer in this field. For maximum protection against fire Schwab builds the "A Label Safe" (4-hour Underwriters' Label); for a slightly lesser degree of protection, the "B Label Safe" (2-hour Underwriters' Label); and for ordinary protection the standard line of medium walled and heavy walled safes.

Insulated Filing Safes—For the protection of valuable records Schwab's Insulated Filing Safes give complete protection; comply with the Underwriters' requirements and carry their label for insulated cabinets. These safes can be equipped with any filing arrangement to fit the requirements of the purchaser.

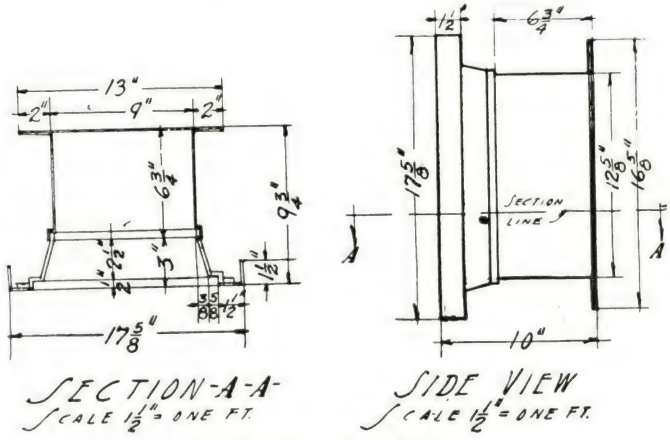
Fur Safes—In addition to building a very comprehensive line of standard single type and multiple type fur safes, we build fur safes to any specification.

Besides the added protection, fur safes beautify the modern display room, create an impressive atmosphere and effect a considerable saving in burglary insurance rates. We would be pleased to have you refer to any number of notable installations we have made. Confer with our engineering and designing staff.

Jeweler's Safes—These safes afford maximum burglary protection combined with an attractiveness that will add beauty to any jewelry establishment. The inside may be arranged in any manner to suit the requirements of the jeweler. The standard safe, however, is ready equipped with cabinets, drawers, etc. We will be pleased to submit suggestions for the interior arrangements of these safes.

Burglarproof Chests—Filling stations, chain stores, theaters, etc., where considerable moneys or valuables are carried at all times, need, or rather are practically forced, to provide the protection of a burglarproof chest.

Schwab's Burglarproof Chests are built to install in the wall, anchor in a cement block or to place in



Detail of No. 10 Wall Safe



Phantom View
Schwab No. 10 Wall Safe

side a regular safe. The line includes a circular door chest, a heavy steel chest and a lighter semisteel chest. Send for details.

Wall Safes—This fireproof wall safe No. 10 is especially adapted for installation in homes, apartment houses, offices and hotels. Placed in the wall, it releases for other uses floor space otherwise occupied by a floor safe and, at the same time, affords greater secrecy together with protection and safety.

The interior of this wall safe is most conveniently arranged for utmost service and facility of use.

This safe is sturdily constructed throughout. The door is insulated 2½ ins. thick. It has regular T-handle and combination lock, and tongue and grooved door and frame. There is a $\frac{3}{16}$-in. back plate to anchor in the wall and to prevent tampering from the back. The approximate weight of the safe is 75 lbs.

SCHWAB'S ARCHITECTURAL SERVICE

Engineering Staff

We maintain a most competent staff of engineers to assist you with any problems within our scope.

Literature

Upon request we will gladly send you a copy of a recent set of specifications and details on vault doors and vault construction. This is prepared in letter file size and the entire series sent enclosed in a jute file folder with cross filing cards—A.I.A. 18 G. This series has been heartily endorsed by hundreds of architects.

We also would be pleased to send you data on fur safes, filing safes, wall safes, or our general catalogue.

The Company

THE SCHWAB SAFE COMPANY has been building quality safes for more than 57 years. We have a very modern up-to-date plant with all modern manufacturing facilities.

Shipments

Shipments are made promptly, due to the large capacity of our plant and the excellent railroad connections.

YORK SAFE AND LOCK COMPANY

FACTORY AND HOME OFFICE
YORK, PA.

NEW YORK, N. Y., 55 Maiden Lane
BALTIMORE, MD., 7 W. Redwood Street
BOSTON, MASS., 98 Sudbury Street
PHILADELPHIA, PA., 711 Chestnut Street
SEATTLE, WASH., 112 Third Avenue, So.
ST. LOUIS, MO., 408 North 4th Street
SAN FRANCISCO, CAL., 200-218 Howard Street
NEW HAVEN, CONN., 273 State Street
HOUSTON, TEX., 1120 Main Street
CHICAGO, ILL., 217 W. Monroe Street
CLEVELAND, OHIO, 109 E. St. Clair Avenue
WASHINGTON, D. C., 410 Bond Building
LOS ANGELES, CAL., 914 Towne Avenue
INDIANAPOLIS, IND., 44 E. Washington Street
MONTREAL, QUE., 830 St. James Street, West
HONOLULU, HAWAII PARIS, FRANCE HAVANA, CUBA TOKYO, JAPAN SHANGHAI, CHINA

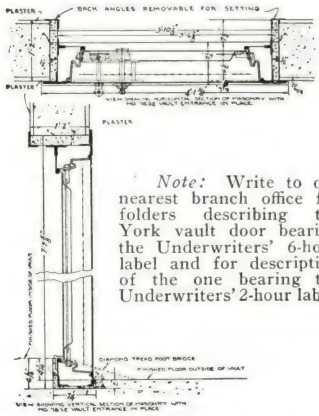
Products

BANK VAULT EQUIPMENT, SAFE DEPOSIT BOXES, BOOK and STORAGE VAULT DOORS, BURGLARY CHESTS, SAFES of all kinds.

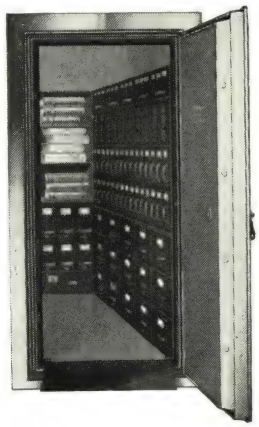
We have complete catalogues on the different products we manufacture. Write for your copy.

Specifications York No. 7832-4 Vault Door

The contractor shall furnish and set in position York No. 7832-4 Vault Door to fit wall opening 91⅝ in. high, 46⅛ in. wide. This door is to bear the Underwriters' Laboratories 4-hour label.



Note: Write to our nearest branch office for folders describing the York vault door bearing the Underwriters' 6-hour label and for description of the one bearing the Underwriters' 2-hour label.



Door—To be built to a total thickness of 5 $\frac{9}{32}$ in. with $\frac{3}{16}$-in. outer and $\frac{3}{32}$-in. inner plates riveted on edges to pressed steel moulding. Hung on three heavy malleable hinges with ornamental tips.

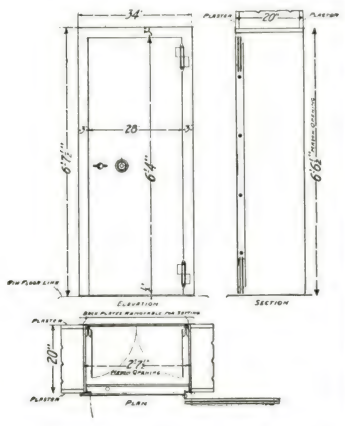
Frame—Surrounding door at front to be of 4⅞x $\frac{5}{16}$-in. steel bars at sides and top and 2x $\frac{5}{16}$-in. at bottom. These bars to be welded at all corners, forming a solid frame and securely fastened to ⅛-in. vestibule plates by 2⅞x2x $\frac{3}{16}$-in. steel angles. Back frame to be made of 3x2x $\frac{3}{16}$-in. steel angles fastened to vestibule and made removable so that vault door may be set in position after walls are completed.

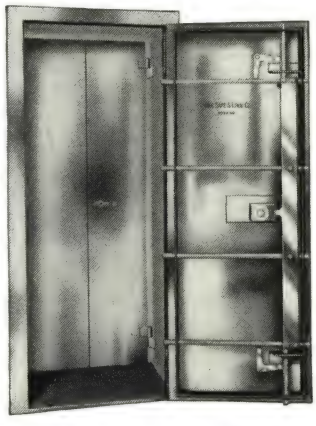
Boltwork—Bolts of cold drawn steel each ¾-in. diameter of double action type, 4 front, 3 back, 1 up and 1 down, operated with drop handle and checked by one 4-tumbler combination lock approved by Underwriters' Laboratories, Inc.

Finish—A rich olive green lacquer inside and outside.

Specifications York No. 402 Vault Door

The contractor shall furnish and set in position York No. 402 Vault Door to fit wall opening 78½ in. high, 31½ in. wide.





Doors—*Outer*—Of $\frac{3}{16}$-in. steel plate, reinforced inside on all edges by 2x2x $\frac{3}{16}$-in. steel angles. *Inner*—Of $\frac{3}{16}$-in. annealed steel plates, opening into vestibule and checked by boltwork and key lock.

Boltwork—Frame formed by angles which strengthen door on all edges. Bolts of cold drawn steel, each 1-in. diameter, 4 across, 1 up and 1 down, operated with T-handle and checked by one 3-tumbler combination lock.

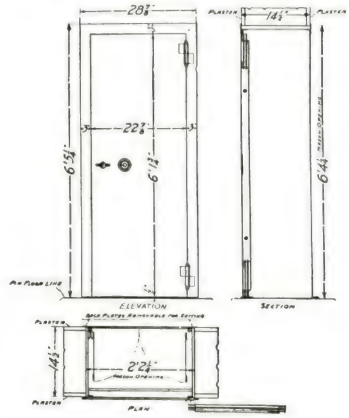
Frame—Surrounding outer door of 3x¼-in. flat steel bars welded at upper corners and securely fastened to vestibule by 1½x1½x¼-in. steel angles. Frame surrounding inside door to be made of 3x $\frac{3}{16}$-in. steel bars and shall be removable so door may be set after walls are completed.

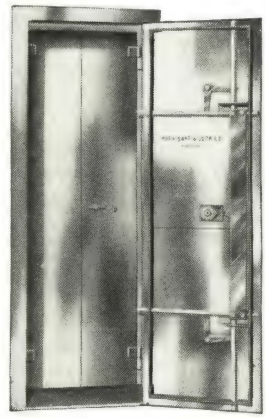
Vestibule—Of No. 16 annealed steel plates fastened at corners by 1¼x1¼x $\frac{3}{16}$-in. steel angles.

Finish—Doors rich olive green color. Handles, hinge tips, locking bolts, etc., polished and heavily nickelplated.

Specifications York No. 400 Vault Door

The contractor shall furnish and set in position York No. 400 Vault Door to fit wall opening 76¼ in. high, 26¼ in. wide.





Doors—*Outer*—Of $\frac{3}{16}$-in. steel plate, reinforced inside on all edges by 2x2x $\frac{3}{16}$-in. steel angles and across center by panel bar of 6x $\frac{3}{16}$-in. plate. *Inner*—Of $\frac{3}{16}$-in. annealed steel plates, opening into the vestibule and checked by bolt work and key lock.

Boltwork—Frame formed by angles which strengthen door on all edges. Bolts of cold drawn steel, each 1-in. diameter, 2 across, 1 up and 1 down, operated with T-handle and checked by one 4-tumbler combination lock.

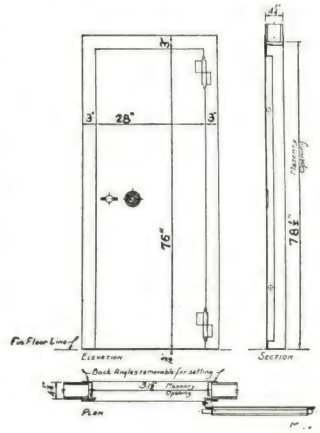
Frame—For outer door 3x $\frac{3}{16}$-in. flat steel bars welded at upper corners and securely fastened to vestibule by 1½x1½x¼-in. steel angles. For inner door 3x $\frac{3}{16}$-in. steel bars, removable so door may be set after walls are completed.

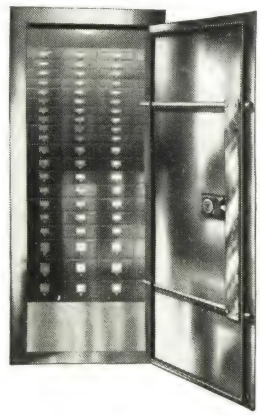
Vestibule—Of No. 16 annealed steel plates fastened at corners by 1¼x1¼x $\frac{3}{16}$-in. steel angles.

Finish—Doors a rich olive green color. Handles, hinge tops, locking bolts, carrying bar, etc., polished and heavily nickelplated.

Specifications York No. 4 Vault Door

The contractor shall furnish and set in position York No. 4 Vault Door to fit wall opening 78½ in. high, 31½ in. wide.





Door—Of $\frac{3}{16}$-in. steel plate, reinforced inside on all edges by 1¾x 1¾x $\frac{3}{16}$-in. steel angles.

Boltwork—Frame formed by angles which strengthen the door on all edges. Bolts of cold drawn steel, each 1-in. diameter, 2 across operated by T-handle and checked by one 3-tumbler combination lock.

Frame—Surrounding door of 3⅜x $\frac{5}{16}$-in. flat steel bars welded at upper corners and securely fastened to vestibule by 1½x1½x¼-in. steel angles.

Vestibule—Of 2½x3½x $\frac{3}{16}$-in. steel angles reinforced and fastened at corners by 1¼x1¼x $\frac{3}{16}$-in. steel angles.

Finish—Door a rich olive green color. Handle, dial, dial ring, hinge tips, locking bolts, etc., to be polished and heavily nickelplated. Carrying bar satin nickel.

AMERICAN DISTRICT TELEGRAPH COMPANY

Central Station Protection Services and Electric Signaling Systems

155 Sixth Avenue, NEW YORK, N. Y.

For other A.D.T. Central Station and Proprietary Systems with List of Central Stations, see Manufacturers' Index

PHONETALARM—A.D.T. BANK VAULT PROTECTION SYSTEMS (APPROVED GRADE A)

A.D.T. Phonetalarm—the original sound detection system for vaults—is effective against attack by means of hammering, drilling, burning or explosion. Sensitive microphones installed on the ceiling of the vault give immediate alarm at A.D.T. Central Stations in case of attack. Vault door and bolt contacts provide for supervision of the opening and closing of the vault.

Used extensively by the Federal Reserve and scores of leading banks. Listed by Underwriters' Laboratories, Inc. as Grade "A."



A.D.T. Holdup Alarm Systems

A complete system of hand, foot, door and miscellaneous devices wired to the A.D.T. Central Station or local audible signal, and giving instantaneous alarms in case of daylight attacks.

The Story of Bank Protection

A new booklet, gives complete information on Phonetalarm, Holdup Alarm System, and Watchman's Compulsory Tour System for banks.

Copies furnished to architects on request.

SPECIFICATIONS

(Do not include any matter in brackets in writing specifications.)

(1) Scope of Contract—These specifications contemplate the furnishing of all labor, equipment and miscellaneous material, except conduit, necessary to the complete installation of a standard central office bank vault burglar alarm system, as manufactured by the AMERICAN DISTRICT TELEGRAPH COMPANY. The system as installed shall protect fully, by means of sound-sensitive detectors located within the vault(s), the walls, ceiling(s), floor(s), and door(s) of vault(s). The system shall be connected to the central office of the electric protection contractor and shall register an alarm at the central office in the event of attempted entry to the vault(s).

The electric protection contractor shall furnish the owner, upon completion of the installation and execution by the owner of the contractor's standard agreement form for maintenance service, an Underwriters' Laboratories' Grade "A" certificate, as evidence of the contractor's full compliance with the central office bank vault burglar alarm standard of Underwriters' Laboratories, Inc.

The equipment to be supplied shall include:

(2) Switch Control Set—[4½ in. wide, 6⅜ in. high, and 2¾ in. deep.]

The switch control set shall be installed outside the vault, closely adjacent to the main vault door. This unit shall house in a satin nickel finished cabinet, the following:

(a) A day and night switch for transferring protection from day to night condition.

(b) A resistance unit for balancing the day protection circuit.

(c) Terminal and distribution block for interconnection of units.

(d) A signaling device for exchange of signals with the central office.

(3) Vault Units—There shall be located inside the protected vault three satin nickel finished cabinets [each 10⅝ in. high, 5¾ in. wide, and 4¾ in. deep], housing the following:

(a) Relays for the transmission to the central office of signals received by the sound-sensitive detectors.

(b) Instruments for simulating an alarm condition within the vault for a periodic test of the equipment from the central office.

(c) Balancing resistances for the compensation of circuits together with terminal facilities for the interconnection of units and distribution of circuits.

(4) Vault Protection—The vault structure shall be protected by sound detectors mounted on the vault ceiling. A minimum of two detectors shall be supplied in each vault and one additional detector shall be supplied for each 400 sq. ft. of vault floor area above 800 sq. ft.

Sound detectors shall be of the electro-microphonic type and shall be adjusted to initiate an alarm as the result of an attack at any point on the vault structure, or as a result of noise coincident with cutting by means of an oxy-acetylene torch, but shall not initiate an alarm as the result of external noises not affecting the vault structure.

(5) Vault Door Protection—In addition to the sound detectors, there shall be supplied special contact devices controlled by the door and draw bolts of the door, to initiate an alarm as the result of a noiseless opening of the door itself.

(6) Local Power Supply—An electrolytic rectifier and charging unit shall be supplied, together with a local storage battery for the supply of energy to the secondary protection circuits. This unit shall be housed in a steel cabinet located in the basement of the bank and near the 110-volt alternating-current service entrance. [Where alternating current is not available, the contractor shall supply a special direct-current charging unit, similarly housed.]

(7) Conduit—All conduit and outlet boxes required for the system shall be furnished and installed by the purchaser unless otherwise specified. The electrical protection contractor shall furnish necessary drawings to indicate the location and sizes of conduits and boxes.

(8) Holdup Alarm Stations—Holdup alarm stations as follows:

..... Hand Stations
..... Foot Push Buttons
..... Foot Rails
.....

shall be installed together with the necessary transmitting equipment. Holdup alarm stations shall be arranged to transmit a distinctive signal to the central office when actuated.

(9) Night Depository Protection—Complete protection shall be afforded the night depository by lacing the chute sides, top and bottom of the chest with approved lead encased lacing wires in double protection circuits, spaced not more than 3 in. apart. The door shall be protected by an electrically lined cabinet front covering the entire front of the chest.

(10) Workmanship—All equipment shall be installed in a workmanlike and fully finished manner, and shall be turned over to the owner in a fully operating condition.

(11) Service—The contractor shall present for signature by the owner upon completion of the installation and connection to the contractor's central office, a contract form covering operation, protection, inspection, and maintenance service.

BANKERS ELECTRIC PROTECTIVE ASSOCIATION

Local Bank Vault Alarm Systems

60 State Street, BOSTON, MASS.

SYSTEMS INSTALLED AND MAINTAINED THROUGH 117 A.D.T. OFFICES THROUGHOUT THE COUNTRY

Products

This organization supplies ALARM SYSTEMS for banks. These are designed to ring a loud-sounding alarm on the exterior of the building if the vault is tampered with or an attempt is made to hold up the bank. The system is rated Grade A by the Underwriters' Laboratories, Inc.

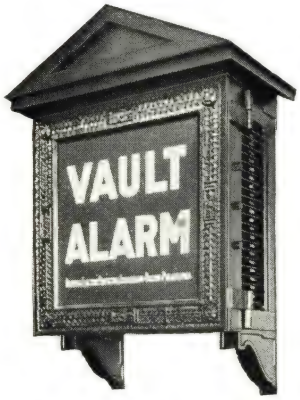
Organization and Service

Founded over 25 years ago, this organization's protection systems are used by thousands of banks throughout the country. It is now affiliated with the American District Telegraph Company, through whose offices its products are installed and serviced.

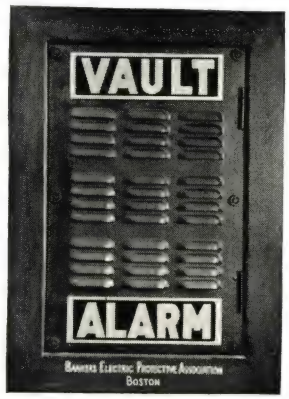
Layouts and sketches gladly furnished to architects and owners gratis.

Vault Burglar Alarm System

Either through pickproof cables embedded in the vault itself, or through sound detectors placed within the vault, any attempt to gain entrance to the vault outside of banking hours immediately initiates a loud alarm on the exterior of the building.



Surface Type Vault Alarm Housing



Flush Type Vault Alarm Housing

Holdup alarm devices can be connected to the system so that, in the event of an attempted holdup, operating one of the devices sets the alarm system into operation.

In new banks either or both systems can be installed. In old banks only the sound detection system can be installed.

With both systems special electrical lining thoroughly protects the vault door against attack by the oxy-acetylene torch.

It is worthy of note that in over 25 years' experience with these systems not one instance of their failure in an emergency has ever been recorded.

Holdup Alarm Protection

This organization supplies a varied line of daylight holdup alarm devices, including hand switches, foot push buttons, foot rails and semi-automatic devices which make it possible to give the alarm by simply obeying the commands of the bandits. These may be operated to sound an alarm in nearby stores and the nearest police station, or may be connected to the Vault Alarm to sound an alarm on the outside of the bank building itself.

Users

18 Federal Reserve Banks and branches, and the United States Treasury are protected by Bankers Electric Systems. Thousands of banks throughout the country from the smallest to the largest have BANKERS ELECTRIC PROTECTIVE ASSOCIATION local vault alarm systems installed.

Representative architects and engineers specializing in bank work specify this system.

Specifications

Complete specifications for the installation of all types of BANKERS ELECTRIC PROTECTIVE ASSOCIATION alarm systems will be furnished on application to the company at 60 State Street, Boston, Mass.



Double Push Hand Station
For sounding holdup alarm



Foot Push Button
For sounding holdup alarm

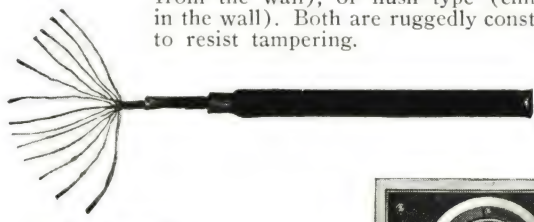
Details of Operating Equipment

The vault protection equipment includes a control cabinet located in the vault itself. This has a time clock which is wound each night and set for the number of hours the vault is to remain closed. An indicator panel on the outside of the vault carries two meters and push button switches for applying the protection to the system. In the sound detection system means are provided for testing the sound detectors after the vault is closed.

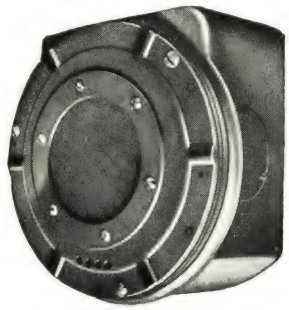
Special pickproof cable used in the embedded cable system is a unique feature. Use of this cable makes it impossible to pick out or isolate any single conductor for the purpose of defeating the system electrically, without causing an alarm.

Sound detectors operating on the principle of microphones are designed to cause an alarm upon receipt of sound waves caused by a series of impulses or a single heavy impulse due to an attack on the vault. They are designed to prevent unnecessary or false alarms, but are capable of initiating an alarm upon any disturbance sufficient to cause entrance to the vault.

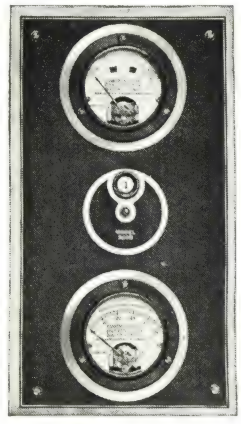
Vault alarm housings for the exterior of the bank are supplied in either surface type (projecting from the wall), or flush type (embedded in the wall). Both are ruggedly constructed to resist tampering.



Pickproof Cable
Cannot be tampered with, without causing alarm



Sound Detector
Standard Finishes: French gray and telephone black. Other finishes special



Indicator Panel
Mounted on outside of vault. Includes push button for applying protection at night

FEDERAL LABORATORIES, INC.

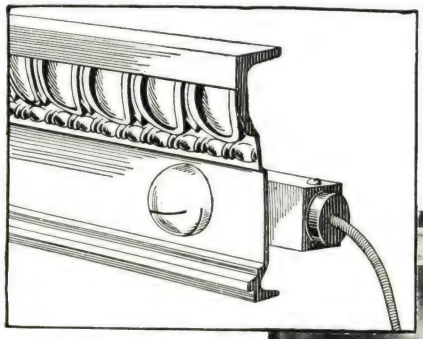
Manufacturers of Federal Gas Protective Equipment
185 Forty-first Street, PITTSBURGH, PA.
AGENCIES IN TWENTY PRINCIPAL CITIES

Products

FEDERAL TEAR GAS BUILT-IN PROTECTIVE SYSTEMS for banks, stores, pay offices, prisons, etc.; FEDERAL TEAR GAS NIGHT BURGLARY PROTECTIVE EQUIPMENT for safes and vaults.

A Modern Protection Against Bandits

The daring and speed of modern bandits have rendered old-fashioned methods of protection against daylight holdup of banks, pay offices, etc., ineffective. Nine years ago our chemists and engineers developed a tear gas protective system which has enjoyed the listing of the Underwriters' Laboratories, Inc., for the past six years. This equipment is installed in a manner that will permit the entire public lobby of a bank to be flooded in a fraction of a second with a concentration of Federal Tear Gas. The attacking bandits are rendered helpless and temporarily blind by the gas and may be easily captured by employees of the bank or by police. The Federal Gas system is operated without being noticed by the bandits, while their commands are being obeyed. The gas is propelled into the lobby away from the cages and counters, and employees behind the cages have several minutes in which to lock up money and securities before the effects of the gas reach them.



Federal Model K Gun

Concealed in bank partition cornice — electrically operated and invisible



A Bank Hold-up Frustrated by Federal Gas

Equipment and Installation

The equipment consists of a number of discharge units built into the counters or cages at strategic points, all interconnected and concealed from view. Foot controls are placed at each teller's window, in the officers' quarters and at other essential locations in the working space. The entire system is connected to a central control cabinet by means of which the system is self-supervised and protected against tampering.

Discharge units are concealed behind the wood, marble, or metal facing of the cages or counters. The small ornamental nozzles of the discharge units are the only exposed parts of the system. These are decorated to blend with the surface on which they are placed.

Installation is made in accordance with the code of the Underwriters' Laboratories, Inc., and is subject to the inspection of the engineers of that organization. All wiring is carefully insulated and protected. No alteration of fixtures is necessary to accommodate any part of our equipment. No ugly or unsightly equipment is exposed to the view of the public. Installations are made in connection with both new type friendly counters and the standard tellers' cages.

Method of Control

The foot controls used to actuate our Federal Gas systems are expertly designed to guard against unintentional discharge. They can be operated only by a voluntary pressure with the toe of the shoe made while the heel is lifted from the floor. These controls cannot be operated by accidental contact with brooms, mops, etc.

Hand controls are used only in rare cases and are of the approved counter-sunk two-button type. Each control may be tested separately at the control cabinet.

Federal Gas—Its Properties and Action

Federal Gas is a patented crystalline form of tear gas packed in solid cartridges for stability. It is not contained under pressure of any kind and is not subject to leakage. The Federal Tear Gas vapor which so effectively blinds the attacking thieves is developed instantly when the cartridges are discharged. Nine parts in one million of Federal Gas vapor are sufficient to cause profuse lachrymation and as the concentration produced by our system is hundreds of times that proportion, the eyes of victims are irritated to a point of temporary blindness. Federal Tear Gas is the only such product that is put up in solid form.

The most attractive feature of protection by means of Federal Gas is that this vapor is absolutely non-toxic and harmless. Our equipment has had the listing of the Underwriters' Laboratories, Inc., for six years and entails no additional liability on the part of the institution using it.

All standard liability insurance policies will include our equipment without extra premium charge.



Federal Foot Control

Cannot be accidentally operated

Banks using our modern daylight protective systems receive a 25% reduction in straight holdup insurance premiums.

Prominent Users

Federal Gas installations and protective devices are used in thousands of the leading financial institutions of the country including banks, industrials and public institutions. A list of the more prominent users follows:

Bureau of Printing and Engraving, U. S. Treasury
Pennsylvania State Treasury
New York State Prisons
Chicago City Treasury
Detroit City Treasury
Corn Exchange National Bank, Philadelphia, Pa. (seven branches)
United States Savings Bank, Newark, N. J.
Whitney National Bank, New Orleans, La.
Schenectady Savings Bank, Schenectady, N. Y.
Rhode Island Hospital Trust Company, Providence, R. I.
First National Bank, Pittsburgh, Pa.
First National Bank, Detroit, Mich.
First National Bank, Wichita, Kan.
Monongahela National Bank, Pittsburgh, Pa.
Peoples Trust & Savings Bank, Chicago, Ill.
Ford Motor Company, Detroit, Mich.
Carnegie Steel Company (all pay offices)
William Penn Hotel, Pittsburgh, Pa.

Several thousand other users supplement this list.

Architects, bankers and prison executives may secure full information regarding Federal Gas equipment by communicating with the home office.

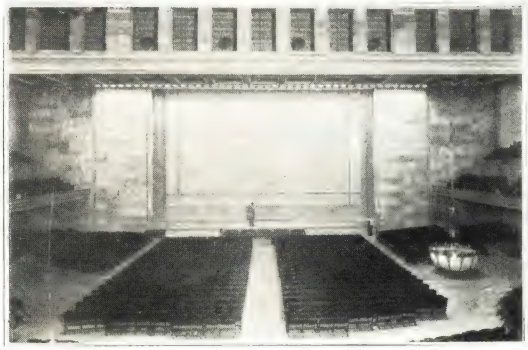
ALLEN-DREW COMPANY

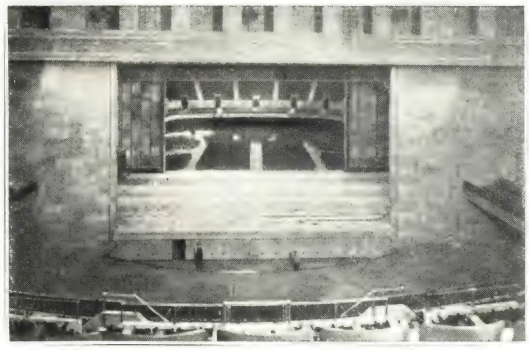
DIVISION OF BABCOCK-DAVIS CORPORATION

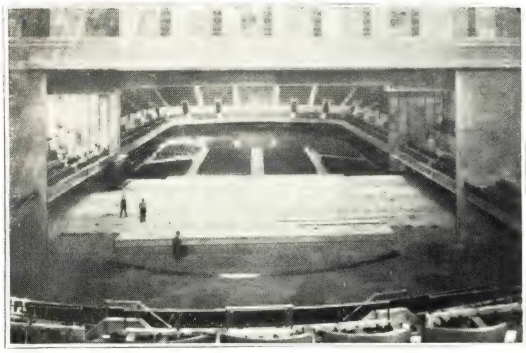
474 Dorchester Avenue, BOSTON, MASS.

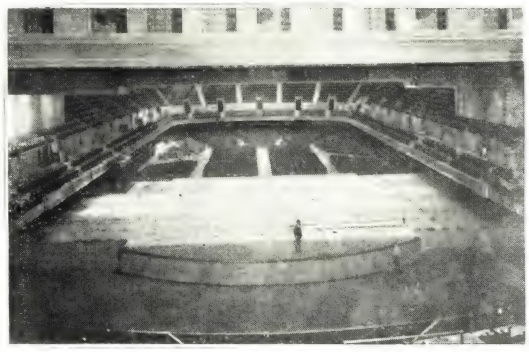
For Our Other Pages, see Manufacturers' Index

Motor Operated Proscenium Walls, Curtains, Entire Stage, Stage Ceiling and Orchestra Pit









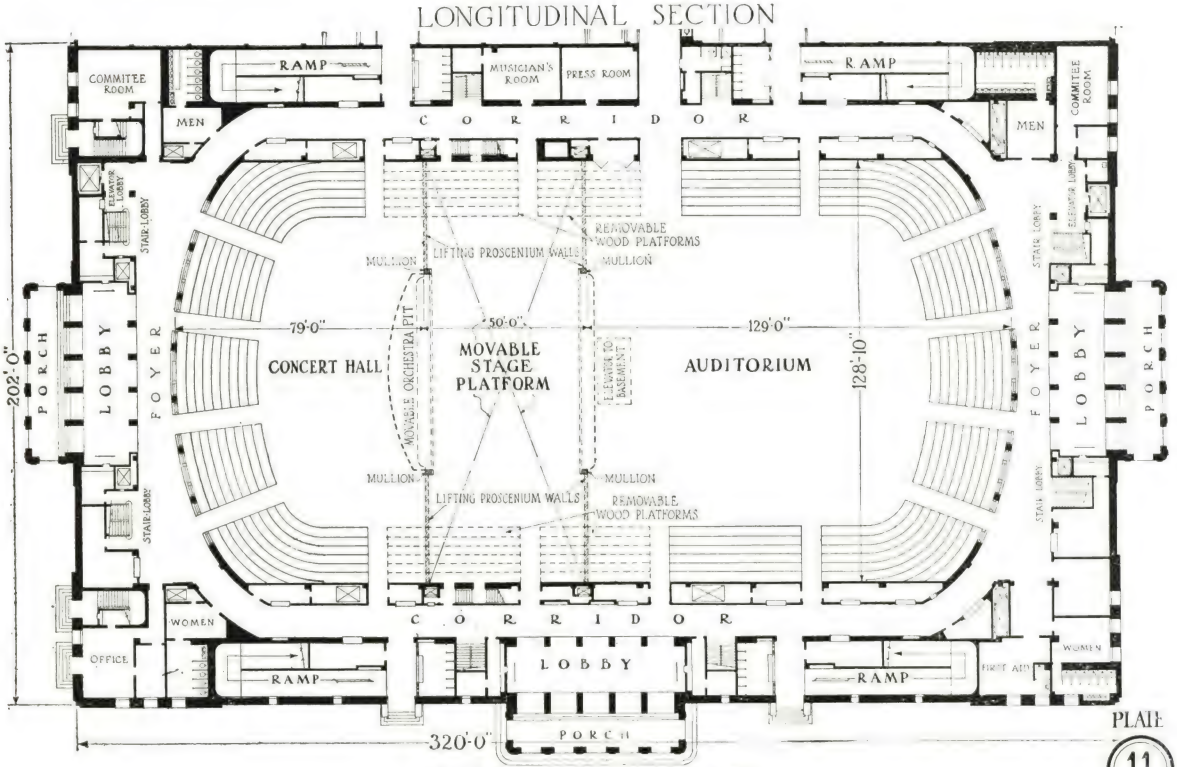
Here, in progressive views, is illustrated an unusual case of motor operation in a building—perhaps one of the most unique large auditoriums in this country.

It can be used for large conventions and gatherings, and for an auditorium and concert hall.

When used as a convention hall the large stage, platforms and orchestra pit are raised or lowered as required to make one floor level throughout the room. Proscenium curtains are raised and the proscenium walls at each side of the stage are also raised out of sight. The ceiling over the stage is pivoted in sections and is then closed, giving a complete ceiling over the stage. The stage is operated in one section by means of synchronized operation of electrically driven screw jacks. The operation requires about 28 minutes.

This building demonstrates the range of electrically operative engineering which we are capable of handling, and we hope it may act as a suggestion for other problems of this nature.

LONGITUDINAL SECTION



FIRST FLOOR LEVEL

PLATE 11

Motor Operated Stage and Proscenium Walls, Municipal Auditorium of New Orleans, Louisiana

NATIONAL THEATRE SUPPLY COMPANY

Complete Theatre Equipment and Engineering Service

GENERAL OFFICES

92-96 Gold Street, NEW YORK, N. Y.

BRANCH OFFICES RENDERING SERVICE

ATLANTA, GA., 187 Walton Street
BALTIMORE, MD., 309 No. Gay Street
BOSTON, MASS., 211-13 Columbus Avenue
BUFFALO, N. Y., 372 Pearl Street
CHARLOTTE, N. C., 222 W. Fourth Street
CHICAGO, ILL., 825 So. Wabash Avenue
CINCINNATI, OHIO, 1637-39 Central Parkway
CLEVELAND, OHIO, 2112 Payne Avenue
DALLAS, TEX., 306 So. Harwood Street
DENVER, COLO., 2106 Broadway
DES MOINES, IOWA, 1123 High Street
DETROIT, MICH., 214 W. Montcalm Street
INDIANAPOLIS, IND., 436 No. Illinois Street
KANSAS CITY, MO., 223 W. 18th Street
LOS ANGELES, CALIF., 1961 So. Vermont Street
MEMPHIS, TENN., 400 So. Second Street
MILWAUKEE, WIS., 725 W. Wells Street
MINNEAPOLIS, MINN., 56 Glenwood Avenue
NEW HAVEN, CONN., 133 Meadow Street
NEW ORLEANS, LA., 220 So. Liberty Street
NEW YORK, N. Y., 1560 Broadway
OKLAHOMA CITY, OKLA., 516 W. Grand Avenue
OMAHA, NEB., 1510 Davenport Street
PHILADELPHIA, PA., 1315 Vine Street
PITTSBURGH, PA., 1721 Boulevard of the Allies
PORTLAND, ORE., 460 Glisan Street
ST. LOUIS, MO., 3210 Olive Street
SALT LAKE CITY, UTAH, 248 E. First South Street
SAN FRANCISCO, CALIF., 121 Golden Gate Avenue
SEATTLE, WASH., 2400 First Avenue
WASHINGTON, D. C., 916 G Street, N. W.

Products

National Distributors, Sales and Service Representatives of leading manufacturers of THEATRE EQUIPMENT, which includes the following products:

Moving Picture Projectors; Motor Generator Sets; Moving Picture Screens; Distributing Switchboards; Effect Projectors; Changeover Devices; Opera Chairs; Loge Chairs; Directional Signs; Lighting Fixtures; Ventilating Equipment; Carpets and House Draperies; Scenery and Stage Draperies; Automatic Curtain Controls; Stage Rigging and Hardware; Stage Lighting Equipment; Theatre Switchboards; Theatre Dimmers; Lobby Display Frames; Marquises; Electric Signs; Coin Changers; Ticket Selling Machines; Ticket Choppers; Lobby Floor Matting; Aisle Ropes and Railings; Ticket Booths; Equipment and Supplies of every description for moving picture and legitimate theatres, schools and public auditoriums.

Projection Room Equipment

Moving Picture Projectors—All models.

Motor Generator Sets—All types and capacities for moving picture projection as needed, including accessories for talking pictures.

Effect Projectors—Stage effect equipment for operation from the projection room.

Moving Picture Screens—Built to specification for various light sources; either sound or silent pictures.

Auditorium Equipment

Opera Chairs and Loge Chairs—Beautiful designs, also special designs specified built to order. Designs submitted without cost.

Directional Signs—Produced for us by a leading manufacturer. Special period designs to order. Sketches furnished on request.

Lighting Fixtures—For all styles of architecture and all classes of theatres. Illuminated drinking fountains, exit signs and other decorative fixtures. Period designs built to order.

Ventilating Equipment—All types of ventilating apparatus, including refrigeration systems, air washers, blowers and exhaust fans.

Carpets and Draperies—A highly specialized department. Particularly important where sound pictures are shown.

Stage Equipment

Scenery and Stage Draperies—Employing our own staff of stage specialists and utilizing the entire output of one of the largest, oldest and best known scenic studios in the country, we are in a position to render the highest type of service and the finest artistry in stagecraft. Special sketches on request.

Automatic Curtain Controls—Noiseless and smooth in operation. We also supply special noiseless curtain tracks.

Stage Rigging and Hardware—A complete line of all stage accessories embracing every appliance needed for the modern stage.

Stage Lighting Devices—For regular requirements. Also special equipment for spectacular effects designed and built to order.

Theatre Switchboards—Sole distributors of the National System manually and electrically operated switchboards and panels; designed by Westinghouse engineers.

Distributing Switchboards—National System distributing panels, manually or electrically operated or entirely automatic.

Theatre Dimmers—Special dimmer banks made up to specification.

Lobby and Foyer

Lobby Display Frames—Both stock and special built-to-order frames and fixtures are available in either embossed wood or ornamental crafts.

Marquises—Built to order in any special design or decorative treatment desired.

Electric Signs—Reliable and complete sign service. Name flasher signs and changeable program boards of every description. Sketches rendered gratis.

Coin Changers—All well and favorably known devices.

Ticket Selling Machines—Ticket Choppers—Ticket Booths—Aisle Ropes and Railings—All of the best in style and materials.

Aisle and Lobby Floor Matting—Attractive, durable, easy to stand on and noiseless.

Our Service to Architects

In close co-operation with the architect, co-ordinating the processes of construction and equipment, grouping the entire equipment into one unified contract and following it through to completion, it is possible for us to save the architect and builder much time, worry and expense and the ever-present possibility of error.

The service outlined above is available to all architects. We invite inquiries on any subject that pertains to theatre equipment and with branch offices located in all principal cities of the United States we are in readiness to serve with promptness and efficiency.

PETER CLARK, INC.

Manufacturers of Stage Equipment and Motor Driven Building Parts

544 West 30th Street, NEW YORK, N. Y.

WESTERN REPRESENTATIVE: Frank R. Eastman, 1773 No. El Molino Avenue, PASADENA, CAL.

Products

STAGE RIGGING; COUNTERWEIGHT SYSTEMS; ASBESTOS, STEEL AND SOUNDPROOF CURTAINS; HAND AND ELECTRIC CURTAIN HOIST; DRAW CURTAIN TRACKS; ELECTRIC DRAW CURTAIN MACHINES; ORCHESTRA PIT LIFTS; ORGAN CONSOLE LIFTS; STAGE LIFTS; MOVABLE STAGE BAND CARS; MOVIETONE HORN TOWERS; MECHANICAL STAGE EFFECTS; MAGNASCOPE PICTURE SHEET FRAMES; STEEL FRAMES for Picture Sheets; METAL TICKET RACKS AND CASES; PIANO TRUCKS; BUS TURNTABLES; PORTABLE SEATING; PLATFORM LIFTS.

Also Theatrical Iron Work, Stage Floor Traps; Portable Ballroom Floors, and Movable Walls, Ceilings and Doors.

Guarantee

All equipment and effects are sold with a full guarantee that any defects in material or workmanship will be promptly rectified.

Architects' Service

We maintain an Engineering Department organized to help with your problems. Our engineers, at your disposal without charge, will lay out the stage rigging, plans and gridiron, paying particular attention to unusual conditions that may be presented.

Stage Rigging and Hardware

A complete line of stage accessories embracing every appliance needed for the modern stage. Catalogue on request.

Mechanical Stage Effects

Our knowledge of this highly special line has been gained through 26 years of experience, backed by technical knowledge. We accomplish results that are practical and mechanically correct.

Piano Trucks

Adjustable steel frame with noiseless swivel casters to fit under piano legs.

Curtains

Asbestos—Flexible asbestos fire curtain of plain or woven wire cloth. Asbestos cloth curtain with rigid steel frame, has a layer of cloth on both auditorium and stage side of curtain. Curtains rigged so that they descend under their own weight.

Steel—Fire curtains with sheet steel face and vitrified asbestos back on structural iron frame.

Soundproof—Used in schools to separate gymnasiums from auditoriums. Have a sheet steel center covered on both sides with sound resisting material. Have a structural iron frame covered on both sides with asbestos cloth.

Contour—New type of automatically controlled act curtain. This curtain will give any drape effect desired.

Counterweight System

This system does away with fly galleries and operating of scenery from the flies, as all drops are handled from the stage floor.

Each set consists of a pipe batten long enough for width of opening—batten equipped with quick acting clamps or chains with snap hooks for attaching scenery to batten. Batten is hung by steel cables that run over loft blocks which have self-lubricating bearing, to roller bearing head block, and cables are attached to counterweight frame with trimming chains.

Counterweight frame is equipped with fibre guides which run on tee-iron tracks. Tracks are placed on side wall of stage house. Counterweight frames are open on end so weight can be easily added or taken off frame.

The set is operated by a manila rope hand line which is attached to top of counterweight frame and run over head block through locking clamp, thence over tension pulley and up to bottom of frame.

There is a loading platform at the upper travel of frame where frame is loaded or unloaded when scenery is put on or taken off of pipe batten. Across the entire front of the system, on the stage floor, is a locking rail which has rope locks and also card index for marking sets. Also across entire front of system there is an illuminated strip for lighting, with subdued light, the locking rail. On this strip the sets are numbered consecutively. During a production the system is operated from the stage floor. The ease and quickness with which scenes can be handled, make it worth while to install this system, to say nothing of the labor saved.



One of the Largest Steel and Asbestos Curtains in the World—108 Ft. Wide
LOCKWOOD, GREENE COMPANY, Boston, Mass. and COOK & BLAUNT, New York, N. Y., Architects
Designed and installed by PETER CLARK, INC. in the new Convention Hall, Atlantic City, N. J.

Draw Curtain Tracks

Two types of steel draw track—steel wood lined with lignum vitae ball slides—steel track with rubber-tired carriages. The steel casing has welded joints. Track

sheaves are ball bearing in iron frames with guards to prevent rope from getting off sheave. Tracks are noiseless and dustproof, and are designed for easy hanging of curtains.

Electric Draw Curtain Control

Smooth running machine enabling the operation of curtain from any desired points. Variable speeds, if desired.

Hoists for Curtains, Counterweights, etc.

Curtain—Hand operated for small curtains, placed in gridiron. Electric hoists for larger curtains. Two types, one for installation in gridiron and the other for installation in basement under stage. All hoists, whether hand or electric, are designed so that curtains can descend under their own weight.

Counterweight—A small portable hoist used with counterweight system and for any other hoisting necessities on the stage.

Lifts

Orchestra Pit—For featuring orchestra numbers, the entire floor of the orchestra pit is the platform of a multiple screw lift. The platform is lowered to the basement level where musicians enter or leave through a convenient door without annoyance to the patrons. While playing, the platform is brought to stage level for the overture. The platform can be lowered to an intermediate level, out of the sight lines of the audience, for accompanying the production.

The orchestra lift is electric driven and automatically controlled by push buttons. The leader, by pushing proper button for any of the levels, can bring platform to desired position where it will automatically stop.

The machinery is operated by one motor; it is worm gear driven and is ball bearing throughout. Operation can be arranged from two or more points.

Organ Console—Similar to orchestra pit lifts, except that the platform is only large enough to hold console and usually are single screw. They are automatically controlled and operated in the same manner. Console lifts can also be made to revolve so organist presents a better view to the audience when playing a solo.

Movietone—Sections of stage made platform of telescoping lift. Horns hung on underside of platform. Lift located directly behind movietone screen. When raised lift brings horns to desired height. When lowered horns are stored under stage.

Heavy Duty Platform—Built on jackscrew principle—similar to orchestra lifts—for industrial purposes such as: lumber stacking, car loading, etc. All lifts built to specification.

Movable Stage Band Cars

Cars to move entire stage band up and down stage.

Magnascope Picture Sheet Frames

Steel picture sheet frames with automatic maskings so that two or three sizes of picture can be shown on the same sheet. Also steel frame for picture sheets. These frames carry permanent masking.

Movietone Horn Telescoping Towers

For mounting talkie horns adjustable in height. Towers on casters so they can be moved about stage.

Ticket Racks and Cases

Made of metal to special order for requirements. Practical for both advance and daily rush sales. Compartments are built on an angle so as to show the stub of first ticket in each row with the seat number. *A rack for each performance.* All cases made to order to accommodate any number of performances and conditions of box office. Send seating plan, exact size and thickness of tickets used; also plans of box office for cases, when requesting prices.

Portable Seating

Designed for your seating requirements. Made in standard sections of the tower and girder type of construction of interchangeable units. This type can also be covered with portable flooring to make a ramped floor. Easily handled and requires minimum space for storage.

Bus Turntables

Rigid steel construction—electrically operated—remote control. Roller bearing throughout. Built for any capacity or requirements desired. The largest bus turntable in the country was built by us for the Central Union Bus Terminal in New York City.

Some of Our Installations

Theatres

Roxy Theatre, New York, N. Y.
Paramount Theatre, New York, N. Y.
Ziegfeld Theatre, New York, N. Y.
Erlanger Theatre, New York, N. Y.
Metropolitan Opera House, New York, N. Y.
Music Box Theatre, New York, N. Y.
Winter Garden Theatre, New York, N. Y.
Capitol Theatre, New York, N. Y.
New Amsterdam Theatre, New York, N. Y.
Guild Theatre, New York, N. Y.
E. F. Albee Theatre, Brooklyn, N. Y.
Keith Theatre, Brooklyn, N. Y.
Loew's State Theatre, Syracuse, N. Y.
Mastbaum Theatre, Philadelphia, Pa.
Boyd Theatre, Philadelphia, Pa.
Uptown Theatre, Philadelphia, Pa.
Fox Theatre, Philadelphia, Pa.
Loew's Theatre, Pittsburgh, Pa.
Stanley Theatre, Pittsburgh, Pa.
Warner Bros. Theatre, Atlantic City, N. J.
Stanley Theatre, Atlantic City, N. J.
Million Dollar Pier, Atlantic City, N. J.
Loew's State Theatre, Providence, R. I.
Metropolitan Theatre, Boston, Mass.
Keith's Memorial Theatre, Boston, Mass.
Paramount Theatre, Springfield, Mass.
Olympia Theatre, New Haven, Conn.
Chicago Theatre, Chicago, Ill.
Harris Theatre, Chicago, Ill.
Oriental Theatre, Chicago, Ill.
Uptown Theatre, Chicago, Ill.

Theatres (Continued)

Granada Theatre, Chicago, Ill.
Marbro Theatre, Chicago, Ill.
Earle Theatre, Washington, D. C.
Fox Theatre, Washington, D. C.
Civic Theatre, Miami, Fla.
Miami Beach Casino, Miami, Fla.
Olympic Theatre, Miami, Fla.
Publix Theatre, St. Petersburg, Fla.
Paramount Theatre, Toledo, Ohio
Keith Palace, Cleveland, Ohio
Fox Theatre, St. Louis, Mo.
Fisher Theatre, Detroit, Mich.
Fox Theatre, Detroit, Mich.
Michigan Theatre, Detroit, Mich.
Cass Theatre, Detroit, Mich.
Lafayette Theatre, Detroit, Mich.
Orpheum Theatre, Minneapolis, Minn.
Fox Theatre, Atlanta, Ga.
Saenger Theatre, New Orleans, La.
Fox Theatre, San Francisco, Cal.
Orpheum Theatre, San Francisco, Cal.
Loew's Theatre, Indianapolis, Ind.
Metropolitan Theatre, Denver, Colo.
Orpheum Theatre, Seattle, Wash.
Palace Theatre, Dallas, Tex.

Public Assembly Halls

Convention Hall, Atlantic City, N. J.
Public Auditorium, Cleveland, Ohio
Convention Hall, Philadelphia, Pa.
Bushnell Memorial, Hartford, Conn.

Public Assembly Halls (Continued)

War Memorial, Louisville, Ky.
Auditorium, Minneapolis, Minn.
Severance Hall, Cleveland, Ohio
Community Center, Westchester, N. Y.
Convention Hall, Asbury Park, N. J.

Masonic Temples

Mecca Temple, New York, N. Y.
Scottish Rite Cathedral, Philadelphia, Pa.
Masonic Temple, Scranton, Pa.
Masonic Temple, Detroit, Mich.
Al Malaikal Temple, Los Angeles, Cal.
Masonic Temple, New Castle, Pa.
Syria Temple, Pittsburgh, Pa.

Educational Institutions

Yale University, New Haven, Conn.
Ohio University, Athens, Ohio
McCarter Theatre, Princeton, N. J.
Union College, Schenectady, N. Y.
Columbia University, New York, N. Y.
Emma Willard School, Troy, N. Y.
Kilbourne Hall, Rochester, N. Y.
Seward Park High School, New York, N. Y.
Washington Irving High School, New York, N. Y.
High School, Southampton, L. I., N. Y.
Armstrong High School, Washington, D. C.
Central High School, Washington, D. C.
Western High School, Washington, D. C.
East High School, Columbus, Ohio
South High School, Columbus, Ohio
Central High School, Columbus, Ohio

ELECTRICAL RESEARCH PRODUCTS INC.

DEPARTMENT OF EDUCATIONAL TALKING PICTURES

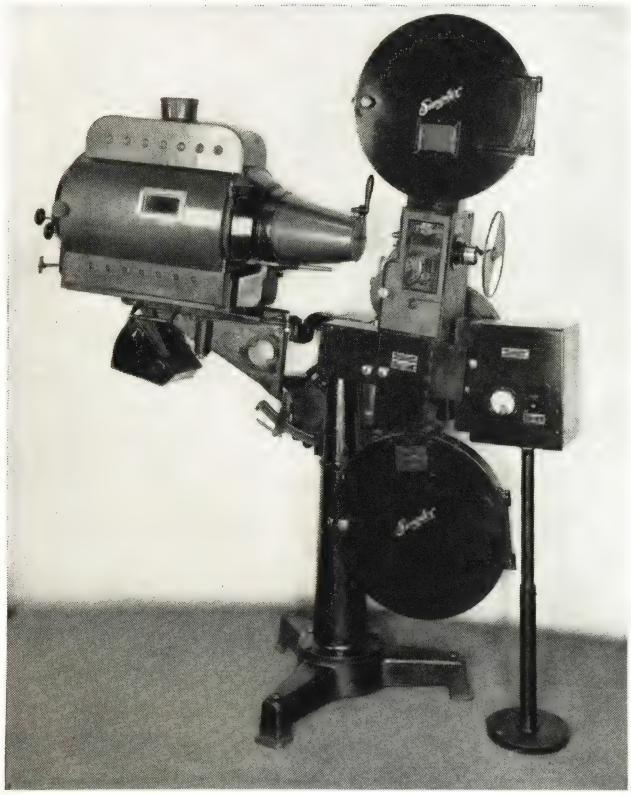
Subsidiary of

WESTERN ELECTRIC COMPANY

MAIN OFFICE

250 West 57th Street

NEW YORK, N. Y.



Western Electric 206A Reproducer Set with Simplex Projector for Large Auditoriums

TALKING PICTURE EQUIPMENT FOR ALL SIZES OF ROOMS

Architects can now specify talking picture equipment for many kinds of buildings in rooms of every size from the smallest classroom in a school to the largest municipal auditorium.

Ready to co-operate with architects in planning buildings with talking picture facilities is ELECTRICAL RESEARCH PRODUCTS INC., distributers of Western Electric Talking Picture Equipment ranging in size from the 16 mm. reproducer to equipment similar to that used in the largest theatres.

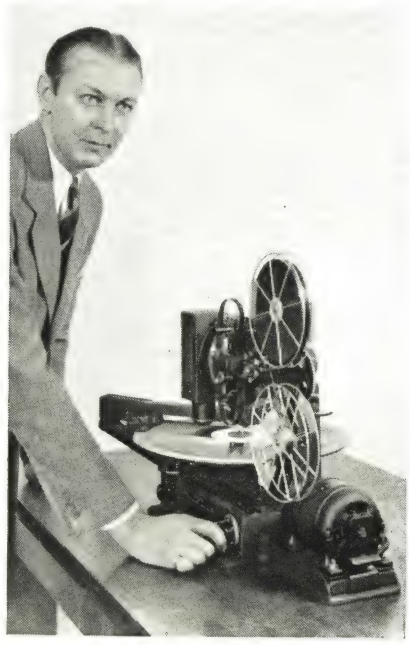
A nation-wide organization of sound engineers puts its experience at your disposal. It is prepared to supply you with wiring diagrams, to give you full information on booth construction, to help you design rooms with acoustic conditions that are favorable to talking picture reproduction.

MANY KINDS OF BUILDINGS USE TALKING PICTURES

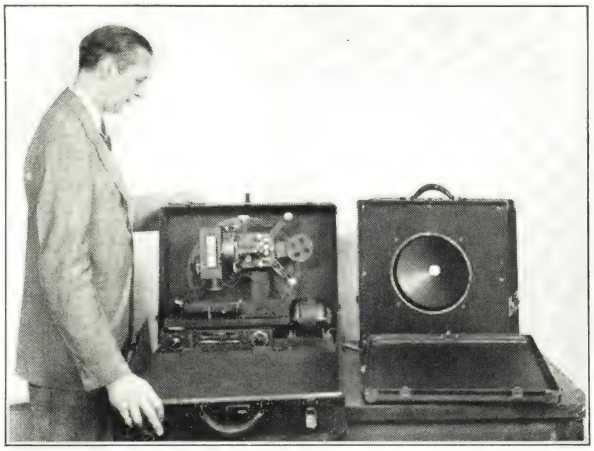
Schools, churches, hotels, sanitariums, clubs and fraternal organizations, public institutions—buildings of almost every character where people gather together in large numbers—are among today's users of talking pictures.

FOR USE IN SCHOOLS

For use with Western Electric reproducing equipment in schools are many specially prepared films recorded



Western Electric 16 mm. Projector Is Easily Operated



Western Electric 16 mm. Reproducer for Use in Small Classrooms
Combined Weight, Two Cases, 130 Lbs.

by the Western Electric Sound System and sponsored by leading educators co-operating with ELECTRICAL RESEARCH PRODUCTS INC. Subjects for supplementing the work of the classroom as well as teacher training subjects are available.

FOR USE IN HOTELS

In hotels, facilities for talking pictures create new business and are a big aid in securing convention meetings and other desirable patronage for the hotel. The growing use of industrial talking pictures for advertising and sales promotion campaigns makes this feature a valuable one.

FOR USE IN SANITARIUMS

In sanitariums, entertainment films are used to give relaxation to patients, doctors, nurses, internes and others who are unable to leave the building. Specially prepared surgical and medical talking pictures are being used at meetings of medical and scientific societies. Prominent surgeons and specialists co-operate with ELECTRICAL RESEARCH PRODUCTS INC., in presenting these pictures.

THE WESTERN ELECTRIC TALKING PICTURE SYSTEM

In the presentation of talking pictures, Western Electric reproducing apparatus assures results of the same high quality as in the largest and best equipped city theatres. The Western Electric Talking Picture System is designed by Bell Telephone Engineers and made to the high standards for which Western Electric is known as the maker of Bell telephones and a pioneer in the field of sound transmission.

The new Western Electric 16 mm. reproducer makes even the small room a place for highly satisfactory talking picture projection. This type of equipment may be packed into two cases, whose combined weight is only 130 pounds. This means that in schools, for example, it can be readily carried from room to room.

SERVICE ENGINEERS AND ACOUSTIC CONSULTING SERVICE

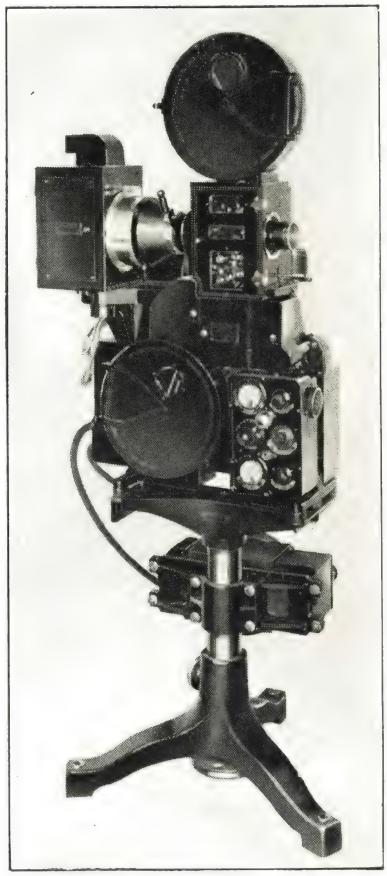
ELECTRICAL RESEARCH PRODUCTS INC., maintains service engineers at more than 150 points located throughout the United States. These men are available on short notice to maintain the quality of sound at the highest level, to care for the equipment at periodic intervals, and to respond to emergency calls.

Acoustic Consulting Service

This department of Electrical Research Products is making a distinct contribution to the field of architecture in making available the acoustic knowledge and experience of the Bell Telephone Laboratories and ELECTRICAL RESEARCH PRODUCTS INC.

Its services are available to architects interested in architectural acoustics.

Its staff of trained acoustic engineers is prepared to analyze building plans and acoustic conditions of buildings and to make acoustic recommendation as an aid to the architect in providing good acoustics in all types of structures.



Western Electric
TA-4050
Portable
Reproducer Set

BUCK X-OGRAPH COMPANY

Manufacturers of X-ray Darkroom Equipment

8701 to 8715 Xograph Avenue
ST. LOUIS, MO.

Products

Developing Tanks.	Ventilators.
Film Dryers.	Illuminators, etc.
Darkroom Lights.	Transfer Cabinets.

Prominent Hospital Installations

T. B. League Hospital, Pittsburgh, Pa.
De Paul Hospital, St. Louis, Mo.
Osteopathic Hospital, Philadelphia, Pa.
Duke University Hospital, Durham, N. C.
Doctors' Hospital, New York, N. Y.
Barnes Hospital, St. Louis, Mo.
St. Luke's Hospital, New York, N. Y.
Albert M. Billings Memorial Hospital, Chicago, Ill.
City Hospital, St. Louis, Mo.
Children's Hospital, Boston, Mass.
Massachusetts General Hospital, Boston, Mass.

Engineering Staff

Send us the floor plan and required capacity (number of films to be processed per day) and we will submit a layout.

Blue prints and complete descriptions of our equipment for a completely and efficiently laid out darkroom supplied on request. The fact that we are familiar with modern hospital conditions and requirements makes our recommendations of great value to architects.



Children's Homeopathic Hospital, Philadelphia, Pa.

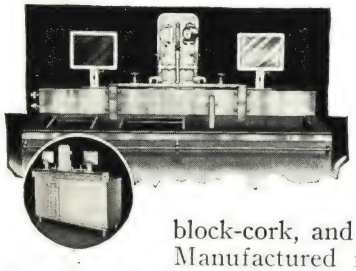
De Paul Hospital, St. Louis, Mo.

Doctors' Hospital, New York, N. Y.

Scope of Service

We have made a special study of X-ray darkroom requirements. Our experience in designing and equipping should prove of value to architects.

SOME STANDARD EQUIPMENT

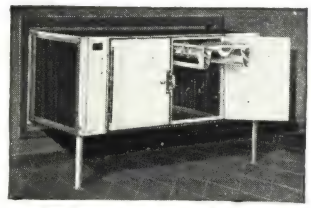


Thermonel Developing Tanks

Designed for controlling the temperature of the developing solutions. Built of tidewater cypress, insulated with 2 in. of block-cork, and lined with Monel metal. Manufactured in three standard sizes. Special tanks built to order.

Buck Film Dryers

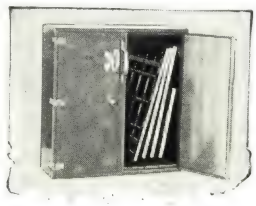
These have become a necessity to every X-ray darkroom. Not only hasten the drying of films, but promote order and efficiency. They are manufactured in three models, both double and single. Special models of extra large size built to order.



In the Wall Model (I.W.) Opens Both Sides

Buck Transfer Cabinet

This cabinet mounted in the darkroom wall. For storing exposed and unexposed cassettes in a manner convenient to both darkroom and radiographic room. Saves many extra steps. Exterior of seasoned birch, lined with $\frac{1}{16}$-in. sheet lead protected by galvanized iron. Automatic locks on doors. Nickel trimmings. Made in one size only.

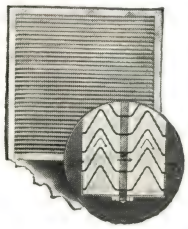




Double Deck Side Opening Model (S.O.) Opens One Side Only

When designing the darkroom it is very important a free circulation of air be supplied to the film dryer by use of a maze entrance or ventilator of correct capacity. Damp air from the film dryer must be conducted from the darkroom.

Buck Darkroom Ventilator

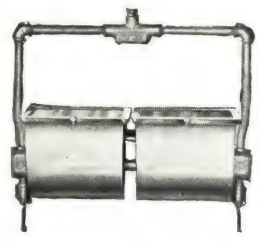


The Buck Ventilator admits air to the darkroom without admitting light.

A necessity for supplying air to a film dryer as well as general darkroom ventilation. Size, 24x24x3 in. thick. Weight, 35 lbs. Supplies sufficient air for a single deck film dryer.

Buck Indirect Darkroom Ceiling Lamp

For general darkroom illumination. Delivers both ruby and white light. Has twin bowls of cast aluminum. Glass size of each bowl, 8x10 in. Enclosed wiring. All parts aluminum finish. Very substantial and practical. Made in one size only.



WILMOT CASTLE COMPANY

Sterilizing Equipment for Hospitals, Industrial Plants and Professional Buildings
1231 University Avenue
ROCHESTER, N. Y.

Products

A complete line of HOSPITAL STERILIZING EQUIPMENT, Electric or Direct Boiler Steam Operated.

Also Bacteriological Apparatus and Hospital Sanitation Specialties.

The Organization

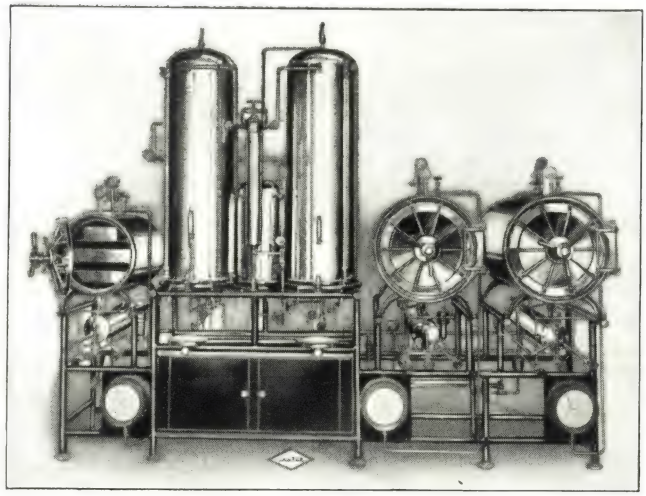
For almost fifty years Castle sterilizing and bacteriological apparatus has been used in hospitals throughout the country. The highly efficient, up-to-the-minute plans of Castle's recommended installations, either for single units, for complete hospital equipments, fulfill all requirements of National, State and Municipal health boards.

Assistance to Architects

Our engineering staff can be of timely assistance to architects when planning the layout of sterilizing equipment to meet the specific hospital requirements.

There are so many factors which govern the efficiency of such an installation that it is almost imperative that competent counsel be obtained on the sterilizing equipment before plumbing specifications are made. The service which Castle Engineers can give will prove invaluable on such matters as arrangement and selection of sterilizer units, method of heating, pre-determination of roughing-in, venting and trapping and method of heat.

CASTLE



Steam Heated "Battery" Mounted in Sterilizer Room of Mercy Hospital, Buffalo, N. Y.

Consists of: two large pressure dressing sterilizers, one pressure instrument sterilizer, each with recording gauge; and pair of pressure water sterilizers with blanket warmer.

Castle Sterilizers

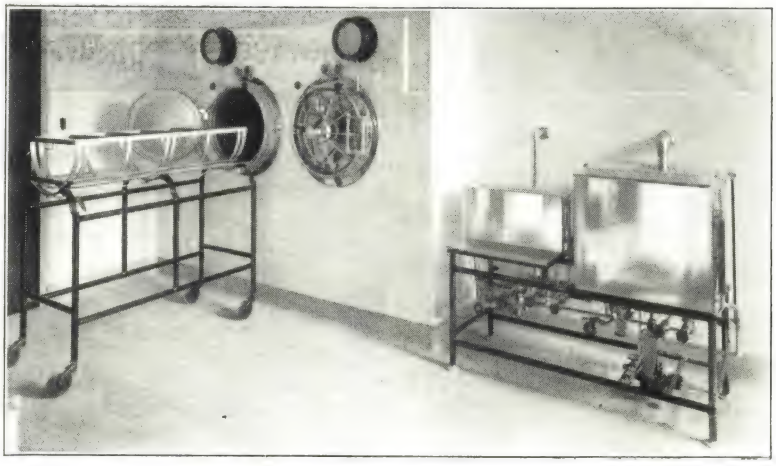
Dressing Sterilizers
Instrument Sterilizers
Water Sterilizers
Utensil Sterilizers
Stills
Bed Pan Sterilizers
Bed Pan Washers
Blanket Warmers
Solution Warmers
Autoclaves
Disinfectors
Baths
Incubators and other Bacteriological Apparatus

All of these are made by the WILMOT CASTLE COMPANY. They are made and sold individually or as a complete hospital installation. Groups of units for one room are usually mounted together "in battery". A battery may be combined floor stand, on wall brackets, or recessed behind a tile wall.

Castle Sterilizers have always been built up to a standard of service rather than to meet a price. They reflect this in the universal satisfaction they give.

Recent large hospital installations include:

Syracuse Memorial Hospital, Syracuse, N. Y.
Lucas County Hospital, Toledo, Ohio.
Baker Memorial Hospital, Massachusetts General, Boston, Mass.
Meharry Medical Hospital, Nashville, Tenn.
Women's and Children's Hospital, Chicago, Ill.
Lakeview Hospital, Danville, Ill.
Falk Clinic, (University of Pittsburgh)
Notre Dame Hospital, Montreal, Que., Canada.
Springfield Hospital, Springfield, Mass.
Hartford Hospital, Hartford, Conn.
University of California Infirmary, Berkeley, Calif.
Hurley Memorial Hospital, Flint, Mich.



In Syracuse Memorial Hospital, Syracuse, N. Y.

Battery of steam heated dressing sterilizer, recessed in tile wall. (Note all valves pass through cast bronze finishing collar); also open battery of instrument and utensil sterilizers.



"Regal" Bed Pan Washer and Sterilizer

The last word in recessed equipment for washing and sterilizing bed pans

EXCEL METAL CABINET CO., INC.

JAMESTOWN, N. Y.

SALES OFFICE: 101 Park Avenue, NEW YORK, N. Y.

REPRESENTATIVES

CLEVELAND, OHIO — DETROIT, MICH. — PALM BEACH, FLA. — ST. LOUIS, MO.
DALLAS, TEX. — LOUISVILLE, KY. — PHILADELPHIA, PA. — SYRACUSE, N. Y.

Products

STEEL CABINETS and CASES of built-in and wall-type construction for every hospital need, heavily constructed and designed especially for hospital and institutional service.

Also Monel Metal Sinks, Tables and Equipment.

For our page on Kitchen and Pantry Cabinets, see Manufacturers' Index.

Service

We are prepared to submit a schedule of requirements or a complete layout of cabinets from the floor plans and to confer with architects on the type of equipment best suited for any particular job.

Data

The details and sizes shown in these pages cover our standard cabinets which are made up in quantity with resultant economy. These cabinets are furnished complete, glazed, and finished in any color desired ready for installation.

Special sizes of standard construction, and also special cabinets built to specification can be furnished.

A Few Installations and Their Architects

Southampton Hospital, Peabody, Wilson & Brown
Mather Memorial Hospital, Henry C. Pelton
Pennsylvania Hospital, Arthur H. Brockie
Doctors' Hospital, Crow, Lewis & Wick
Metropolitan Life Insurance Co. Sanitarium, D. Everett Waid
Mary Immaculate Hospital, William J. Boegel
Kings County Hospital, Dodge & Morrison
St. Luke's Hospital, Ernest Flagg
Coney Island Hospital, Dodge & Morrison, New York, N. Y.
St. Vincent's Hospital, Ditmars & Reilly
Presbyterian Hospital, Newark, N. J., Sutton & Calkins
Norwalk Hospital, W. B. Tubby
Girard Medical College, Philadelphia, Pa., J. T. Windrim
Kiefer Hospital, Detroit, Mich., Albert Kahn, Inc.
Grace Hospital, Detroit, Mich.; Albert Kahn, Inc.



Instrument Cabinet



Instrument Cabinet





Surgical Dressing Room

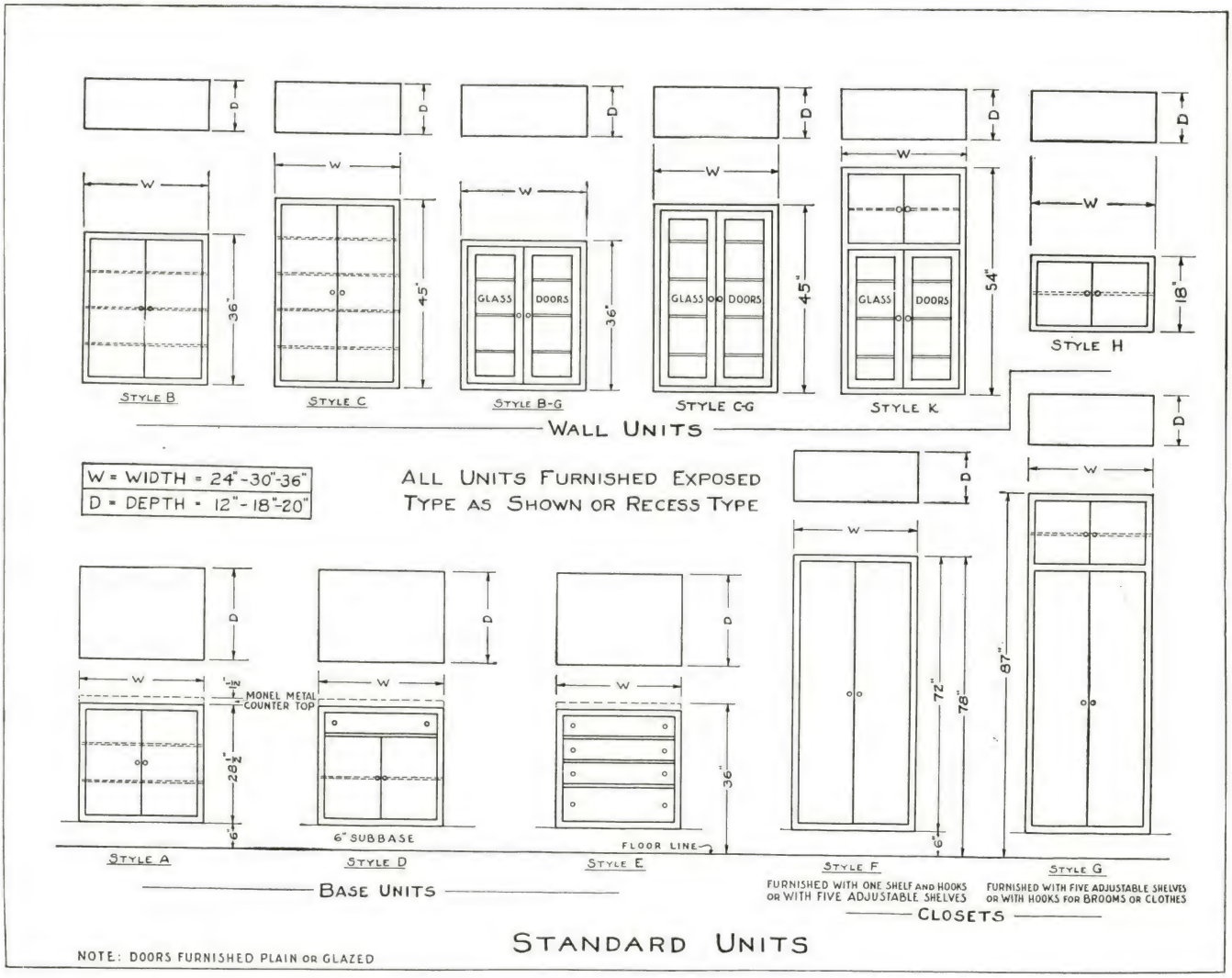


Kitchenette



Nurses' Station
Serving Room

Jewish Hospital, Brooklyn, N. Y.
CROW, LEWIS & WICK, Architects



Metal Cabinet Specifications

Cabinets to be constructed throughout of No. 18 gauge No. 1 quality furniture steel.

All joints on face of cabinet to be mitered, acetylene-welded and ground flush and smooth, with no visible seams or joints on face of cabinet. All other joints to be electric spot-welded. The vertical stiles to be filled so as to make a hollow metal section. The bottom of all upper units to be filled so that bottoms are flush.

All doors and drawer fronts to be ⅝ in. thick, hollow metal construction, and are to be recessed into frames so as to close flush with face of cabinet. All hollow doors to be reinforced with Z-bars.

Drawers to be equipped with channel suspension slides.

All shelves adjustable and removable, of No. 18 gauge steel, or glass, as indicated.

Glazed doors are to be constructed of one piece No. 18 gauge frame section, glass removable and secured by metal moulding, screwed in place on back of door.

Hinges are to be cast bronze, semi-concealed, French olive knuckle type, crodon-plated, with theftproof concealed pins. Hinges are to be mortised flush with edge of doors, which are to be reinforced at this point.

Knobs are to be cast bronze crodon-plated.

No screw or bolt heads are to be used on face of cabinet.

Base units with drawers 30 in. wide or smaller will be furnished with single width drawer. Where bases wider than 30 in. are used they will be furnished with two drawers with mullion between.

Counter tops are to be monel metal or linoleum as indicated.

Metal tops are to be constructed of .031 thick polished monel metal stretched over No. 16 gauge steel frame, frame to be reinforced with channel stiffeners 18 in. on centers. (Heavy gauge monel can be furnished where required.)

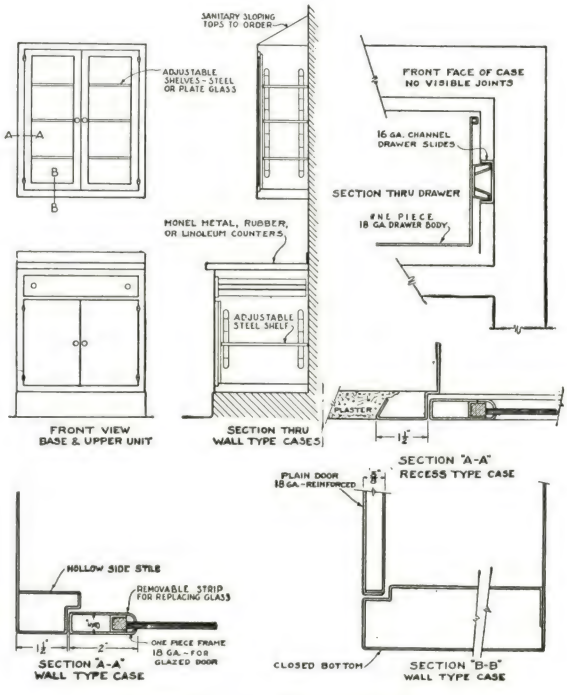
Linoleum tops are to be constructed of No. 16 gauge steel body upon which is to be cemented ¼-in. battleship linoleum, edges to be bound with No. 18 gauge polished monel metal edge mould rabbeted into linoleum so as to make a smooth flush surface.

All counters turned up 2 in. at back and at side where against walls.

Finish—All concealed surfaces are to be primed with baked enamel before fabrication so that no metal surfaces are exposed to corrosion.

All exposed surfaces are to be finished with four coats best quality baked enamel carefully sanded between coats.

Locks where indicated are to be Yale 4-in. tumbler type. Single locks on drawers, and 3-point locks on doors. Locks are keyed and master keyed as desired.



DETAILS of CONSTRUCTION

THE GENERAL FIREPROOFING CO.

Steel Case and Cabinet Work for Hospitals and Laboratories

YOUNGSTOWN, OHIO

Products

BUILT-IN STEEL CASE and CABINET WORK for hospitals and laboratories, including Instrument Cases, Utility Room Cupboards, Blanket Warmers, Bed Pan Warmers, Splint Cases, Plaster Cases, China Cupboards, Wardrobes, X-Ray Viewing Cabinets, X-Ray Film Safety Cabinets, Laboratory Desks and Tables, and Steel Storage Shelving; Special Work in Monel Metal.

Also Portable Equipment, including Steel Desks for Offices and Nurses' Stations, Aluminum Chairs, Filing Cabinets, Waste Baskets, Office Safes, Card Index Cabinets, Counter Files, Storage Cabinets.

Service

Thirty years' experience in the building of steel equipment for hospitals, laboratories, offices, banks, courthouses. Complete Engineering Service. One of the best equipped metal fabricating plants in the industry. Staff of hospital equipment specialists in fifteen branch cities.

GF Built-in Equipment

Types of Construction—GF Steel Hospital Built-in Equipment can be either of the strictly built-to-order type or of standardized or semi-standardized units which have been developed out of our long experience in serving a large number of hospitals. The use of standardized construction always results in measurable savings and should be used wherever possible.

GF Steel Case Work is of two distinct types, the Overlap Plaster Flange Type and the Steel Buck Type.

Overlap Plaster Flange Type—Attached to wood bucks installed by the building contractor and the steel case is installed in the opening after plastering.

Steel Buck Type—Employs the use of a steel frame into which the finished case fits exactly. The buck is delivered to the building in advance of the finished cabinet, and is installed by the building contractor. Later the cabinet is slipped into place and permanently attached to the steel buck.

This method enables the fabrication of the cabinet work to proceed simultaneously with the construction of the building. It avoids confusion among groups of workmen and entirely eliminates all chance of costly errors and saves time.

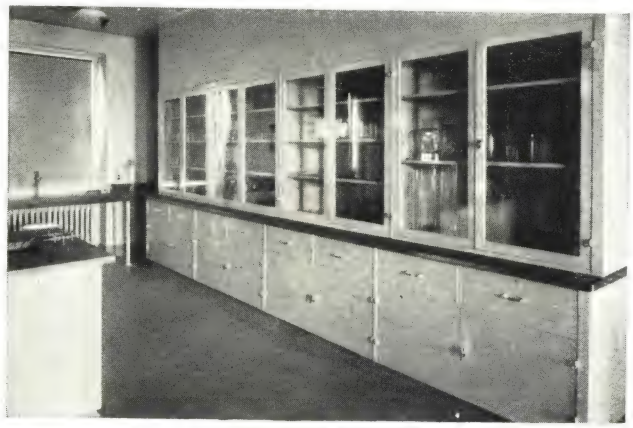
Finish—All equipment finished in hard, oven-baked enamel in color to suit decorative scheme.

Data and Specifications

A comprehensive set of drawings of installations and complete specifications is available to interested architects and hospital officials.



Instrument and Sterile Supply Cases



Milk Laboratory Supply Cases. Monel Metal Ledge



Nurses' Desk, Supply and Narcotic Cases

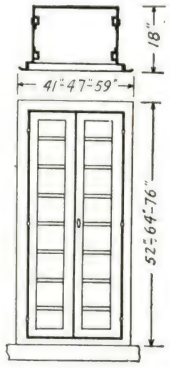


X-Ray Viewing Cabinets

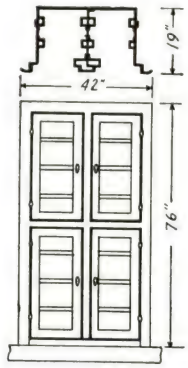


Instrument Cases

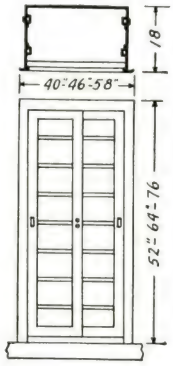
TYPICAL GF STEEL HOSPITAL CABINETS



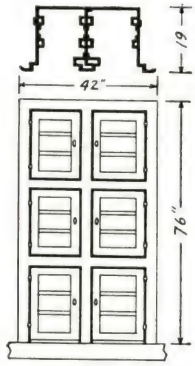
Instrument Case Type A-A
Glass doors, glass shelves. Lock handle and hinges chromium plated.



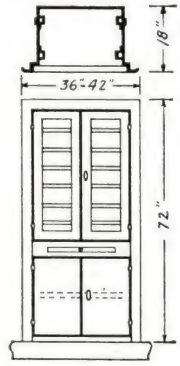
Instrument Case Type A
Glass door, plate glass shelves. Hinges and lock handle chromium plated. Four Monel Metal trays on channel suspensions optional.



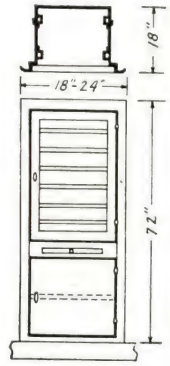
Instrument Case Type C-C
Sliding glass doors with lock. Chromium plated, sunken handles. Plate glass shelves.



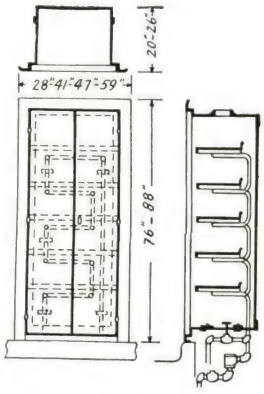
Instrument Case Type C
Six glass doors, plate glass shelves. Hinges and lock handles chromium plated. Six Monel Metal trays on channel suspensions optional.



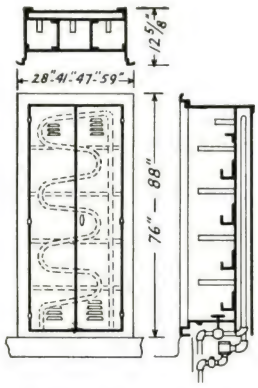
Instrument Case Type E
Glass doors at top, steel doors at bottom. Glass shelves in upper section. Chromium plated lock handles and hinges. Monel Metal sliding shelf between sections.



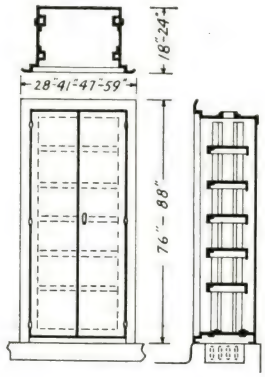
Instrument Case Type F
Glass door at top, steel door below. Plate glass shelves in upper section. Chromium plated hinges and lock handles. Monel Metal sliding shelf between sections.



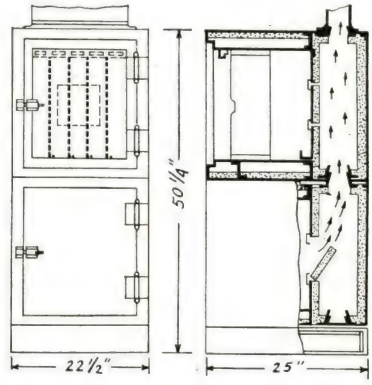
Blanket Warmer Type A
Steel door with chromium plated lock handle and hinges. Perforated steel shelves. Heating coil of seamless copper pipe and fittings. Vent in top.



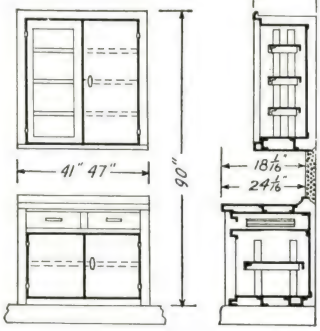
Bed Pan Warmer Type A
Steel doors with chromium plated lock handle and hinges. Holders for bed pans, urinals and enema irrigators. Heating coil of seamless copper pipe with fittings. Door ventilated at top and bottom.



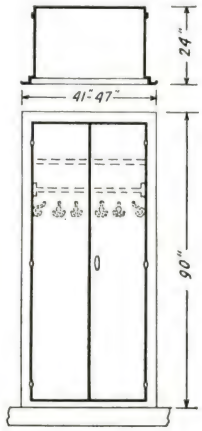
Blanket Warmer Type C
Steel door with chromium plated lock handles and hinges. Perforated steel shelves. Provision in base for installation of electric heating coils. Vent in top.



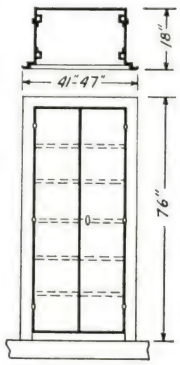
X-Ray Safety Film Cabinet
Two cabinets shown, each with asbestos lined walls. Vertical partitions in each cabinet for supporting envelopes containing films. Door equipped with spring hinges and spring lever catch. One-way trap door in back opens under pressure of gasses into flue. Capacity each cabinet, 250 pounds of films.



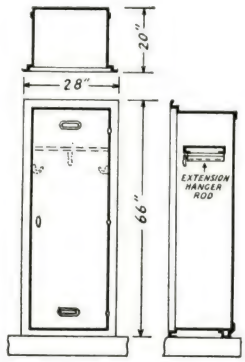
Utility Case Type A
Glass or steel doors in upper section with chromium plated lock handle and hinges. Steel shelves in both sections. Lower section has Monel Metal top and two storage drawers on channel suspensions.



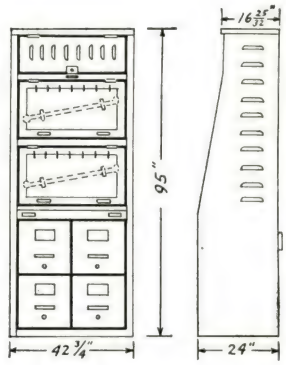
Splint Cabinet Type A
Steel doors with chromium plated lock handles and hinges. Monel Metal shelf and rod at top. Six Monel Metal three-prong hooks.



Storage Cabinet Type A
Steel door with chromium plated lock handles and hinges. Steel or Monel Metal Shelves.



Wardrobe Type A
Steel door with chromium plated lock handle and hinges. Steel shelf at top with extension coat hanger. Two double-prong hooks. Vent in door at top and bottom.



X-Ray Viewing Cabinet
Equipped with four file drawers on roller suspensions and two hinged plate glass viewing panels with spring clips for holding films and attachments for Cooper-Hewitt tubes. Compartment in top with louvered door for tube auxiliary. Sides and rear of cabinet ventilated.

Above are shown single cabinets only. Multiple cabinets of any number of units will be built. All cabinets shown, excepting X-Ray Film Cabinets, are also furnished with cove corners of ¾-in. radius.

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES
67 Wall Street
NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.
REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index
For Distributers, see our page on Metals

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of hospital equipment. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.) All necessary accessories, such as nuts, bolts, screws, rivets, etc., are also available.

INCO MONEL METAL
TRADE-MARK

Monel Metal

Monel Metal is a registered trade-mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal for Hospital Equipment

(1) Absolutely rustproof.

(2) Resists corrosion by hospital solutions as well as fruit juices and fruit acids.

(3) Strong as steel; tougher than steel.

(4) Easy to clean; therefore sanitary.

(5) Beautiful appearance; has color of platinum.

(6) Durable — proven by over 20 years of service.

(7) Easily fabricated.









Proven Uses of Monel Metal

Metal cabinets should be of all Monel Metal construction where extreme durability and appearance are important factors. Enameled steel construction also is used with the following parts of Monel Metal:

Counter tops	Trim
Shelving	Base kick-plates

For over 20 years Monel Metal has been used in food service and clinical equipment. Many installations have been in actual service for over 15 years, and are functioning perfectly. The Monel Metal page in the Food Service Equipment section contains a list of the more prominent installations illustrative of the lifetime quality of Monel Metal equipment.

Services

Architects and engineers are invited to make use of the extensive advisory service maintained by this organization. A call to any of our sales offices, listed in our section on Metals, will bring you a Monel Metal specialist. The co-operation of the Monel Metal specialists can contribute materially in the application of metals to hospital equipment.

Available Publications

To assist architects and engineers to form a clearer conception of the possibilities for the application of Monel Metal to built-in cabinets, THE INTERNATIONAL NICKEL COMPANY, INC., has prepared a series of reference folders and booklets, available on request:

"Architects' Handbook of Metal Cabinet Equipment"—A reference book prepared for the profession. Contains complete information on the design and construction of metal cabinets, choice of materials of construction, and illustrations of correct method of writing specifications. Also contains catalogue pages of many manufacturers of cabinets.

"Built-in Cabinets"—A four-page folder illustrating specific applications of Monel Metal to cabinet construction and uses of cabinets.

"And the Greatest of These"—The uses of Monel Metal in The Medical Center, New York, N. Y.

A series of illustrated folders on

Utensils	Clinical Furniture
Cabinets	Laundry

"Modern Hospital Equipment"—Latest annual edition covering the use of Monel Metal in all departments of the hospital.

ALBERENE STONE COMPANY

Alberene Stone Laboratory Equipment

153 West Twenty-third Street, NEW YORK, N. Y.

For Branch Offices, see our page on Stair Treads

Products

ALBERENE STONE, the natural quarried stone, is produced and fabricated for:

Laboratory Table Tops and Backs
Sinks and Drainboards
Fume Hoods and Ducts
Shelving, Cabinets and Peg Boards
Baths, Tanks and Vats
Flooring and Bases
Other miscellaneous Laboratory Equipment

For our pages on Interior Architectural Uses and Sanitary Equipment, Tubs and Kitchen Sinks, Spandrels and Exterior Trim, see Manufacturers' Index.

Alberene Stone for Laboratory Equipment

In this field Alberene Stone is generally recognized as the *standard material*, as is evidenced by its general use and ever-increasing adoption by schools, colleges, hospitals, industrial plants, and the United States Government.

A natural stone, chemically inert and highly resistant to acids and alkalis, it is capable of being sawed, shaped and fabricated in any desired form without chipping or spalling. It is proof against wear, heat, moisture—in short, it has every desirable characteristic for laboratory service. Yet Alberene Stone equipment costs no more than substitutes which can only be partially satisfactory.

Advisory Service in Laboratory Design

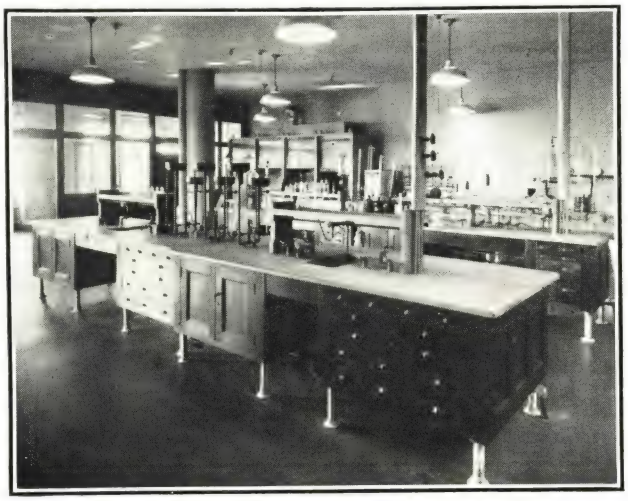
Because of the importance of Alberene Stone in the planning of a laboratory we have, through years of specialized experience, acquired a fund of knowledge on laboratory design which we believe to be without an equal. Our engineers are regularly invited to advise with chemical executives and architects on the planning of the laboratory layout for any work they may have. This service is rendered freely, and without cost or obligation.

We have been intimately associated with the latest developments in laboratory planning for over 25 years, and bring to you a knowledge of the best ideas used in the notable modern laboratories.

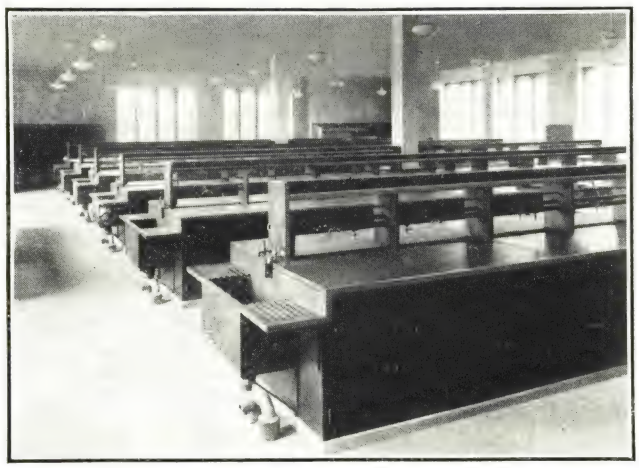
Let us send you a copy of the Alberene Laboratory Catalog.

A Few Representative Installations

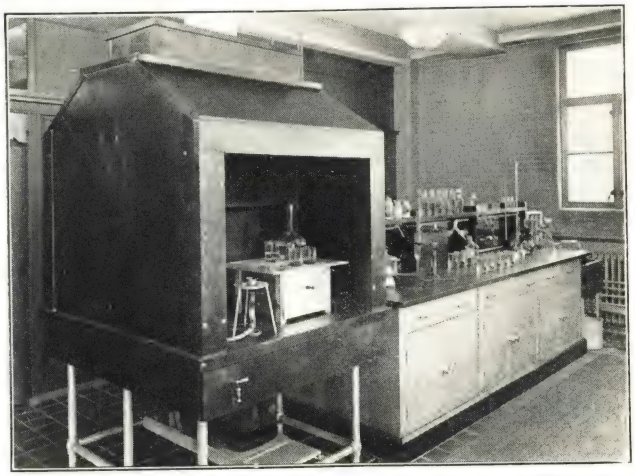
Aluminum Co. of America, New Kensington, Pa.; Cleveland, Ohio; Bridgeport, Conn.; Arvida, Can.
American Sugar Refining Co., New York, N. Y.; Baltimore, Md.
Barrett Co., Frankfort, Pa.; Detroit, Mich.; Youngstown, Ohio; Toledo, Ohio; Bethlehem, Pa.; Edgewater, N. J.
E. I. duPont de Nemours & Co., Inc., Wilmington, Del.
General Electric Co., Harrison, N. J.; Schenectady, N. Y.; Pittsfield, Mass.
Massachusetts Institute of Technology, Cambridge, Mass.
Rockefeller Institute for Medical Research, New York, N. Y.
Standard Oil Co., Bayway, N. J.; Brooklyn, N. Y.; East Providence, R. I.
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
Yale University, Sterling Laboratory, New Haven, Conn.
Crucible Steel Co., Harrison, N. J.; Pittsburgh, Pa.
Baltimore & Ohio R. R., Baltimore, Md.
Beth Israel Hospital, New York, N. Y.
Columbia University, New York, N. Y.
Bell Telephone Laboratories, New York, N. Y.
Fifth Avenue Hospital, New York, N. Y.
Goodyear Tire & Rubber Co., Akron, Ohio
Merck and Co., Rahway, N. J.
Princeton University, Princeton, N. J.
Tide Water Oil Co., Bayonne, N. J.
Toronto University, Toronto, Ont.
United States Government:
Department of Agriculture
Bureau of Chemistry
Bureau of Standards
Navy Department
War Department, Langley Field, Hampton, Va.
U. S. Steel Corporation, Clairton, Pa.
Bellevue Hospital, New York, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Chicago University, Chicago, Ill.
Bakelite Corp., Bloomfield, N. J.
Barber Asphalt Co., Maurer, N. J.
Gulf Refining Co., Pittsburgh, Pa.
Sinclair Refinery, East Chicago, Ind.
RCA Victor Corp., Camden, N. J.



New U. S. Appraisers' Laboratory, New York, N. Y.
"Will outlast the building" is not a catch phrase. Here are the table tops and fume hoods which were used from 15 to 30 years in the old laboratory before being set up here



Alberene Stone Table Tops, Shelving, Sinks and Fume Hoods, Frick Chemical Laboratory, Princeton University



Alberene Baffle-type Fume Hood, with Duct Openings at Top, in New Aluminum Research Laboratories

W. L. EVANS

Manufacturer of Vanishing Door Equipment

Main, South and Mill Streets
WASHINGTON, IND.

CANADA: WINDSOR, ONTARIO

Products

VANISHING DOOR WARDROBES, and VANISHING DOOR HINGES for schools, hospitals, apartments, hotels, and residences.

Description

Wardrobes for schools furnished complete in the white knockdown in various designs as shown below under "Construction of Standard Wardrobes." Doors either panel or flush. Wardrobes furnished with wood backs and ends or for plastered backs and ends, and with or without divisions. Vent screens can be furnished or the ceiling may be plastered and vents supplied by others. Wardrobes may be set in a recess, flush with the wall, or may be made to set against the wall, in which case an exposed top is required. If desired, wardrobes can be furnished without jambs so that a continuous front is formed.

Blackboards, "Sterling Lifelong" or natural slate, can be furnished to be placed on the doors as panels, or made full width of doors to provide continuous blackboards.

Any length sections may be made by using the desired width of unit. Standard units are 2 ft., 2 ft. 6 in., 3 ft., 4 ft., 5 ft. and 6 ft. in width, the first three having a single door and the others a pair of doors. Minimum depth for use of garment hangers is 2 ft. 2 in.

Interiors of shelves and clothes hooks or of a 5-shelf bookcase can be furnished at the same price as the standard interior of racks and garment hangers. Umbrella racks, shoe receptacles and blackboards are extra.

The "floor" type hinges are shown on the Class A-A wardrobes illustrated below, and the "jamb" type on the Class B-B wardrobes.

CONSTRUCTION OF STANDARD WARDROBES

Class	Length of unit, ft.	Doors	Ends and backs	Divisions	Ceiling	Exposed top	Hinges
A-A	4	paneled	plastered	none	plastered	no	floor
B-B	4	flush	plastered	none	plastered	no	jamb
C	4	flush	flush	flush	vent screen	no	floor
D	4	flush	plastered	none	vent screen	no	floor
H	4	paneled	paneled	paneled	vent screen	no	floor
I	4	paneled	paneled	paneled	vent screen	yes	floor
J	4	paneled	plastered	none	vent screen	no	floor
L	5	paneled	plastered	none	plastered	no	floor
M	6 and 3	paneled	plastered	none	plastered	no	floor
N	3	paneled	plastered	none	plastered	no	floor
O	5 and 2	paneled	plastered	none	plastered	no	floor
R	6	paneled	plastered	none	plastered	no	floor
S	8	paneled	plastered	none	plastered	no	floor
W	4	paneled	plastered	none	vent screen	yes	jamb
X	4	paneled	plastered	none	plastered	no	jamb

While the above is for the standard styles, the wardrobes can be made up in any desired combinations or arrangements.

Specifications

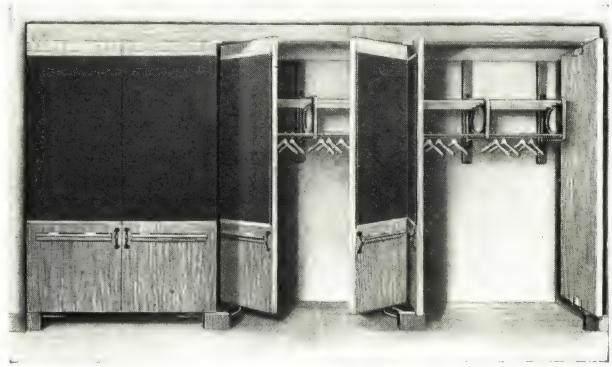
All wardrobes shown or indicated on the plans shall be the Evans Vanishing Door Wardrobes, Class ...., made to set [in a recess flush with the wall] [against the wall and provided with an exposed top]; in (length of wardrobes) length of (kind of wood) with [paneled] [flush] doors; [panel] [plastered] ends and backs; [vent screened] [plastered] ceiling; [with] [without] divisions; using [floor] [jamb] hinges; and with interior of [racks and garment hangers] [shelves and hooks], as made in the white knockdown by W. L. EVANS, Washington, Indiana; to be installed in the white and finished by the contractor.

Catalogue

All wardrobes are described, with illustrations and details, in our catalogue which will be sent promptly on request.



Evans "Vanishing Door" Wardrobe Class A-A, with "Floor" Type Hinges



Evans "Vanishing Door" Wardrobe Class B-B, with "Jamb" Type Hinges

RICHARDS-WILCOX MANUFACTURING CO.

INCORPORATED

Manufacturers of School Wardrobes

AURORA, ILL.

BRANCHES IN ALL PRINCIPAL CITIES

For R-W Other Products, see Manufacturers' Index

R-W School Wardrobes

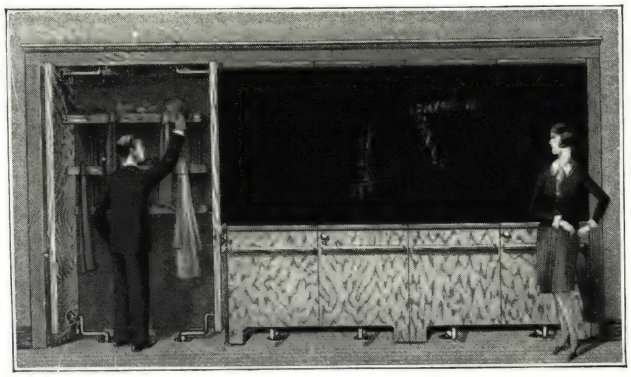
The three types of school wardrobes shown in these pages fulfill all the necessary wardrobe requirements likely to be met in school construction. They consist of multiple operation, disappearing door and unit standard types. Slate blackboard panels instead of wood panels may be built into any of the doors. If desired these wardrobes may be connected with the regular ventilating system employed in the school building.

Distinctive Advantages

Ventilation and Sanitation in the room are improved by connecting the wardrobe to the ventilating system of the entire building. The wardrobe doors stand 4 in. off the floor allowing air currents to enter through this space, pass over the damp clothing, and then out of the wardrobe through vent grilles located in the top, carrying off germs and disagreeable odors.

No. 777 "PAIR-WAY" DISAPPEARING DOOR WARDROBES

A wardrobe consists of one or more two-door pupils' units with bookcases, supply cabinets, or teachers' lockers as required. The two-door units may be 4 or 5 ft. wide and will accommodate 17 or 24 pupils, respectively. Each unit is closed by two doors which operate on extra heavy pivot arms and guide tracks. The doors pivot in opposite directions and recede into the wardrobe. No divisions are required as the doors when open form a division. If the wardrobe is to be set into a plastered recess, the depth is 2 ft. This principle of operation enables a pupil to gain access to one unit of the wardrobe without disturbing others who may be writing on the blackboards.



R-W "Disappearing Door" Wardrobe Type 777-FBR4

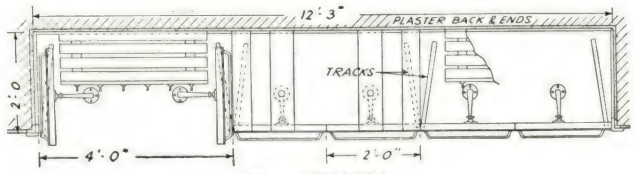
Architectural Specification

Furnish and install wardrobes, Richards - Wilcox No. 777 type .....* The doors shall be supported and operated by extra heavy malleable iron top and bottom pivot arms, each arm to have both vertical and lateral adjusting means. The lower back corner of each door shall be guided by a pair of horizontally disposed rollers operating on a round steel guide. The ends of the guide shall be supported in vertically adjustable brackets attached to the floor.

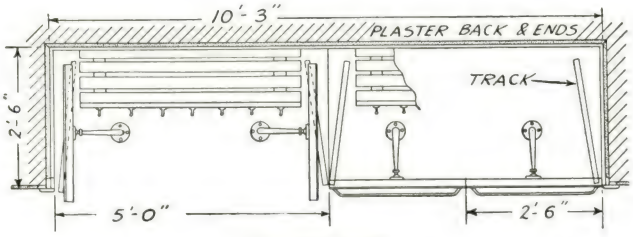
The upper back corner of each door shall be guided by a horizontal roller operating in a channel track. (When blackboards are used, add the following sentence. "Each pair of doors shall be latched together and to the head jamb by a two point latch. The latch shall be so constructed that either door of the pair shall be closed first and the center latch point shall be free to retract without retracting the top latch point. The latches shall have a lever on the inside face of the door for operation and a knob on the outside face of the door").

The doors (shall or shall not) be provided with (Blackboards or Corkboards) 3 ft. 6 in. high on the upper outside face. When blackboards are furnished, a chalk trough shall be furnished for the outside face of the door. The doors shall be (five-ply flush or two paneled) and shall be veneered in..... Hat and coat racks (double shelf with hooks or box type) (shall or shall not) be a part of the wardrobe contract.

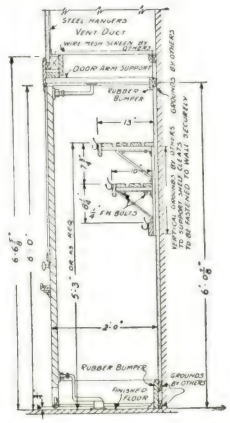
*Add letters and figures selected from column 2 of table on second following page.



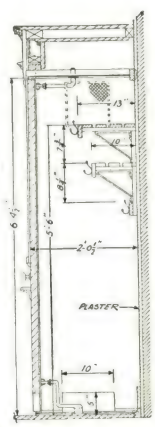
Type 777-FBR4



Type 777-PBR5



This section applies to Recessed Types.



This section applies to Wardrobes not Recessed.

Details of Several Types of No. 777 "PaiR-Way" Wardrobes

Unobstructed Aisles are assured because in all types of R-W Disappearing Door Wardrobes the doors *recede* into the wardrobe and *do not block the aisles*. Unnecessary confusion and delays are consequently eliminated.

Space Saving

The amount of space saved by using Richards-Wilcox Wardrobes instead of the old fashioned cloak room is worthy of consideration. In a large school this saving will mean as much as two or three additional rooms on each floor.

Petty Pilfering is prevented because the wardrobe is installed in the classroom and is under the direct supervision of the teacher.

Perfect Alignment—All R-W Wardrobes are equipped with hardware which is adjustable in every direction so that the doors can readily be adjusted into a perfect alignment across the entire front of the wardrobe.

Smooth Operation and Long Life—All Richards-Wilcox hardware is especially strong and durable and is made heavier than necessary in order to withstand the hard usage which is given this kind of hardware by the pupils. This insures long life and smooth operation of all doors.

General Information

Hardware is of the well known Richards-Wilcox quality and all interior operating equipment is finished in dead black or black baked enamel. Exposed hardware such as bow handles, latches, and locks is furnished in Bower Barff, Brass, or Bronze to match other hardware in the room.

Doors are either flush or two-panel construction.

Blackboards, Chalk Rails, Blackboards and Corkboards are furnished when specified.

Bookcases and Supply Cabinets may be built into any type of wardrobe. Adjustable shelves and book compartments are furnished when specified.

Teachers' Wardrobe can be furnished at either end of the Pupils' Wardrobe and is separated from it by means of a panel division. The width of this unit is usually 2 ft. and equipment consists of hat shelf, rubber shelf, hat and coat hooks and locks.

Hat and Coat Racks with either hooks or hangers can be furnished and installed by R-W when specified.

NO. 778 AND NO. 779 "MULTIPLE OPERATION" DISAPPEARING DOOR WARDROBES

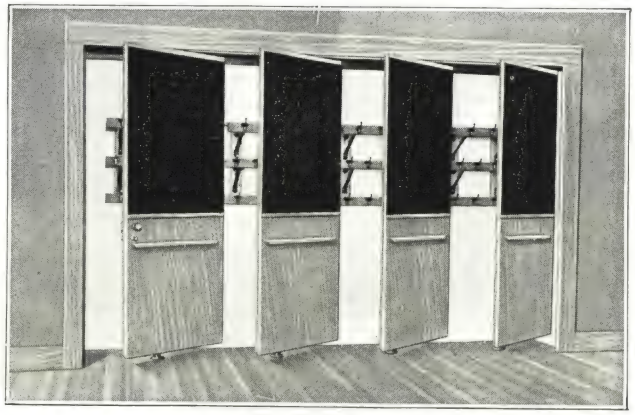
All the doors in the Pupils' wardrobe open or close simultaneously when the master door at the left hand end of the wardrobe is operated and all doors are always in the same relative position to each other. The doors recede into the wardrobe. If it is desirable to have the doors recede entirely into the wardrobe separate hat and coat racks accommodating 10 pupils will be furnished for each door. If continuous hat and coat racks are desired, the doors will be arranged so as to recede only as far as the projection of the hat and coat racks from the wall. In this case, there will be a slight projection of the doors into the room and the wardrobes shall be No. 779.

Arichitectural Specification

Furnish and install wardrobes, Richards-Wilcox No. 778 and 779 type ...* The doors shall be supported and operated by extra heavy malleable iron top and bottom pivot arms, each arm to have both vertical and lateral adjusting means, and each arm to be provided with two points of attachment to the door not less than 9 inches apart. The top and bottom pivots shall be provided with large diameter double ball bearings.

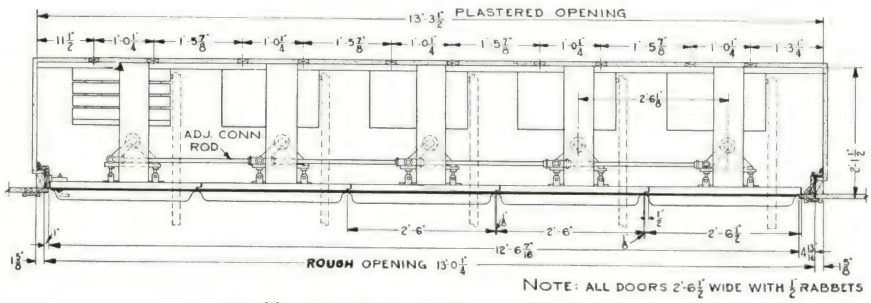
The top pivots shall be connected by a ⅝-inch hexagon bar. The connecting bar shall be attached to the top pivots by ball and socket connections and the ends of the bar shall be threaded right and left hand for adjustment. All of the doors shall open and close simultaneously. The left hand door shall be provided with a latch having a solid brass lever handle on the outside and a turn on the inside face of the door to permit of opening from the inside. The doors (shall or shall not) be provided with (Blackboards or Corkboards) 3 feet 6 inches high on the upper outside face. When blackboards are furnished, a chalk trough shall also be furnished for the outside face of the door. The doors shall be (five-ply flush or two paneled) and shall be veneered in ..... Hat and coat racks (double shelf with hooks or box type) (shall or shall not) be a part of the wardrobe contract.

*Add letters and figures selected from column 2 of table on following page.



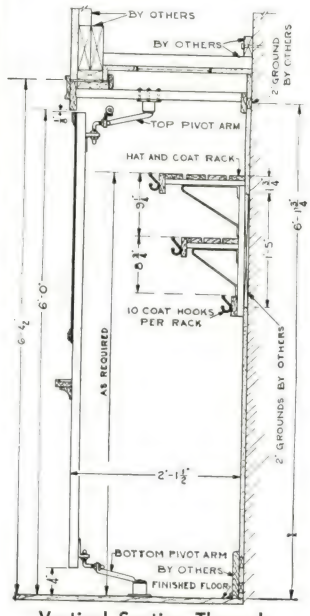
R-W No. 778-FBR

All the doors open in unison when the left-hand door is operated, and are always in the same relative position to each other. Here the doors are partly open.



Horizontal Section Through Wardrobe

Showing size of plastered recess and location of grounds for five-door wardrobe. Add or deduct 2 ft. 6⅛ in. for each door added or omitted from wardrobe.



Vertical Section Through Wardrobe

Showing size of plastered recess and location of grounds.

Exterior Casings for both the No. 778 and No. 877 types are furnished by others when the wardrobes are set in a recess. The exterior casings required for the No. 777 type are included as a part of the wardrobe front and are furnished by R-W. This applies also to 778 or 877 types when they are built out into the room.

Jambs for both the side and head are furnished by R-W.

Baseboards are furnished by others.

Finished Woodwork can be of any kind of wood desired, except in the case of the No. 877 Unit Standard Type which is furnished only in Yellow Pine or Plain Red Oak. The interiors are usually made of Poplar or Yellow Pine.

Filling, Painting and Staining, etc., are not included as a part of the wardrobe contract and it is understood that all wardrobes shall be installed in the white.

Umbrella Racks and Pans can be furnished and installed by R-W when specified.

Guarantee. R-W School Wardrobes, furnished and installed complete by Richards-Wilcox Manufacturing Company, are guaranteed against defective material and inferior wormanship for a period of five years.

To Specify R-W Disappearing Door Wardrobes by number use the following table of catalogue numbers:

Cat. No.		Type of doors	Blackboards	Corkboards
No. 777 No. 778 or No. 877	FR4	Flush	Without	Without
	FBR4	Flush	With	Without
	FCR4	Flush	Without	With
	PR4	2-Panel	Without	Without
	PBR4	2-Panel	With	Without
	PCR4	2-Panel	Without	With

Explanation of Code: F=flush doors; P=2-panel; R=wardrobe recessed into wall; B=with blackboards; C=with corkboards. In the case of No. 777 or No. 877 equipment, the numeral "4" indicates that each two-door unit will be 4 ft. wide. If 5-ft. units are required, specify "5" instead of "4." In the case of No. 778 type, omit the numeral as all units are the same width, 2 ft. 6 in. Since the letter "R" indicates that the wardrobe is to be set into a plastered recess, the omission of the letter "R" signifies the wardrobe is to be built out into the room.

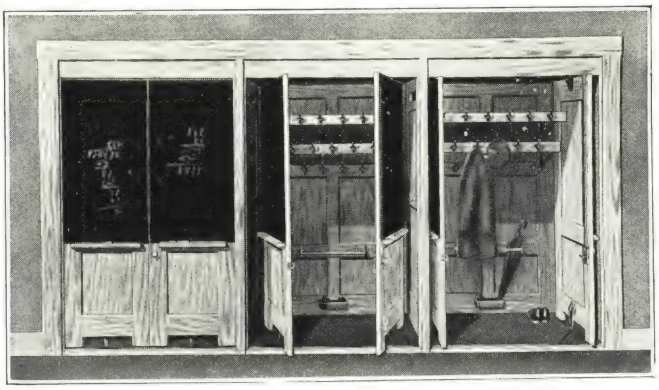
No. 877 "UNIT STANDARD" DISAPPEARING DOOR WARDROBES

Description

The special feature of this wardrobe is the simplicity with which it can be installed. The wardrobes are made up of standard units, as described in the specifications. Each wardrobe is completely assembled at the mill before shipment, and is then knocked down in a convenient form so that any contractor can make the installation without any difficulty whatever. The wardrobe is not attached to the building in any way. After setting the wardrobe in place in the recess allowed for it, it is only necessary to install the trim to cover the space between the wardrobe and the recess. It will be noted also that some saving can be affected in the building, as it is not necessary to even plaster the recess because the wardrobes are furnished complete with ends, backs and tops, making a finished recess unnecessary.

As may be gathered from the specifications, it is not essential to install the wardrobes in a recess.

The principle of operation is the same as the No. 777 wardrobe and each pupils' wardrobe is equipped with two hat shelves, three coat hanging strips, seventeen extra heavy two-prong cast iron coat hooks, one umbrella rack, and one drip pan for the umbrellas. The doors are 1¼ ins. thick of two-panel or flush design. The rough floor is made of $1\frac{3}{16}$-in thick tongued and grooved white pine covered with $\frac{3}{16}$-in. thick Stedman Rubber. The front edge of the linoleum or rubber is protected by a solid brass edging.



Unit Standard Wardrobe No. 877-PBR4

Architectural Specification

Furnish and install wardrobes, Richards-Wilcox No. 877 Type ..... *The wardrobes shall be of the Unit Standard Type, entirely independent from the building structure. The Pupils' Wardrobes shall be built up of independent units 4 ft. wide, 2 ft. 2 ins. deep and 6 ft. 6 ins. high over all, with floors, wood backs, divisions, two doors, and box section tops, each part of which shall be built and assembled in the mill ready to be set together in the field.

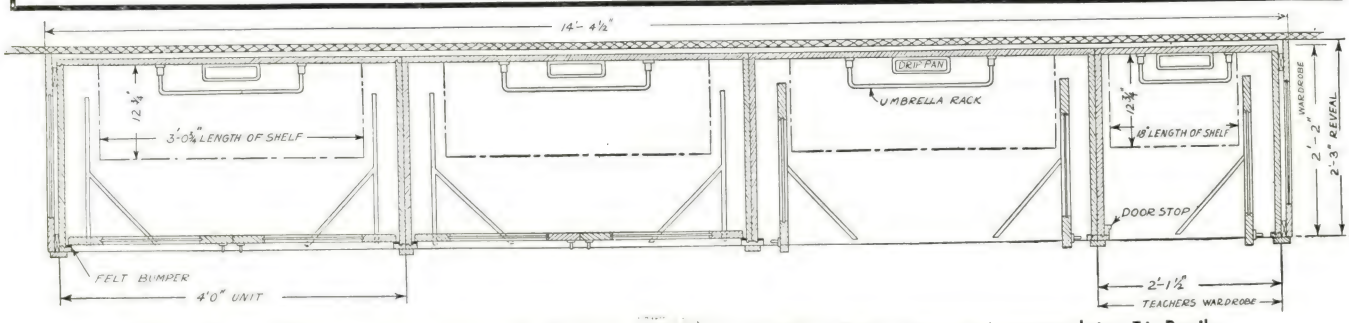
The doors shall be (2-panel, flush type) not less than 1¼-ins. thick, carried by a single track at the top and guided from the closed position to the open position at right angles to the closed position, by a pair of guides at the bottom of the door and a single guide at the top of the door.

The wardrobes shall be furnished complete with umbrella racks, drip pans, hat racks, coat hooks, rubber floors and brass nosing for the flooring. Each door (shall, or shall not) have (Blackboards, Corkboards) on the upper part of the door.

The interior woodwork shall be of Yellow Pine and Fir. The doors and exterior trim shall be of (Yellow Pine, Plain Red Oak).

The Teachers' Wardrobe shall be constructed similar to the Pupils' Wardrobe, except that it shall not be more than 2 ft. 1½ ins. wide and will have but one door.

*Add letters and figures selected from column 2 of table above.



Floor Plans of Three-wardrobe Unit with Teachers' Wardrobe, Installed Out in Room—Accommodates 51 Pupils

ESTABLISHED 1912

MILLER SCHOOL WARDROBES

MANUFACTURED BY

K-M SUPPLY CO., INC.

123 West 8th Street
KANSAS CITY, MO.

REPRESENTATIVES IN PRINCIPAL CITIES

Description

The Miller School Wardrobe is a series of either wood or steel doors, operated simultaneously from the left end. Any door can be opened separately if desired. Doors can be furnished with slate blackboard or cork bulletin board if desired. Each series of doors can be controlled with one lock.

Door Width—Our standard doors are 30 in. wide, but narrower doors can be furnished if required.

Depth of Recess—Recess depth may vary. Center of pivot can be changed to meet various depths of recesses. However, a 30-in. deep recess is recommended for full capacity and proper ventilation, also direct center of gravity pivoting of doors.

Height of Opening—Standard height of opening from finished floor line to underside of rough buck 6 ft. 2 ins.

Width of Opening—Width of opening varies with number of doors.

Dimensions between rough bucks for from 3 to 7 door units, inclusive, are given under plan of doors on the following page and is based on 30-in. standard door widths.

Guarantee and Service

The K-M Supply Co., Inc., guarantees successful operation of Miller Wardrobes and does not accept orders unless they are permitted to install the wardrobes. Materials, workmanship and operation are guaranteed indefinitely. A Servicing Department is maintained which services Miller Wardrobes free of charge for an indefinite period.

Specifications—Miller School Wardrobes

Wardrobes shall be the Standard Type Miller Wardrobes as furnished by the K-M Supply Co., Inc., Kansas City, Mo. Manufacturer to furnish and install completely the doors [with slate blackboard] [without slate blackboard] (or doors with cork bulletin board). Operating mechanism, door hardware—all solid bronze, except for legs, which are cast iron, bronze plated. Door knobs and plates satin finish, solid brass (or bower barff). Top jambs, side jambs—all woodwork to be furnished in the white. (Steel doors prime coat or special grained finish if desired.) All doors to open in one operation and either door to open individually.

Notes: Special finish knobs, plates and legs if desired. For casings, shelves, shelf brackets, hooks and hook strips provide elsewhere.



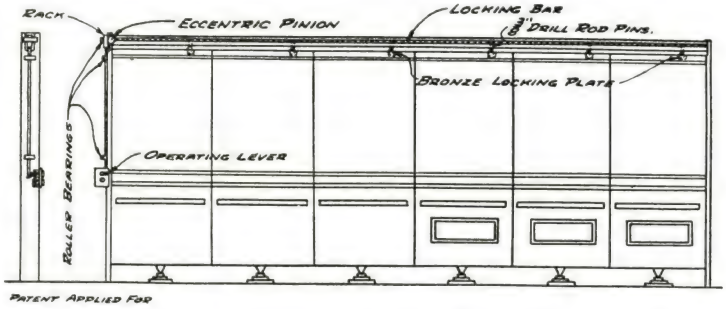
Typical Classroom, DeWitt Clinton High School, New York, N. Y.

DETAILS OF MILLER SCHOOL WARDROBES

Specifications of Doors

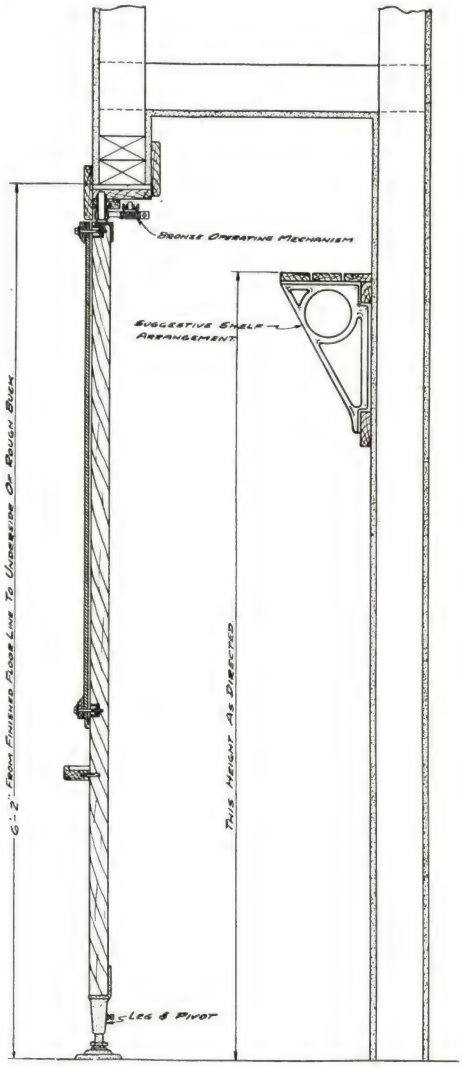
Wood—Standard doors are five-ply, built-up, veneered (any kind of wood) flush type or paneled type, also white pine stiles, laminated panels. Thickness of doors either 1⅜ or 1¾ ins.

Steel—Hollow metal, furnished with prime coat baked enamel (any color) or grained baked enamel finish as desired. Doors to be either 1⅜ or 1¾ ins.



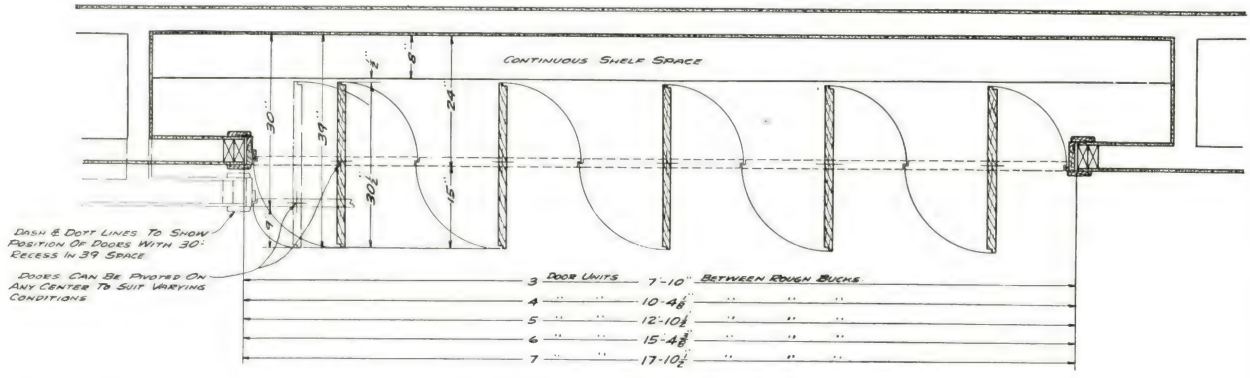
Operating and Locking Mechanism

Miller Wardrobes can now be furnished with a multiple locking device to be used in conjunction with the multiple operation of all doors and the individual operation of each door, except the first door; also on wardrobes with individual operation of all doors only, with one lock eliminating petty pilfering.



Vertical Section

Showing end view of shelf arrangement and the fact that doors are flush with balance of wall



Plan Showing Widths and Pivoting

Illustrating how Miller Wardrobe Doors can be pivoted on various centers to achieve required distance between rear wall and outer reach of opened door with varying depths of recess

PROSE-MACO, INC.

Manufacturers of School Equipment

1522-1524 Holmes Street

KANSAS CITY, MISSOURI

REPRESENTATIVES

ALABAMA: BIRMINGHAM—C. M. McCrum Co., 513 No. 21st St.
ARIZONA: PHOENIX—Burwell Leftwich, P. O. Box 1514
ARKANSAS: LITTLE ROCK—Wonder State Supply Co., 205 Moore & Turner Bldg.
CALIFORNIA: LOS ANGELES—Joseph C. Wilson, 346 I. W. Hellman Bldg.
SAN FRANCISCO—E. L. Fifield, 24 California St.
COLORADO: DENVER—George P. Heinz Co., 812 Twelfth St.
DISTRICT OF COLUMBIA: WASHINGTON—Wm. M. Cutler, 709 17th St., S. E.
FLORIDA: JACKSONVILLE—H. S. Albury, P. O. Box 1074
IDAHO: BOISE—J. G. Doerr, 501 So. 8th St.
INDIANA: INDIANAPOLIS—Chas. E. Wehr, 316 Hume-Mansur Bldg.
IOWA: DES MOINES—Northwestern National Supply Co., 700 Fifteenth St.
KANSAS: TOPEKA—Peabody School Furniture Co., 108 Kansas Ave.
CIRCLEVILLE—J. E. Conner
HOLTON—Roy Glover
IOLA—J. C. Le Valley
LOUISIANA: NEW ORLEANS—Tulane Hardwood Co., 4200 Tulane Ave.
MASSACHUSETTS: CAMBRIDGE—A. J. McClelland, Kendall Square Bldg.
MICHIGAN: DETROIT—H. C. McConnell, 4464 Cass Ave.
GRAND RAPIDS—F. K. Tinkham, 401 Murray Bldg.
MINNESOTA: MINNEAPOLIS—H. O. Johnson, 718 Builders Exchange Bldg.
MISSOURI: ST. LOUIS—Raiford Milligan, 3802 McRee St.
J. C. Jourdan, 1015 Hi-Point Place
E. A. Holscher Office Furniture Co., 1106 Pine St.
NEBRASKA: LINCOLN—University Publishing Co., 1126 Q Street
NEW YORK: BUFFALO—James M. Hawkins Co., Inc., 132 W. Chippewa St.
NEW YORK—George H. Kraft, 430 W. 118th St. and Prose-Maco, Inc., 105 W. 40th St.
ROCHESTER—Willard Cross, 319 Park Ave.
SYRACUSE—Robert J. Geary, 250 Lincoln Bank Bldg.
TROY—J. C. Olesen Seating Co., 460 Eighth Ave., No.
NORTH DAKOTA: GRAND FORKS—Colborn School Supply Co.
OHIO: CINCINNATI—Central Building Products Co., 622 Broadway
CLEVELAND—J. B. Peoples, 11514 Shadeland Ave.
OKLAHOMA: OKLAHOMA CITY—Bissell Builders Supply Co., Colcord Bldg.
OREGON: PORTLAND—Northern School Supply Co., 521 Kearney St.
PENNSYLVANIA: PHILADELPHIA—H. M. Curll, 1604 Pennsylvania Bldg.
PITTSBURGH—W. J. Shaw, 903 Law & Finance Bldg.
HAZELTON—J. M. Madden, 713 W. Sixth St.
SOUTH CAROLINA: COLUMBIA—Jones School Supply Co., South Carolina National Bank Bldg.
TENNESSEE: NASHVILLE—E. T. Kirkpatrick, 63 Arcade Bldg.
KNOXVILLE—Chas. M. Allen Co., 712 So. Gay St.
MEMPHIS—Akers & Co., 242 Madison Ave.
TEXAS: DALLAS—G. P. Cronan, 2403 So. Hardwood Ave.
HOUSTON—Alexander Schroeder Hardwood Lumber Co., 3202-8 McKinney Ave.
SAN ANTONIO—W. L. Clyborne, 727 No. Cherry St.
UTAH: SALT LAKE CITY—R. W. Frank & Co., 118-130 So. 5th West St.
WASHINGTON: SEATTLE—Northern School Supply Co., 115 Boren Ave., No.
SPOKANE—Northern School Supply Co., 1121 W. First St.
WISCONSIN: MILWAUKEE:—J. J. Eells, 4601 W. State St.

FOREIGN AGENTS

CANADA: QUEBEC—J. P. R. Breton, 235 Rue St. Joseph

PORTO RICO—F. J. Rodil Co., P. O. Box 902, San Juan

QUALITY SCHOOL EQUIPMENT

Prose-Maco Products

Prose-Maco—Multiple operation, cast bronze operating mechanism and arm brackets; hardware brass plated or Parkerized rustproof black.

Prose-Maco Junior—Same specifications as the Prose-Maco type, except operating mechanism and brackets are made of steel.

Semi-Multo—Single operation for each pair of doors, steel operating mechanism; hardware Parkerized rustproof black.

Cloakroom Wardrobe—A four-door unit with any width wall between each pair of doors, multiple operation, mechanism steel; hardware Parkerized rustproof black.

Combination Bookcase, Teacher's Wardrobe and Rest Room—(See details.)

Bookcase, Compartment Doors—(See details.) Also used as a teacher's closet.

Swinging Bookboard—Standard or Adjustable. 4 ft. wide, 3 ft. high; in 2, 4 or 6 leaves; genuine Bangor slate finished both sides of each leaf. Four leaves contain 96 sq. ft. of writing surface. Hinges and Corner Clips of polished cast bronze, Banding of Parkerized rustproof black steel.

Leaves remain rigid when pushed into any position. One leaf extended out from wall will sustain exceptional hanging weight without straining or giving a fraction of an inch. Lock optional equipment. Also furnished with cork.

Student Compartment Cabinets—Metal.

Removable Non-Removable Coat Hangers—Cast bronze and non-kinkable chains.

Umbrella Containers—Copper, painted black.

Erasex—An electric blackboard eraser, dustless, small and convenient to handle.

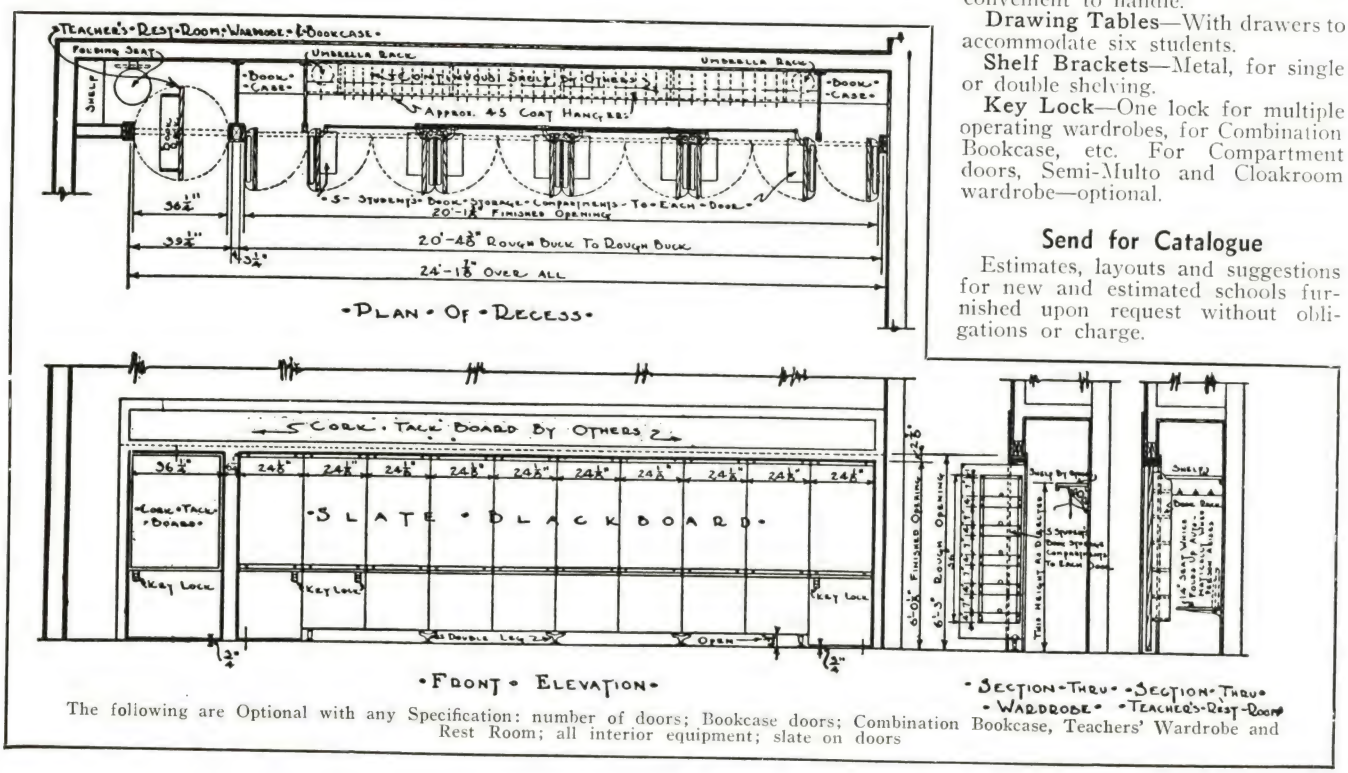
Drawing Tables—With drawers to accommodate six students.

Shelf Brackets—Metal, for single or double shelving.

Key Lock—One lock for multiple operating wardrobes, for Combination Bookcase, etc. For Compartment doors, Semi-Multo and Cloakroom wardrobe—optional.

Send for Catalogue

Estimates, layouts and suggestions for new and estimated schools furnished upon request without obligations or charge.



The following are Optional with any Specification: number of doors; Bookcase doors; Combination Bookcase, Teachers' Wardrobe and Rest Room; all interior equipment; slate on doors

Advantages of Wardrobes

Prose-Maco Wardrobes occupy a smaller amount of space than any wardrobe on the market—they require only a minimum of 13 in. with a shelf included (17 to 21 ins. recommended) saving space in cubical contents in a building.

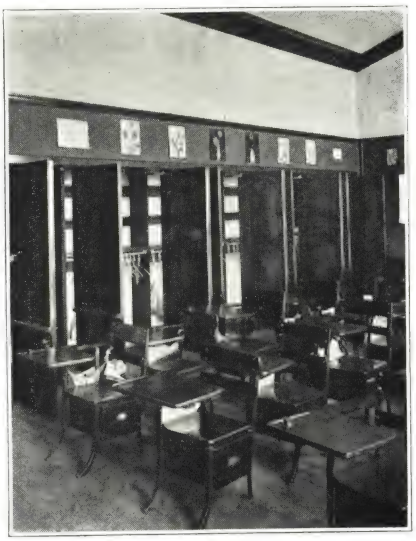
Doors work on the famous single control multiple operation—push-pull principle. Open the first door and all doors open at the same time. All types of wardrobes have 42-in. clear openings. When doors are open and slate is used on doors slate is face to face, protected. Each pair of doors mounted on one leg—double adjustment on each leg—and working mechanism for each pair of doors has double adjustment. There is perfect alignment—doors cannot be pushed a fraction of an inch. *Chalk rails* full width of doors at *standard heights* of 2 ft. 2 ins., 2 ft. 4 ins. and 2 ft. 6 ins. from finished floor.

Material of the best quality. Operating mechanism and arm brackets of solid cast bronze, legs of solid cast bronze or Parkerized rustproof black; finish hardware brass plated or Parkerized rustproof black metal.

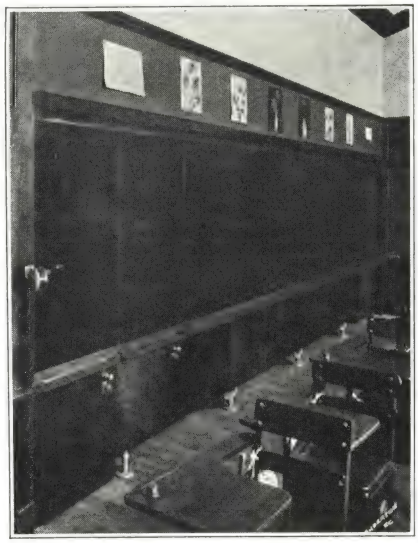
DIMENSIONS

2-door unit	4 ft. 3⅜	ins. rough opening
3-door unit	6 ft. 3½	ins. rough opening
4-door unit	8 ft. 3⅝	ins. rough opening
5-door unit	10 ft. 3¾	ins. rough opening
6-door unit	12 ft. 3⅞	ins. rough opening
7-door unit	14 ft. 4	ins. rough opening
8-door unit	16 ft. 4⅛	ins. rough opening
9-door unit	18 ft. 4¼	ins. rough opening
10-door unit	20 ft. 4⅜	ins. rough opening

The height of rough opening required from finished floor line to underside of rough head is 6 ft. 3 ins. for all types of Prose-Maco wardrobes.



Typical Wardrobe—Open



Typical Wardrobe—Closed

Wardrobe Specifications

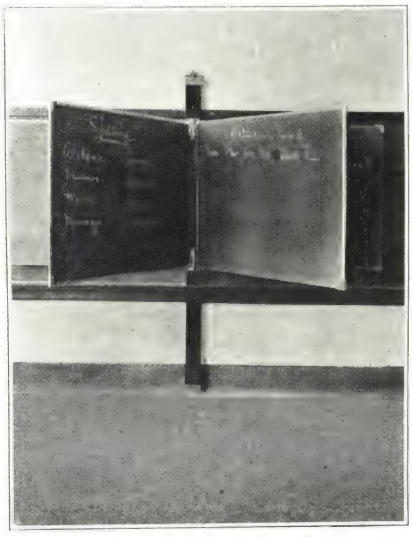
Furnish and install all wardrobes and their equipment in accordance with the plans and specifications, and as manufactured by Prose-Maco, Inc., 1524 Holmes Street, Kansas City, Missouri, or its equal in the opinion of the architect or the Board of Education (state type of wardrobe, number of doors per unit, kind of wood, flush or panel type door, with or without slate, number of coat hangers or hooks per wardrobe, kind of shelving, single or double, slat or solid; number of umbrella containers per wardrobe; whether locks for wardrobes; trim, inside or out and kind of wood, etc.) and the manufacturer shall install same and guarantee against defective material and workmanship and operation for one year.

Note: *All products used in conjunction with wardrobes, such as Combination Bookcase, etc., Compartment Doors, Students' Compartment Cabinets, Removable Non-Removable Coat Hangers, Hooks, Brackets, Shelving, Key Locks, Trim and Umbrella Containers are optional equipment.*

Installation and Guarantee

Prose-Maco, Inc. will guarantee all types of Prose-Maco Wardrobes against defective material, workmanship and operation for a period of one year.

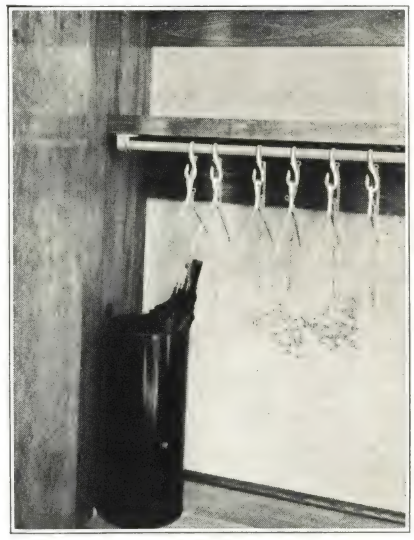
Prose-Maco will not accept any wardrobe order unless they are permitted to install same, in order to adhere to and stay within the realm of quality products.



Swinging Book Board



Combination Bookcase, Teachers' Wardrobe and Rest Room



Coat Hangers and Umbrella Container

THE STANLEY WORKS

Member of the Producers' Council

Manufacturers of Stanley Hardware for School Wardrobes

NEW BRITAIN, CONN.

NEW YORK, N. Y., 100 Lafayette Street
CHICAGO, ILL., 61-67 West Kinzie Street
PHILADELPHIA, PA., 617 Filbert Street
LOS ANGELES, CAL., 1202 Washington Building
SAN FRANCISCO, CAL., 576 Monadnock Building
SEATTLE, WASH., 619 Mutual Life Building
CLEVELAND, OHIO, 1404 Builder's Exchange Building

For "Roll-Up" Garage Doors, Electric Door Operators, Sash Pulleys and Other Stanley Hardware, see Manufacturers' Index

STANLEY HARDWARE FOR SCHOOL WARDROBES

Stanley Hardware for School Wardrobes is designed for use on school wardrobes having doors of any thickness, varying in size from 18 to 48 ins. in width and any height desired. Doors are hung in pairs, with a single door at both ends. No mullions or partitions are necessary.

Any number of sections can be had in a unit, although three 4-ft. sections are ordinarily sufficient for the average classroom, as each section provides for seventeen pupils. A single 2-ft. section at either end furnishes the teacher's locker.

Doors equipped with Stanley Hardware for School Wardrobes are proof against warping due to the four-point method of hanging. The track and rail together with the sturdy hinge arms furnish smooth operation without warping or binding. Both doors of a section operate in unison, it being necessary to pull only one door to open or close both doors. Hinge arms are set well back in the wardrobe to eliminate any tripping hazard.

Note: It is necessary to design truss of sufficient width for securing head jamb, and to meet load requirements.

Specifications

The hinges are made of extra heavy wrought steel and are designed to carry 300 lbs. The arm is 8¾ ins. long and ¼ in. in thickness. The hinge pins are grooved for lubricant, of which a liberal supply is applied in assembling.

The track and rail are made of heavy wrought steel, with bronze guides. The bronze-on-steel bearing surface minimizes wear and insures smooth, noiseless operation. There is, however, sufficient friction to prevent the door from slamming.

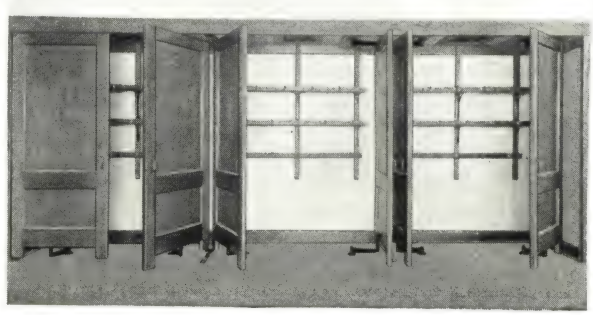
Stanley Hardware for School Wardrobes is designed to set the doors from 1¼ to 4 ins. above the floor. It is preferable to set doors up from the floor to provide ventilation in the wardrobe.

The doors take up very little space in the wardrobe when open, the maximum being 5 ins. for two 1⅜-in. doors. Two-ft. doors project only 1½ ins. beyond front end of wardrobe when open, which does not hamper passage of pupils.

Stanley Hardware for School Wardrobes is furnished in a durable dead black finish, over a rust-resisting base.

A.I.A. folder furnished on request.





Typical Six-door Installation

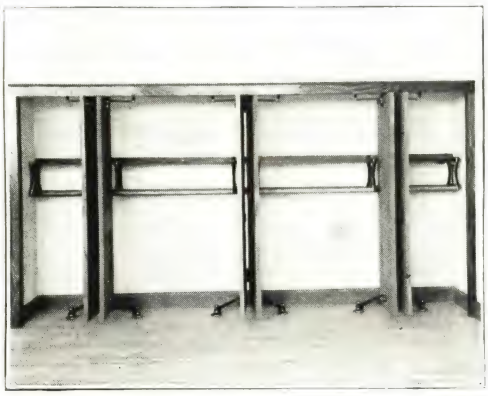
THOMAS MANUFACTURING COMPANY, INC.

School Wardrobe Hardware, Door Hardware

NEWCASTLE, IND.

REPRESENTATIVES

BOSTON, C. E. Harris Co., 120 Pearl Street
CHICAGO, Write factory office, Newcastle, Ind.
CLEVELAND, Gesing Brothers, 1037 Terminal Tower
NEW ORLEANS, H. G. Zimmer, 1811 Robert Street
NEW YORK, E. A. Neylon, 200 Varick Street
OMAHA, S. M. Hawkins, Box 300
PHILADELPHIA, R. C. Kratz, 830 Perry Building
SAN FRANCISCO, J. S. Payne, 149 New Montgomery Street
SEATTLE, Orville Ewing, 402 Mutual Life Building
ST. LOUIS, Z. G. Shaw, Maryland Hotel
ST. PAUL, J. R. Early, 1742 Dayton Avenue

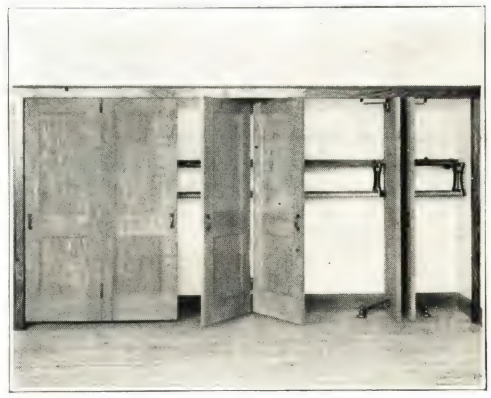


Products

THOMAS SWING-IN HARDWARE for School Wardrobes.

THOMAS WARDROBES.

For Thomas Overhead Type Door Hardware, see Manufacturers' Index.



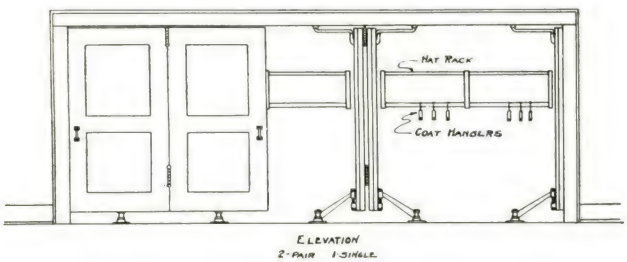
Thomas Swing-in Hardware

Thomas Swing-in Hardware for School Wardrobes is adaptable to any depth, height, or width of opening and any size door can be handled with the same hardware. Doors operate in pairs or singly, on heavily constructed drop forged steel arms, with full ball-bearing mountings and with a minimum of friction and noise. Pair operation eliminates partitions and mullions.

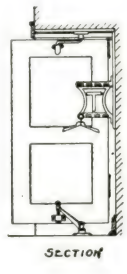
Thomas Swing-in Hardware permits building wardrobes to meet any condition of ventilation, whether through top, rear, sides, or through grille in doors, if required.

Hardware Separately

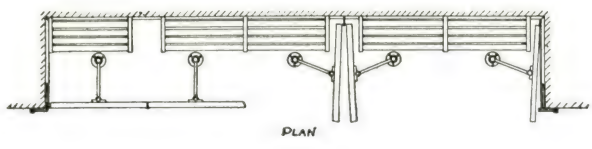
Thomas Swing-in Hardware for School Wardrobes is furnished separately to be installed by the contractor. Doors and millwork supplied by the millwork contractor.



ELEVATION
2-PAIR 1-SINGLE.



SECTION



PLAN

Hardware and Woodwork Knocked Down

Thomas Wardrobes may be furnished with hardware and woodwork knocked down, in the white or finished, to be installed by the contractor. Thomas Wardrobes are manufactured for recessed openings with plaster or wood backs, ends and ceilings, or for case type wardrobes which project into the room.

Complete Wardrobe Installation

Thomas Wardrobes are also furnished complete, and installed by the manufacturer. This type installation includes multiple operation, one door operating a series and with multiple locking device. Write the factory for information on installation of this kind.

Catalogues and Prices

Write for A.I.A. file size folder showing full description of Thomas Swing-in Hardware and showing its application.

A.I.A. file catalogue showing Thomas Aurora Line of door hangers, fire door equipment, and garage hardware will be sent on request.

Prices will be quoted by any representative or from the factory.

BECKLEY-CARDY COMPANY

Manufacturers of Blackboards, Bulletin Boards and School Equipment

17 East Twenty-third Street
CHICAGO, ILL.

Products

SLATEBESTOS BLACKBOARD; SLATEROCK BLACKBOARD; SLATOPLATE BLACKBOARD; SIMPLEX "H" BAR METAL JOINING STRIPS for BLACKBOARDS; SIMPLEX and DUPLEX BULLETIN BOARDS and TACKBOARDS.

Shipments made at once from our Chicago Stock or through our manufacturers' representatives in various cities.

Slatebestos—"The Permanent Blackboard"

SLATEBESTOS
The Permanent Blackboard

Quality—A new standard of excellence for blackboards. Hard as rock, and its dark slate color permeates the entire board.

Permanence and Durability—Base is a combination of asbestos fiber, hard minerals and cement which actually improves with use. Slatebestos will last as long as the building; is equally as durable as natural slate, more fire resistant and less subject to breakage.

Color and Writing Surface—Slatebestos is solidly built throughout its full $\frac{3}{16}$-in. thickness. Its writing surface is produced through a series of liquid blackboard surfacing coats, which penetrate the body of the board.

Easy to Install—Installed on any kind of straight wall and it is very easy to put up. Joints can be made secure so that writing over them is always possible.

Sizes and Weights—Standard widths 3½ and 4 ft.; lengths, 5, 6, 7 and 8 ft.; thickness $\frac{3}{16}$ in. Weight approximately 2¼ lbs. per sq. ft.

Guarantee—We guarantee Slatebestos when properly installed and cared for according to our printed instructions to render satisfactory service. Slatebestos is free from any defects in manufacture, including warping, buckling, shrinking or expanding. Writing surface will give satisfaction for ten years or more without upkeep cost. It will retain its velvetlike writing surface and at no time will it crack, pit, peel, fade or chip off or wear shiny or glossy. Should Slatebestos fail to give the service indicated it will be replaced, resurfaced or otherwise adjusted to the complete satisfaction of the purchaser at our expense. This guarantee is intended to insure the purchaser a satisfactory blackboard, but naturally it does not cover misuse or neglect and is conditional upon correct installation.

Slaterock Blackboard—"Natural Slate's Rival"

Slaterock Blackboard
Natural Slate's Rival

Description—Consists of a core of pure gypsum rock compressed between two sheets of tough mineralized fiber board. It has a hard, velvety writing surface of uniform color. The surface is long wearing, does not reflect light and contains a sufficient amount of grit to insure easy, rapid and legible writing. Costs one-half as much as natural slate and weighs approximately one-third less. Furnished in black or green.

Easy to Install—It is true and straight, cannot warp, crack or buckle and is not affected by atmospheric changes; can be easily installed on any smooth wall.

Durability—There is no breakage with Slaterock and it will last as long as the building.

Sizes and Weights—Standard widths, 3, 3½ and 4 ft.; lengths, 5, 6, 7 and 8 ft.; thickness, ⅝ in. Weight, approximately 2½ lbs. per sq. ft.

Slatoplate—"The Perfect Blackboard"

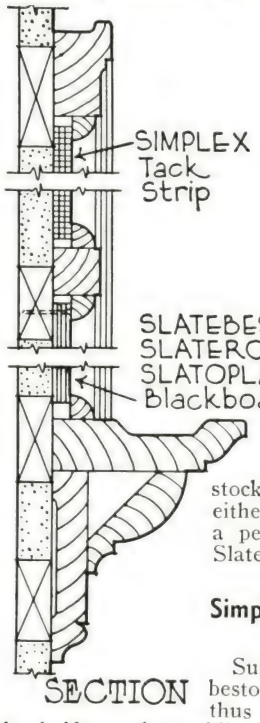
Slatoplate
The Perfect Blackboard

Description—Slatoplate is a wood pulp composition blackboard. Made of new, pure wood fibers, hardened and toughened by special processes, kiln dried, waterproofed and surface filled.

Writing surface is hard, close grained, uniform in color and makes clear, legible mark. Colors, black or green.

Slatoplate will not warp, pit, peel, crack, wear shiny, change color or lose its splendid writing surface. Cannot be easily indented and corners will not split. Writing can be easily erased and board can be installed on any smooth wall.

Sizes and Weights—Standard widths, 3, 3½ and 4 ft.; lengths, 5, 6, 7, 8, 9, 10 and 12 ft.; thickness, ¼ in. Weight, approximately 1 lb. per sq. ft.



Slaterock and Slatoplate Guarantee

We guarantee every sheet of Slaterock and Slatoplate blackboards to be equal in quality to any samples (since samples are cut from odds and ends of regular stock). Properly installed and cared for, either board will give entire satisfaction for a period of many years. In most cases, Slaterock will last the life of the building.

Simplex "H" Bar Metal Joining Strips for Blackboards

Suitable for covering the joints of Slatebestos, Slaterock and Slatoplate blackboards, thus eliminating the unsightly bump caused by half-round mouldings.

Bulletin Boards and Tack Strips

These are as essential as blackboards in the modern school and are easily installed. Bulletin boards and tack strips can be placed above the blackboard in strips and in panels at the ends; also in panels in doors and partitions.

Simplex Bulletin Boards and Tack Strips



Description—Simplex Bulletin Boards are made uniformly ¼ in. thick of pressed cork of unvarying color and resiliency, cemented to burlap backing.

Simplex Bulletin Boards will not warp, curl or buckle and when soiled can easily be cleaned with soap and water. They are easy to install by cementing to the wall or nailing along all edges before putting the tack moulding in position.

Sizes and Colors—Regularly made and carried in stock in 6, 9, 12, 14, 18, 24, 30, 36 and 48-in. widths and lengths cut to fit spaces up to 60 ft. without joint. Furnished in light brown or green color.

Duplex Bulletin Boards and Tack Strips

Description—Made in ½-in. thickness, consisting of ¼-in. sheet cork cemented to special ¼-in. wood fiber composition (or furnished with three-ply wood) backing.

Sizes and Colors—Regularly made and carried in stock in 12, 18, 24, 30, 36 and 48-in. widths and in 48, 60, 72, 84 and 96-in. lengths. Boards larger than 48x96 in. furnished in sections. Furnished in light brown or green color. Samples on request.

MASTER SPECIFICATIONS FOR BLACKBOARDS

(A1) Include Under Carpentry Work

(A1a) All blackboards, except as hereinafter otherwise mentioned, will be furnished and set by others.

(A1b) The following blackboards will be furnished cut to size and crated separately by the Blackboard Contractor to be set by this contractor who shall be entirely responsible for their good condition after delivery.

Note: Here list blackboards which are to be set by the Carpentry Contractor, such as those in wardrobe or other door panels, etc.

The list and sizes (allowing ¼-in. clearance) shall be furnished by the Carpentry Contractor to the Blackboard Contractor.

(A1c) Provide accurately set grounds, in accordance with the detailed drawings, surrounding all blackboards and cork tack boards and bulletin boards. These grounds shall not only form proper nailing base for the blackboard trim, but shall provide space at top for fastening blackboards and form accurate screeds for plaster surfaces back of blackboards.

(A1d) Plug the wall back of blackboard joints with three wooden plugs set 12 in. apart below the wood grounds.

(A2) Insert Under Lathing and Plastering

(A2a) This contractor shall check all grounds for blackboards as specified under division of "Carpentry Work." Thickness of grounds shall be such that plastering back of blackboards is flush with surfaces of grounds.

(A2b) Plaster, flush with grounds, all surfaces back of blackboards. Plaster surfaces shall be in a true plane without projections beyond the face of ground work.

(A2c) Wherever blackboards are applied against unplastered masonry walls, a backing of insulation board shall be provided.

(B) BLACKBOARD SPECIFICATIONS

(B1) Materials



SIMPLEX "H" BAR METAL JOINING STRIP
(Full size)
Thickness varies with type of board

(B1a) Blackboards — Blackboards shall be [*Slatebestos*], [*Slaterock*], [*Slatoplate*] as manufactured by BECKLEY-CARDY COMPANY, 17 East Twenty-third Street, Chicago, Ill.

All blackboards shall have perfectly true and uniform surfaces, free from defects and from depressions or projecting particles. Joint edges shall be sharp and make 90-degree angles with top or hanging edge.

(B1b) Cement—Cement for spot cementing shall be Beckley-Cardy's "B-C" No. 4 Blackboard Cement.

Note: Omit if Slatoplate or Slaterock is specified.

(B1c) Metal Blackboard Joints—Blackboard joints shall be made with Simplex "H" Metal Joining Strips as manufactured by BECKLEY-CARDY COMPANY.

(B1d) Tack Board—All tack strips and bulletin boards shall be BECKLEY-CARDY COMPANY'S [Simplex Bulletin Boards and Tack Strips] [Duplex Bulletin Boards and Tack Strips].

(B2) Sizing

On outside walls, not furred and not dampproofed back of plaster, thoroughly size the plaster surface back of blackboards with glue sizing.

Note: Include wherever dampness is apparent or possible sizing is advisable, otherwise the special spotting cement may be affected.

(B3) Setting

(B3a) The setting, leveling and cutting of blackboard installations shall be in accordance with the manufacturer's recommendations and standard specifications furnished with each shipment.

(B3b) Blackboards shall not be set until the plaster *is completely dry* and the final coat of finish has been applied and has dried on the wood blackboard trim (except loose tack mould.)

(B3c) All blackboards shall be set by experienced mechanics. All edges shall be adequately covered by the loose tack mould. The writing surfaces shall be plumb and in a true plane with ⅛-in. clearance at top and ⅜-in. clearance at bottom and ends.

(B3d) All blackboards shall be hung from top edge only. Slatoplate and Slaterock shall be securely nailed to top ground with 4d wire nails, placed ⅜ in. from edge and not over 18 in. on center. Boards showing splits at nailing points below the finishing tack mould will be rejected and must be replaced at this contractor's expense.

(B3e) Slatebestos shall be screwed at top edge only through drilled holes in boards, ¼ in. from top, using ¾ in. No. 5 flat head screws. The balance of Slatebestos Blackboard Surface shall be secured to wall in the following manner: Cement back of blackboard in two rows of round spots about 3 in. in diameter and at a distance of 15 in. from top and bottom edges. Cement must not get into joints or on the surface.

(B3f) The boards shall be firmly pressed in position over the cement and leveled plumb and true. Sufficient pressure shall be applied to assure thorough adhesion without springiness for the entire surface. After boards have been cemented into position, all tack moulding shall be immediately set in place and securely bradded.

(B3g) [*Slaterock*] [*Slatoplate*] shall be nailed at top edge only, nails to be not over 18 in. apart and spaced according to location of studding or grounds. Then secure [*Slaterock*] [*Slatoplate*] in position with tack moulding on all sides.

(B3h) All tack mould shall be carefully and accurately bradded in position by this contractor with firm, continuous contact at all edges and with brads neatly set for puttying.

(B4) Joints

(B4a) Metal Joint Moulding—All joints shall be made with Simplex "H" Bar Metal Joining Strips.

After plugs are in place and the blackboards ready to set up, attach the joining strip to one end of the blackboard and then nail through the wing of the strip into the plugs. Place the next section of board into the groove of the strip and level and plumb the board. Continue the operation until all joining strips are in place. Allow ⅛-in. space at each joint when installing joining strips. Joining strips with surface imperfections or which are warped out of line shall not be used.

(B5) Tack and Bulletin Boards

Set all cork tack and bulletin boards in accordance with directions. Where joints are required, same to be spaced symmetrically to correspond with blackboard joints and shall be covered with a thin strip of wood to match trim. Apply tack mouldings surrounding tack and bulletin boards as specified above for blackboards.

(B6) Final Cleaning

After the painter has applied the final coat of finish to the tack mould, this contractor shall do the final cleaning of all blackboard surfaces, charging the reasonable cost thereof to those responsible for any damage. All varnish spots or streaks shall be removed with steel wool; apply Beckley-Cardy Special Blackboard Surfacer, rubbed down with fine pumice and water, blending the spots with the rest of the board surface.

(B7) Direction Plate

Fasten permanently in each room, the metal plate; furnished by the blackboard manufacturer, bearing directions for breaking in and taking care of blackboard surface. Location on moulding of blackboard as directed by architect.

AMERICAN SEATING COMPANY

GRAND RAPIDS, MICH.

Sales Offices, Accredited Distributers and Service Men Throughout the United States

SEATING AND FURNITURE



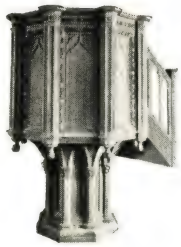
School Seating

Our intent is to produce the best school seating possible in the various types for which the need is sufficient to enable economical production, keeping uppermost in mind, comfort, hygiene, durability and design. Our line includes twenty-eight types of desks and seats, each made in from three to five sizes; also several types of student tables in four sizes and five heights. Ask for School Catalogue, A.I.A. 264-2.



Theatre Seating

We maintain a theatre seating service of national character, permitting service in any emergency. Service is based upon an efficient production plan, substantial stocks of plywood and upholstered chairs of all grades ready for immediate shipment. Theatres or school auditoriums reseated without interruption of regular use. Chairs of every price and character, many with exclusive engineering features, such as self-raising seats. Ask for Theatre Catalogue, A.I.A. 12.



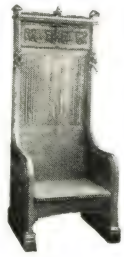
Church Furniture

Knowledge of ecclesiastic art, symbolism and legend is essential to correct interpretation of architects' details and ideals. Our organization includes craftsmen and carvers having national recognition. Our facilities are ideal for producing a superior grade of interior cabinet and carved wood work, chancel furnishings, altars, fonts, carved wood statuary, pews (including the Bodiform pew with seat and back in one piece). Ask for A.I.A. Folder and Church Catalogue S-12 showing many fine church interiors and carvings.

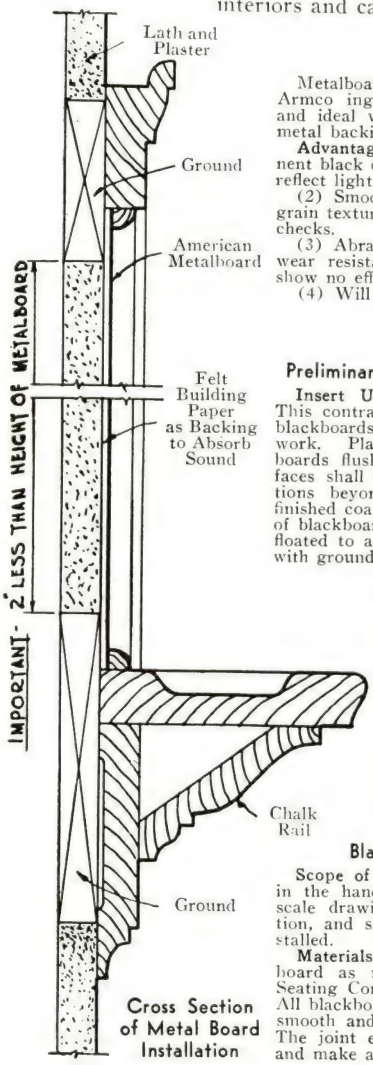
Lodge and Assembly Chairs

We do not catalogue a line of standard designs of lodge furniture. We do manufacture fine lodge furniture according to architects' drawings and solicit opportunities to estimate on such work.

A complete line of portable folding assembly chairs, both all wood and upholstered and some with spring seats, as well as opera type chairs, is available for assembly, banquet and drill halls. Ask for A.I.A. Lodge Designs, showing series of drawings of typical lodge seats.



BLACKBOARD



Cross Section of Metal Board Installation

Metalboard is a vitreous surface, fused on Armco ingot iron, providing a permanent and ideal writing surface on non-breakable metal backing.

Advantages—(1) Deep, uniform, permanent black color; will not become glossy and reflect light.

(2) Smooth writing surface of uniform grain texture, unmarked by ribbons, streaks, checks.

(3) Abrasive tests show many times the wear resistance of natural slate; abrasives show no effect on Metalboard.

(4) Will not scratch, chip or flake. Will withstand severe blows that would shatter slate and deface composition boards. Breakage in handling and shipping is elminated.

(5) Easy to clean, wet or dry. Soap and water, naptha, or other solvents will not injure surface.

(6) Wax or grease crayons may be used, and later removed with suitable solvents.

(7) Expert or technical labor not required for installation.

(8) Installed in about one-half the time required for slate types; Clip joint construction insures perfect joints without cement filling, scraping, drilling or joint strips. Can be installed over old board. Weighs approximately 2 lbs. per sq. ft.

(9 Not affected by atmospheric conditions, temperature changes or moisture in green walls. Can be applied soon as plaster is firm.

(10) Will not rust; surface and clip joints are enameled.

SUGGESTED SPECIFICATIONS FOR METALBOARD

Preliminary Specification Requirements

Insert Under Lathing and Plastering — This contractor shall check all grounds for blackboards as specified under carpentry work. Plaster all spaces back of blackboards flush with grounds. Plastered surfaces shall be a true plane without projections beyond face of ground work. The finished coat of plaster may be omitted back of blackboards, but the brown coat shall be floated to a true plane in perfect alignment with grounds.

Insert Under Painting — All blackboard trim (except inner loose tack mold) shall be completely finished before blackboards are set. Inner loose tack mold of blackboard trim shall be finished up to the last coat before installation. After blackboards are set and the inner mold attached, this contractor shall putty all brad holes and apply the last coat of finish. Any finishing materials appearing on blackboard surfaces will be removed by the painting contractor.

Blackboard Specifications

Scope of Work—The architect will place in the hands of the blackboard contractor scale drawings showing the amount, location, and size of the blackboards to be installed.

Materials—All blackboards shall be Metalboard as manufactured by the American Seating Company, Grand Rapids, Michigan. All blackboards shall have surfaces true and smooth and free from objectionable defects. The joint edges shall be straight and true and make angles of 90° with the bottoms of the blackboard. The bottom edge shall be parallel with the top edge. Adjoining sections of blackboard shall butt together, making a joint which is flush and true.

Dimensions—All blackboards shall be 42 ins. high from chalk rail to top molding (see detail drawing). All sections up to seven ft. shall be in one section. All sections over seven ft. and up to fourteen ft. shall be in two sections. Longer sections shall be in multiples of five, six, or seven ft. or fractions thereof. No piece for filling shall be furnished less than three ft. in its horizontal dimension.

Installation—The installation of the Metalboard shall be in accordance with the American Seating Company's instructions which include a sheet of ⅛ in. thick felt building paper placed between back face of the Metalboard and the wall. No Metalboard shall be set until the final coat of finish has been applied and has dried on the blackboard trim (except the loose tack mold). All Metalboard shall be set so that all edges shall be adequately covered by the loose tack mold. Adjoining sections of Metalboard shall be pushed tightly together so that there is no opening at the joint between the adjoining sections. Tack mold shall be carefully and accurately bradded in position by the blackboard contractor with firm, continuous contact at all edges and brads neatly set for puttying.

Final Cleaning — The blackboard contractor shall wash all Metalboard surfaces thoroughly upon completion of the installation. Dutch Cleanser or other suitable scouring powders should be used when necessary to remove foreign matter from the surface. When occasion demands it, gasoline, benzol, carbon-tetrachloride or any of the commercial solvents may be used to remove materials from the surface of Metalboard without injuring the surface. If the surfaces have been unduly soiled, this contractor shall charge a reasonable cost to those responsible.

DETAIL OF JOINT CONSTRUCTION



FOUNDED 1865

NEW YORK SILICATE BOOK SLATE CO.

TELEPHONE
COrtlandt 7-6484, 4060

20-24 Vesey Street
NEW YORK, N. Y.

CABLE ADDRESS
"Silibook New York"

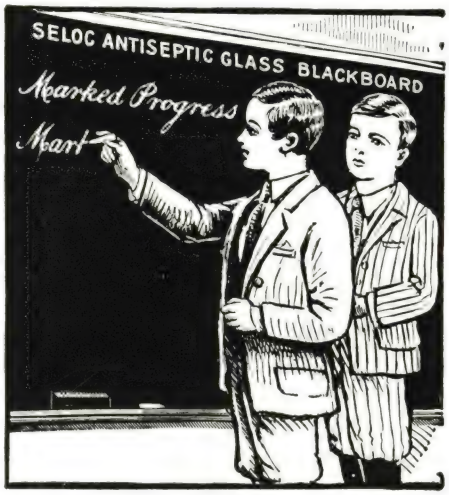
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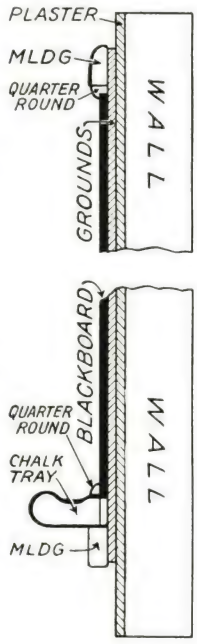
ANTISEPTIC GLASS AND SILICATE COMPOSITION BLACKBOARDS—CORK COMPOSITION BULLETIN BOARDS

Seloc Antiseptic Glass Blackboards

We have recently developed a glass blackboard which combines all of the virtues of the best natural slate with original and exclusive properties of its own. The board is a deep black and we guarantee it will not fade nor wear smooth. It has a velvety surface, free from all imperfections.

It is made under United States patent and consists of black plate glass with a suspended abrasive uniformly dispersed throughout the glass while molten. The dispersion of abrasive through the glass means that, over a period of many years, as the blackboard wears, the new surface always contains the same amount of abrasive as did the original. Experimental tests equivalent to 100 years wear have left the sample in as good condition as when new.





SECTION

It is being offered in widths 3, 3½, and 4 ft. and lengths up to 8 ft. $\frac{5}{16}$-in. thick. Price 75¢ a sq. ft., shipping weight and installation the same as for natural slate.

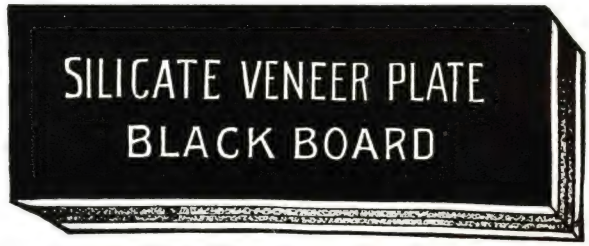
Silicate Veneer Plate Blackboards

These blackboards are composed of the best grades of wood pulp, the four veneers firmly united under great pressure. The marking surface is Silicate Black Diamond Slating. They can be put on any wall.

Blackboards come in sizes 3, 3½ and 4 ft. wide up to 12 ft. long, at 20¢ a sq. ft. for black, and 22¢ for green.

Write for discounts.

Specifications—Architects should specify Silicate Veneer Plate Blackboard made by the NEW YORK SILICATE BOOK SLATE CO.



Four-ply, ¼-in. Thick Silicate Veneer Plate Blackboard, Surfaced One Side

Cork Composition Bulletin Board

Cork composition bulletin board is made by cementing ¼-in. cork on ¼-in. pulp board.

Stock sizes cork composition board:
Widths: 12, 18, 24, 36, 42 and 48 in.
Lengths: 4, 5, 6, 7, 8, 9, 10 and 12 ft.
Write for quotations.

Other Silicate Products

Liquid Black Diamond Slating—Covering capacity, one coat, 500 sq. ft. per gal. of liquid.

Wall Blackboards—Ready made. Sizes 1½x2 to 4x8 ft., finished both sides. Oak frames. Marking surface of Black Diamond Slating.

Revolving Blackboards—Firm stand of nicely finished oak, to fit all sizes of boards in regular stock. Blackboards of 6-ply Silicate with marking surface of Black Diamond Slating, both sides.

Slated Cloth—Flexible blackboard for lecturers, teachers, stores, etc.

Marks finely, erases quickly. Rolls tightly, without injury to design or surface.

References Cover Wide Field

The Boards of Education of New York and Philadelphia have been supplied with Silicate products for over 40 years, and eighty-three Boards of Education in other cities have also been supplied for various lengths of time.

The United States Government has been supplied for over 40 years.

Many schools in Havana, Cuba, and Porto Rico, and Manila in the Philippines have also been supplied.

Bainbridge, Kimpton & Haupt, Inc., 218 Greenwich Street, New York, N. Y.

A. L. Salomon and Company, 546-548 Broadway, New York, N. Y.

American News Co., Inc., 9-15 Park Place, New York, N. Y.

Goods have been shipped to all parts of the world.

NATURAL SLATE BLACKBOARD COMPANY

PEN ARGYL, PA.

MILLS AT SLATINGTON, WIND GAP, PEN ARGYL AND BANGOR

BRANCH OFFICES

ATLANTA, GA., 509 Walton Bldg.
BUFFALO, N. Y., 1111 Walbridge Bldg.
CHICAGO, ILL., 140 So. Dearborn St.
CINCINNATI, OHIO, 119 Sycamore St.
DETROIT, MICH., 922 Michigan Theatre Bldg.
KANSAS CITY, MO., 210 West 8th St.
MINNEAPOLIS, MINN., 538 Builders Exchange Building
NEW YORK, N. Y., Room 701, 110 E. 42nd St.
PHILADELPHIA, PA., 1006 Fox Bldg.
PITTSBURGH, PA., 509 Diamond National Bank Bldg.
ST. LOUIS, MO., 3423 Big Bend Blvd.
WACO, TEX., 905½ Austin Ave.
WASHINGTON, D. C., 515-516 Bond Bldg.

REPRESENTATIVES

BOSTON, MASS., New England Slate Blackboard Co., 716 Columbus Ave.
MEMPHIS, TENN., Miller-Cochran Co., 246 Court Ave.
NEW ORLEANS, LA., Clifford F. Favrot Supply Co., 730 Gravier St.
TAMPA, FLA., Cooke & Company, 508 Cleveland St.

Product

NATURAL SLATE BLACKBOARDS.

Advantages of Slate for Blackboards

"CENTURIES OF SERVICE"
PYRAMID NATURAL SLATE BLACKBOARDS
Proof against Time-Wear-Water-Fire!

The characteristics of natural slate quarried in the United States are such that the surface may be brought to a finish unexcelled for blackboard purposes resulting in a smooth, even, dark writing surface upon which chalk marks are clearly legible and may easily and cleanly be erased. With its compact structure, toughness and flexibility slate affords nature's own protection against curling, cracking and buckling, remaining always an imperturbable flat, uniform plane.

As slate is not affected by atmospheric changes its true, velvet-like surface remains constant under all conditions, including thorough cleansing with clean water (with a little ammonia added) and does not wear out or require replacement. The first and only cost in natural slate blackboards is in furnishing and installing them at the time the building is constructed.

Identification

The "Pyramid" brand, which is the name given to all slate furnished by the NATURAL SLATE BLACKBOARD COMPANY, and which is identified by a label on each slab, was adopted as a trade-mark to designate the material distributed by this Company, and as a guarantee of the enforcement of the most rigid rules of workmanship and inspection in order to assure the best possible selection for the purpose. Calling for Pyramid brand will not only provide a selected slate from one of nearly thirty quarries in the Pennsylvania District but will exclude the use of all slate from foreign countries which, on account of its high lime content, will inevitably bleach to a light color.

In substantiation of this, publications of the U. S. Geological Survey state "Some of the Slates of the United States are so conspicuous for their well nigh perfect adaptation to certain uses that the demand for them is likely to increase with the growth of the Country. Such are the blackboard slates of the "soft-vein" region of Pennsylvania. The quarries in Lehigh and Northampton Counties can best produce this material on account of the unusually fine cleavage of the slate and the thickness and size of the beds".

Setting Methods

In order that natural slate blackboards may be erected to the lasting satisfaction of all concerned this Company has, with the Structural Service Bureau of Philadelphia and its collaborators, developed setting methods and directions as well as setting and jointing compounds which are marketed under the Pyramid Trademark. The directions are printed in detail in a publication available upon request, and are essentially embodied in these pages.

Heights and Areas of Blackboards

The ages of the pupils in the various rooms should determine the height of blackboards and the heights of chalk-rails above the floor. In a district school where children of many grades may be in a single room, the boards should be 4 feet-0 inches high and placed to accommodate the shortest pupils or at a height of 2 feet-0 inches from the floor to the chalk rail. In some cases the board behind the teacher's desk is set higher than the others as it may be used entirely for illustration work.

Many states and most of the larger cities have adopted general but varying requirements governing the height of chalk rails and the area, heights and lengths of blackboards. Data has been compiled by the Structural Service Bureau and its Consulting Architect, D. Knickerbacker Boyd and is included in a new publication on "Visual Education", as recommendations representing latest good practice gleaned from all available authoritative sources of information. For all regular classrooms tables are offered as Schedules of Heights for chalk-rails and blackboards at the front, side and rear. These are composites of requirements based upon the practice of capable architects in various localities and on the regulations of Boards of Public Education in different cities and states—plus the expressed intention of favoring the lowest consistent height for chalk-rails in order to make not only the lower portion of blackboards more available but the upper portion as well and to bring separate tack strips or tack strips in upper trims of blackboards lower for greater visibility of objects displayed thereon or hung therefrom.

The authorities from which the figures in the tables are taken are individually enumerated in the new publication of this Company on "Visual Education" which may be had upon request. Requirements and recommendations as to the lengths and areas of blackboard spaces and the lengths and location of cork bulletin boards and tack strips are also set forth in the publication referred to—as well as descriptions, and illustrations of blackboards, etc., required in Drawing Rooms, Music Rooms, Domestic Science and other rooms including special boards for Sewing Rooms, etc. The widths, or lengths, of slate slabs as covered by the U. S. Department of Commerce publication on Simplified Practice No. 15 are made a part of the Specification on the following page.

NOTES ON THE SPECIFICATION WHICH FOLLOWS

The following specification for Natural Slate Blackboards is recommended in connection with the Spotting and Bedding Method, with plastered backgrounds—which procedure is generally conceded to give the best results and the most lasting satisfaction.

A complete specification, such as here offered, for the furnishing and setting of slate blackboards (and cork bulletin boards, etc.) affects the work of several different trades. Because of this fact it is suggested that Blackboards and Their Accessories be incorporated under one Separate Heading in Architects' Specifications in which, under other appropriate Headings, the respective requirements on the part of those trades involved by the blackboard installations can be included by reference. Such a separation and reference would then make it possible for the Blackboards themselves to be furnished and set by the Tile, Slate and Marble Contractor (or Sub-Contractor) or by the Carpenter Contractor or by the General Contractor himself according to established best practice in each locality.

The Specification which follows has been drafted accordingly and among suggestions for inclusion under other Headings are the following: Provide that all walls, partitions, etc. and all grounds for blackboards shall be plumb, level, secure and in true plane ready to receive the slate. The specification for Carpentry and Millwork should call attention to the requirements of the Blackboard Specification in regard to the wood plugs or wood nailing strips (see Masonry if metal wall plugs), grounds, trim, etc., to be furnished and securely set, and the kind of woods as well as provide for the frames, boxes, counter-balances, etc., when any sliding blackboards are included. If the trims or any sliding blackboards are of metal they should be specified in the appropriate section. Where bulletin boards, tack-strips, cabinets, shelving, etc. are contiguous to or associated with the blackboard installations similar provision should be made in other parts of the architects' specification for the grounds, trim, finish, etc. and the bulletin boards themselves included in the text and title of this blackboard specification.

Under Masonry the setting of wood blocks or nailing strips, or the furnishing and setting of metal wall plugs, to be built into the walls for securing of the grounds, should be provided for. Under Painting the finishing of the exposed portions of frames and trim should be provided for, and under Plastering it should be provided that scratch and brown coats, with a floated finish to a thickness of ½ in., shall be applied to the walls back of the blackboards (and trowelled smooth back of bulletin boards, tack-strips, etc.)—which walls shall be lathed where wood studs, or wood or metal furring occur.

It is essential that the spotting and joint and edge bedding referred to under setting of blackboards be required of the contractor who sets the blackboards and not be required of the Plasterer.

It should be determined whether or not switches, thermostats, etc. are to be placed in the wood trims of blackboards or of openings and these trims detailed accordingly. The location of switches, thermostats, etc. should be also shown or specified under electrical work, heating work, etc.

SPECIFICATION FOR NATURAL SLATE BLACKBOARDS

Installed by the "Spotting and Bedding" Method on Plastered Backgrounds.

(*See Notes on opposite page*)

1. The contractor for this work shall furnish natural slate blackboards and arrange for their complete installation in every class room and in all other portions of the building where so shown or noted on the plans, sections or detail drawing or herein specifically called for.

2. On all walls where blackboards occur they shall be run full from trim to trim, as indicated, exclusive of bulletin boards which shall be (here state size of bulletin boards, if any, at end of blackboards, and later specify the bulletin boards). The heights of the slate itself shall be as follows: (State heights of slate and whether or not tack strips are to be located above in certain rooms, also specify by locations and areas all blackboards required that are not shown by the drawings).

3. Where wardrobes occur, place slate blackboards (surfaced on each exposed surface) in each door, as shown on details, or as follows: (Here describe slate and other panels, etc. unless wardrobes are selected from manufacturers' catalogues showing slate panels and are specified or provided for accordingly).

4. If any sliding blackboards are shown or called for include and install slate in same (state whether or not double faced) and wherever indicated or called for install swinging blackboards with double faced slate, including metal frames, (standards or brackets) etc. complete (Consult manufacturers' descriptions for types, finish, etc. and refer to same).

5. The slate shall be quarried in the United States and be of the finest quality selected blackboard stock, even in color, free from veinings or imperfections that would impair its use or durability as a marking surface and be not less than ¼ inch nor more than ⅜ inch thick. A maximum deviation of 1/16 inch from this thickness will be permitted when an average thickness of at least ¼ inch is maintained except that double surfaced slate shall be of uniform thickness. The exposed face of each piece of slate shall be carborundum surfaced to a perfect writing plane, in accordance with the Natural Slate Blackboard Company's Standards, and the approval of the architect, and each piece shall be labeled with the "Pyramid" Trade-Mark. Slate shall be furnished with joints ground straight, true and neatly fitted.

6. The lengths or lineal dimensions of the slate slabs in each assembly of blackboards shall be in accordance with the U. S. Department of Commerce Simplified Practice Recommendations No. 15, as follows: Up to 5 feet, one slab; over 5 feet, but not exceeding 9 feet, two slabs; over 9 feet but not exceeding 13 feet 6 inches, three slabs; over 13 feet 6 inches but not exceeding 18 feet, four slabs; over 18 feet but not exceeding 22 feet 6 inches, five slabs; over 22 feet 6 inches but not exceeding 27 feet, six slabs. The joints in each assembly shall be in accordance with the same Departmental Recommendation namely, at or near the middle of the space for two slabs, one third of the space for three slabs, one fourth of the space for four slabs, one fifth of the space for five slabs and one sixth of the space for six slabs. By "at or near" is meant that any slab may be used which places the joint within three inches in either direction of what would be exact spacing of the units stated.

7. The Carpenter Contractor will furnish and securely set all wood grounds to accurate levels and true planes. All wood trim will be furnished by the millman and set by the carpenter. The complete installation shall be in accordance with the architect's details, and with the printed directions, of the "Natural Slate Blackboard Company," consistent herewith.

8. Fasten securely to the walls, kiln-dried wood "ground" strips (¾ inch thick or other thicknesses according to number of coats and kind of plastering) at top, bottom and ends of all spaces to be occupied by blackboards (and intermediate strips as detailed where bulletin boards or tack-strips abut or adjoin blackboards).

9. To the "ground" strips, securely set (1⅜ x 3½ inches) trim, slightly rounded at edges (or as detailed) at the sides and top of all blackboard spaces. (Specify trims in connection with bulletin boards, tack-strips, cabinets, closets, etc. wherever they occur adjacent to blackboards).

10. At bottoms of blackboards place (5½ x 1¼ inches) countersunk chalk troughs carefully leveled, extending under blackboards and securely nailed to "ground" strips and to (4½ inches) molded aprons. Chalk trough shall be (molded or rounded) on all exposed edges and returned at ends (or left open for cleaning), as detailed. (If wire covers are to be installed in chalk troughs specify here).

11. Where slate is set against walls or partitions the space to be occupied by the blackboards will have been plastered by the plastering contractor with a scratch and brown coat, wood or carpet floated, to within not less than ¼ inch of the back of the slate. When these surfaces have hardened, but not until immediately previous to the setting of the slate, they and the backs of the wood grounds, or the backs of the blackboards shall be bedded and spotted with "Pyramid" "Spotting and Bedding Compound", or other approved fibrous, bituminous, plastic compound to a thickness averaging 1/16 in. against wood and ¼ in. against plaster. Each slab of the blackboard shall be pressed into place to form a substantial contact with this material on the edge bedding, joint strips and spotting so that the blackboards will form a solid, continuous, even plane, jointed between each slab as hereafter described. The edge bedding against wood shall consist of one inch wide strips of the compound. The joint bedding shall be a two inch wide strip the full height of each vertical joint and centered thereon. The size of the "spots" shall be from four to 6 inches in diameter and the spots shall be placed at intervals not exceeding 18 inches in each direction.

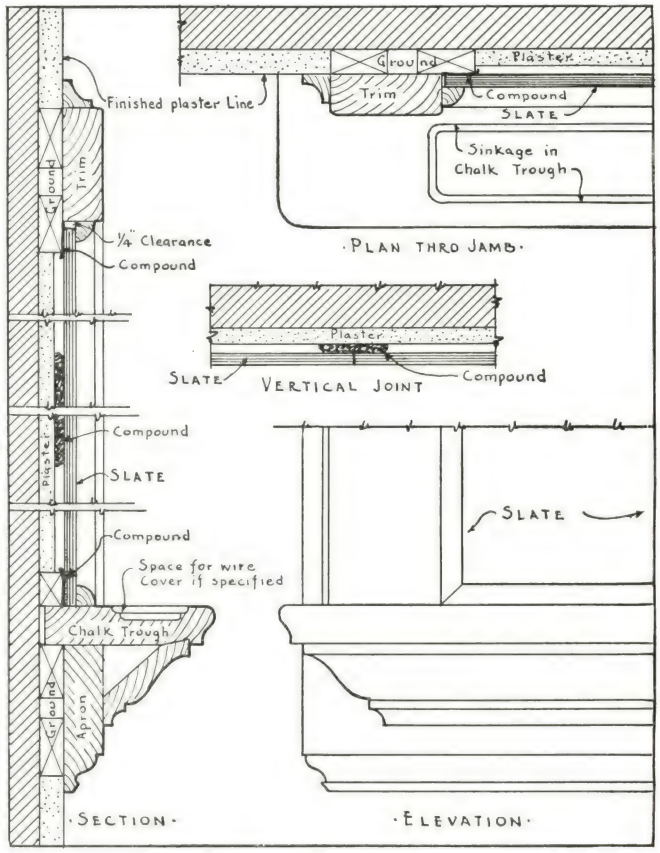
12. As each slab of slate is set there shall be applied to the adjoining joint edges of slate a thin strip of Pyramid jointing compound, and the slab being set shall be tapped tight against the preceding slab till the joint is as nearly invisible as possible.

13. As the blackboards are set, a (⅝ x ⅝ inches quarter-round) shall be well secured to surrounding trims and chalk trough, firmly holding slate in place. Any free-standing end trims and all tops shall be back-banded with (⅞ inches) coved scotia mold (1¼ inches if on frame walls).

14. The slabs at joints between slate, upon completion of setting, shall if uneven be thoroughly honed and finished without humps or abruptness until they have the appearance of a smooth plane with adjoining surfaces.

15. All slate blackboards shall be left whole, sound and clean, ready for use and in every way a complete and satisfactory installation.

16. The contractor for slate-work shall furnish a neat printed Instructions on the "Cleaning and Care of Blackboards" suitably framed, with glass, and permanently fastened in a conspicuous place, where directed.



Typical Detail of Blackboard Installation

Showing back plastering and setting, compound at edges, and "spots"—scale as printed, two inches equals one foot.

E. W. A. ROWLES CO.

Manufacturers of Blackboards and Metal Blackboard Trim

2500 Prairie Avenue, CHICAGO, ILL.

For Rowles Double Roller Demountable Shades, see Manufacturers' Index

THE COMPANY—ITS PRODUCTS AND FACILITIES

Products

(A) ENDURAROC BLACKBOARD (SYNTHETIC SLATE)—Composed of asbestos fibre, portland cement, slate and carborundum.

(B) PERMAROC BLACKBOARD—Body, gypsum rock and mineralized fibre boards; surface, heavy troweled-on slate surface.

(C) DUROPLATE—Body, pure wood fibre board, thoroughly waterproofed; surface, troweled-on slate surface.

(D) PERMA KORKBORD MOUNTED—¼ in. cork cemented to 3-ply wood and fibre board. PERMA KORKBORD UNMOUNTED—¼ in. cork with burlap backing.

(E) ROWLES METAL BLACKBOARD TRIM—Metal Trim, Metal Chalk Trough and Chalk Screen.

Experience

The E. W. A. ROWLES CO., one of the largest manufacturers of blackboards in the United States, has been continuously in business under the same management for thirty-five years. The unequalified guarantees covering the company's products are backed by an established financial integrity.

Facilities

Our factory, a model of efficiency, devotes approximately 30,000 sq. ft. of space to the manufacture of blackboards. Plant capacity is from 5000 to 8000 sq. ft. of finished blackboard per day. All products are manufactured under rigidly supervised, controlled processes. Uniformity of quality is positively guaranteed.

ENDURAROC BLACKBOARD—METAL BLACKBOARD TRIM—PERMA KORKBORD

Enduraroc Blackboard

Enduraroc is a synthetic slate blackboard composed of asbestos fibre, finely ground slate, black mineral pigment, portland cement and carborundum, combined by our own distinctive process. The sheets are pressed into dense homogeneous slate colored panels under hydraulic pressure of 3000 lb. per sq. in. Enduraroc is black clear through. It has a wiry resiliency which resists breakage in handling and shipping. Its tensile strength, hardness and toughness increase with age. It is harder than natural slate and weighs only half as much. Surface is smooth and of uniform color, free from such defects as webs, metallic veins, streaks, hard and soft spots, etc.

Sizes—Enduraroc is carried in stock 3½ and 4 ft. wide in 5, 6, 7, and 8-ft. lengths. Thickness, ¼ in.

Color—Black.

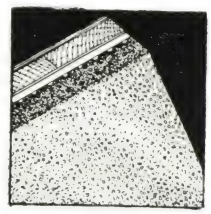
Metal Blackboard Trim

The constant demand for greater economy and the increasing use of non-inflammable materials in schoolhouse construction have popularized Rowles Metal Blackboard Trim. It is easily erected, and much more durable than wood mouldings. The designs were made by an experienced school architect. All fittings at corners and intersections are made by close fitting aluminum castings which obviate many cuttings and careful fitting problems. Rowles Metal Trim can be erected in much less time than wood trim. The mouldings and fittings are attached to wood grounds by small oval headed screws. These are finished to match the trim and are scarcely noticeable.

Once erected, metal trim is not affected by climatic conditions. Unlike wood it does not warp or shrink. Rowles Metal Trim can easily be taken down and may be reerected quickly without being injured. It is easily cut, fitted, assembled and erected by any competent carpenter or mechanic. The cost, erected and finished, is less than the cost of the average wood trim customarily used. Upkeep and repairs are reduced to the minimum. All mouldings are of accurately rolled 20-gauge cold rolled selected stock. Rowles Metal Trim is primed both sides, over which may be applied any paint finish to harmonize with wall decorations. Two coats of metal trim enamel are recommended.

Perma Korkboard

Perma Korkbord Mounted—Mounted Perma Korkbord is made of pressed cork cemented to 3 ply Compo Board. It measures ½ in. thick; standard color tan. It may be had in any width and length up to 4 ft. wide and 8 ft. long. Weight, packed for shipment, 1½ lbs. per sq. ft.



Perma Korkboard Mounted

Perma Korkbord Unmounted—Unmounted Perma Korkbord is pressed cork with heavy burlap back. It measures ¼ in. thick; standard color tan. It may be had in any width and length up to 6 ft. wide and 12 ft. long. Weight, packed for shipment, approximately 1 lb. per sq. ft.

MASTER SPECIFICATIONS—BLACKBOARDS

(A) Preliminary Specification Requirements

Note: *To assist in providing a perfect blackboard installation the following clauses should be included under specifications divisions where and when they apply.*

Note: *It is suggested that blackboards be included under a separate specification division.*

(A1) Include Under Carpentry Work

(A1a) All blackboards, except as hereinafter otherwise mentioned, will be furnished and set by others.

(A1b) The following blackboards will be furnished cut to size and crated separately by the Blackboard Contractor to be set by this Contractor who shall be entirely responsible for their good condition after delivery.

Note: *Here list blackboards which are to be set by the carpentry contractor such as those in wardrobe or other door panels, etc.*

The list and sizes (allowing ¼-in. clearance) shall be furnished by the Carpentry Contractor to the Blackboard Contractor.

(A1c) Provide accurately set grounds, in accordance with the detailed drawings, surrounding all blackboards and cork tack boards and bulletin boards. These grounds shall not only form proper nailing base for the blackboards, but shall provide nailing at the top for blackboards and form accurate screeds for plaster surfaces back of blackboards.

(A1d) All grounds shall be sound S4S material free from knots, sap or other defects for *(here specify thickness and number of coats for plastering).*

Grounds shall be substantially secured in position every 16 in. on centers, set absolutely true to line, level, plumb and in perfect surface alignment. All nails shall be slightly set.

(A2) Include Under Lathing and Plastering

(A2a) This contractor shall check all grounds for blackboards as specified in paragraph .... pages .... under division of "Carpentry Work." Thickness of grounds shall be such that plastering back of blackboards is flush with ground surfaces.

(A2b) Plaster all spaces back of blackboards flush with grounds. Surfaces shall be in a true plane without projections beyond the face of ground work.

(A2c) The finished coat of plaster may be omitted back of blackboards, but the brown coat shall be floated to a true plane in perfect alignment with the grounds.

(A2d) Wherever blackboards are installed on outside walls which are not furred, the masonry back of plastering shall be given two good coats of dampproof paint.

(A3) Include Under Painting

(A3a) All blackboard trim (except inner loose tack mould) shall be completely finished before blackboards are set.

(A3b) The inner loose tack mould of blackboard trim shall be finished up to the last coat before installation. After blackboards are set and the inner mould attached, this contractor shall apply the last coat of finish.

(A3c) Great care shall be exercised by this contractor that no painters finish, by accident or otherwise, is applied to the blackboard surfaces. Any varnish or other finish appearing on blackboard surfaces will be removed and the surface refinished (*or new boards erected*) by the Blackboard Contractor at this contractor's expense.

(B) Blackboard Specifications

Note: *The following clauses shall be included under the blackboard specification where and when they apply.*

(B1) Preliminary Work

(B1a) General—The following preliminary work is done under other contracts and is covered under the following specification divisions. Before the erection of blackboards, this contractor shall examine all preliminary work and shall report to the architect in writing any inaccuracies or variation from the specification requirements which will in any way deleteriously affect work under this contract. Failure to so report defects, etc., if any, is construed as acceptance of the work as executed and release of those responsible.

(B1b) Carpentry Work—*(Here refer to paragraphs under this heading of preliminary work affecting this contract).*

(B1c) Lathing and Plastering—*(Here refer to paragraphs under this heading of preliminary work affecting contract).*

(B1d) Painting—*(Here refer to paragraphs under this heading of preliminary work affecting this contract).*

(B2) Diagrams and Cutting Schedules

(B2a) This contractor shall furnish to the architect, in triplicate, for his approval, cutting diagrams and cutting schedules showing disposition of joints and blackboard and tack or bulletin board sizes for the various rooms distinctly and accurately allocated.

(B2b) All blackboard shall be accurately cut by the manufacturer at the factory to sizes conforming with the diagrams and cutting schedules.

Note: *The* E. W. A. Rowles Co. *will cut all blackboards to special size at the factory. A small cutting charge is made covering the extra cost entailed. All waste in cutting is charged to the customer at the regular price. Waste is reduced to the minimum by cutting from the nearest standard length to the dimension required.*

(B3) Materials

(B3a) Blackboards—Blackboards shall be ¼ in. thick Enduraroc as manufactured by E. W. A. Rowles Co., Chicago, Illinois, or equivalent meeting fully this manufacturer's standards of quality as described in detail in their catalogue contained in the twenty-fifth edition of Sweet's Architectural Catalogues.

All blackboards shall have surfaces perfectly true and smooth, free of defects and from depressions or projecting particles. Joint edges shall be sharp and make angles of 90 degrees with top or hanging edge. The bottom edge shall be parallel with the top edge.

(B3b) Cement—Cement for spot cementing shall be Rowles Blackboard cement.

(B3c) Metal Blackboard Joints—Blackboard joints shall be made with Rowles Metal Joints, dull black finish. All joint mouldings shall be without surface defects, smooth and straight.

Note: *Omit if butted cement joint is specified for Enduraroc.*

(B3d) Tack Board—All tack and bulletin boards shall be *(mounted) (unmounted)* Perma Korkbord.

(B4) Sizes and Lengths

(B4a) Widths—All blackboard widths (height from chalk rail to top) shall be as designated on the detail drawings and schedules.

(B4b) Lengths—All sections up to 6, 7 or 8 ft. shall be in one piece; all sections over 8 ft. and up to 16 ft. shall be in two pieces; longer sections shall be in multiples of 6, 7 or 8 or fractions thereof, but arranged with joints symmetrically spaced and with no piece for filling out less than 3 ft. in its horizontal dimension.

(B5) Storing

All blackboard material shall be properly stored at the building site in such manner as to adequately protect it from damage.

(B6) Uncrating and Distributing

(B6a) All material which is to be set by the Carpentry Contractor shall be shipped in separate crates and delivered to him crated as received from the manufacturer.

(B6b) All material to be erected by this contractor shall be uncrated in accordance with the manufacturer's directions. Distribute the material to the rooms and to the spaces in each room in their order, as indicated on the crates and sections to conform with the cutting diagrams and schedules.

(B7) Sizing

On outside walls, not furred and not dampproofed back of plaster, thoroughly size the plaster surface back of blackboards with glue sizing.

Note: *Wherever dampness is apparent or possible, sizing is advisable—otherwise the spotting cement may be affected.*

(B8) Setting Blackboards

(B8a) The setting, leveling and cutting of blackboard installations shall be in accordance with the manufacturer's recommendations and their standard specifications.

(B8b) No blackboard shall be set until the final coat of finish has been applied and has dried on the blackboard woodwork trim (except loose tack mould).

(B8c) All blackboards shall be set so that all edges shall be adequately covered by the loose tack mould. The writing surfaces shall be plumb and in a true plane with ¼-in. clearance on all sides.

Note: *Clearance is necessary to allow for swelling of wood trim.*

(B8d) Where nailing is required to secure or hang the blackboard sections use 4d wire nails placed approximately ⅝ in. from the edge and not over 18 in. on centers driven through drilled holes in board. Boards showing splits at nailing points below the finishing tack mould will be rejected and must be replaced at this contractor's expense.

(B8e) Enduraroc shall be hung on nails from the top edge only. The balance of the blackboard surface shall be secured to the wall with three horizontal rows of spot-cement with continuous strips of cement at all joints. Spot-cement shall be applied to the plaster in globules about half the size of an egg. The top and bottom rows shall be from 10 to 12 in. from the board edge and from 12 to 16 in. on centers horizontally. The spots of the middle horizontal row shall stagger centrally between the spots of the top and bottom rows. Sufficient cement shall be used at the joints to firmly bed these for a space of 1 in. on each side. The boards shall be firmly pressed in position over the cement and leveled plumb and true. Sufficient pressure shall be maintained for a period of from 5 to 7 days to assure thorough adhesion without springiness for the entire surface. Pressure shall be accomplished by wood cleats secured at top and bottom with wedges beneath, spaced in accordance with the manufacturer's directions, or otherwise as may be approved by him.

(B8f) Tack mould shall be carefully and accurately braded in position by this contractor with firm, continuous contact at all edges and brads neatly set for puttying.

Note: *Omit if Metal Blackboard Trim is specified.*

(B9) Blackboard Joints

(B9a) Metal Blackboard Joints—All joints shall be made with Rowles Metal Joints. The moulding shall be the full width of the blackboard extending back of the tack mouldings which shall be neatly notched out over it at top and bottom. The moulding shall be shoved tight against the first board set and plumbed; shove the next section of board into the groove of the moulding as far as possible and level and plumb the board. Mouldings with surface imperfections or which are warped out of line shall not be used.

Note: *The manufacturer advocates this joint.*

(B9b) Cement Joints—All joints shall be butt joints in accordance with the manufacturer's standard detail. The joints shall be plumb and adjoining surfaces in a true plane, boards shoved tight and the joint well bedded in setting cement.

(B10) Tack and Bulletin Boards

Set all cork tack and bulletin boards in accordance with the manufacturer's directions. Where joints occur these shall be symmetrically spaced to correspond with blackboard joints and shall be covered with a thin strip of wood to match trim. Apply tack mouldings surrounding tack and bulletin boards as specified above for blackboards.

(B11) Final Cleaning

After the painter has applied the final coat of finish to the tack mould, this contractor shall do the final cleaning of all blackboard surfaces, charging the reasonable cost thereof to those responsible for any damage. All varnish spots or streaks shall be removed with steel wool; apply Rowles Blackboard Surfacer rubbed down with fine pumice and water, blending the spots with the rest of the board surface.

MASTER SPECIFICATIONS—METAL BLACKBOARD TRIM

Note: *Notes are explanatory or advisory only and should not be included in the specifications.*

Note: *Select and include only those clauses which apply to the particular work. Words or clauses within brackets in italics are selective.*

(1) Preliminary Work

Note: *Include the following clauses under the proper specification divisions.*

(1a) General—The following preliminary work is done under other contracts and is covered under the following specification divisions. This contractor shall examine all preliminary work and shall report to the architect in writing any inaccuracies or variation from the specification requirements which will in any way deleteriously affect work under this contract. Failure to so report defects, etc., if any, is construed as acceptance of the work as executed and release of those responsible.

(1b) Carpentry Work—

(1b1) Grounds—Provide accurately set grounds, in accordance with the detailed drawings, surrounding all blackboards and cork tack boards and bulletin boards. These grounds shall not only form proper base for the blackboard trim, but shall provide nailing at the top for blackboards and form accurate screeds for plaster surfaces back of blackboards. All grounds shall be sound S4S material free from knots, sap or other defects for *(here specify thickness and number of coats for plastering)*.

Grounds shall be substantially secured in position every 16 in. on centers, set absolutely true to line, level, plumb and in perfect surface alignment. All nails shall be slightly set.

(1b2) Lathing and Plastering—This contractor shall check all grounds for blackboards as specified in paragraphs .... pages .... under "Carpentry Work." Thickness of grounds shall be such that plastering back of blackboards is flush with ground surfaces. Plaster all spaces back of blackboards flush with grounds. Surfaces shall be in a true plane without projections beyond the face of ground work.

The finished coat of plaster may be omitted back of blackboards, but the brown coat shall be floated to a true plane in perfect alignment with the grounds.

Wherever blackboards are installed on outside walls which are not furred, the masonry back of plastering shall be given two good coats of dampproof paint.

(2) Materials

Metal Blackboard Trim shall be manufactured by E. W. A. Rowles Co., 2500 Prairie Ave., Chicago, Illinois, or equivalent, meeting fully this manufacturer's standards of quality. All mouldings and fittings shall be delivered primed both sides for subsequent face finish after erection.

Mouldings and Fittings shall be:

(2a) No. 101 Outside Trim, No. 102 Divisional Mouldings and No. 105 Chalk Trough with No. 106 Chalk Screen together with the necessary flush aluminum fittings Nos. 107, 108, 109 as required for the particular blackboard design.

Note: *Include where face of blackboard and tack board is set the thickness of blackboard in front of finished plaster.*

(2b) No. 1101 Outside Trim, No. 1102 Divisional Mouldings and No. 1105 Chalk Trough with No. 1106 Chalk Screen together with the necessary flush aluminum fittings Nos. 1107, 1108, 1109 as required for the particular blackboard design detailed.

Note: *Include where face of blackboard and tack board is set flush with the finished plaster.*

(3) Cutting and Fitting

The Metal Trim shall be accurately cut with a hack saw to the various lengths detailed and assembled with the necessary fittings in accordance with the manufacturer's standard erection details. All joints shall be true and smooth. Drill all mouldings accurately for screw attachment spaced approximately 12 in. apart O.C. symmetrically placed.

Note: *All mouldings are 10, 12, 14 and 16 ft. long.*

(4) Erection

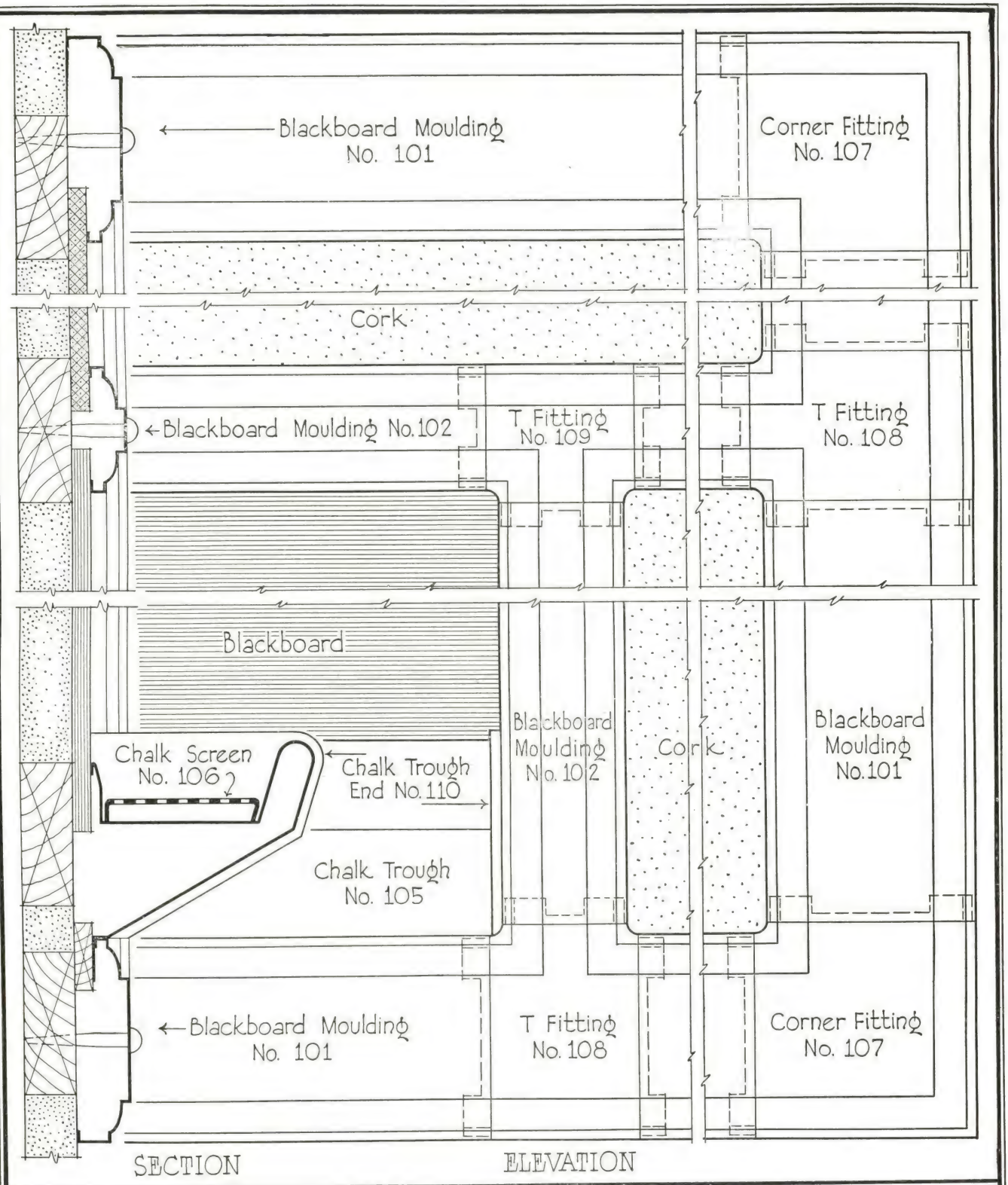
Erect the blackboard trim over the blackboard. Mouldings and fittings shall be secured to wood grounds with oval headed screws. All trim shall be set level, plumb and true. All mouldings shall join fittings with close, practically invisible joints.

(5) Finishing

Finish all metal blackboard trim with *(1) (2)* coats of *(specify paint)* of color selected by the architect.

Note: *A standard metal trim enamel is advocated.*

Great care shall be exercised by this contractor that no painters finish, by accident or otherwise, is applied to the blackboard surfaces. Any painters finish appearing on blackboard surfaces will be removed and the surface refinished *(or new boards erected)* by the Blackboard Contractor at this contractor's expense.



HALF FULL SIZE DETAILS OF ROWLES No. 101 BLACKBOARD MOULDING, No. 102 BLACKBOARD MOULDING AND No. 105 CHALK TROUGH AND FITTINGS. THESE MOULDINGS ARE ADAPTED FOR USE WITH DUROPLATE, PERMAROC AND ENDURAROC BLACKBOARDS, ALSO OTHER TYPES OF MANUFACTURED BLACKBOARD.

WEBER COSTELLO COMPANY

Sterling Lifelong Blackboard, Old Reliable Hyloplate Blackboard and Velvastone Blackboard

CHICAGO HEIGHTS, ILL.

Products

Sterling Lifelong Blackboard—A laminated cement-asbestos body with an elastic five-coat built-up surface.

Its satisfactory performance in thousands of schools proves its durability and excellence.

Velvastone Blackboard—A velvety writing surface on a rocklike backing. A perfected blackboard for every budget.

Old Reliable Hyloplate—A recognized standard of wood fiber board. Laminated live spruce wood-pulp body with a durable built-up writing surface. Nearly 50,000,000 sq. ft. have been sold and are giving satisfactory service in the United States, Canada, and twenty-one other countries.

Metal Rustproof Joint—Holds two adjoining boards together in perfect alignment in the same plane. Is flat and neat in appearance and slated to match the blackboards. Labor and material considered, it is more economical than any other type of joint. It provides a perfect, permanent blackboard joint.

The Company

A company with nearly 50 years of blackboard building experience and ample resources. Warehouses and reliable representatives are located in every section of the United States and Canada and many foreign countries. Prompt service is assured.

Guarantee

Every product of WEBER COSTELLO COMPANY must perform to the complete satisfaction of the user. We recognize our responsibility to our customers and will immediately investigate and adjust any complaint, should one arise, without expense or inconvenience to the customer.

New Architects' Portfolio

A new portfolio (A.I.A. file 35-b-12) of drawings and specifications, prepared by architects, and showing typical blackboard installations, is available upon request.

STERLING LIFELONG BLACKBOARD

Construction

Body—Cement, long fiber asbestos, and black coloring matter thoroughly and permanently combined by laminating process and subjected to pressure of 9000 tons per slab, producing an extremely hard blackboard body of uniform composition, thickness and color. Not a wall board, but a special blackboard body constructed from exclusive formulas. It is made water resisting and warpproof by the extraction of all excess moisture and the application of special waterproof coatings.

Surface—Five separate, scientifically mixed distinct coatings of blackboard surface, applied to the face with mechanical precision. Each coat, individually, is thoroughly dried and rubbed. The surface is extremely elastic and resilient. Sterling, manufactured with mechanical and manual exactness, is uniformly free from every imperfection, irregularity and blemish.

Dimensions, Color, etc.

Sizes—Uniformly $\frac{5}{16}$ in. thick, 6 ft., 7 ft. and 8 ft. long, 3½ and 4 ft. wide.

Weight—2.4 lb. per sq. ft. crated.

Color—Black, does not fade, mottle or turn gray.

Joints

Weber Costello Metal Rustproof Joint is recommended.

Distinct Advantages

Writing Surface—Uniformly perfect, hard, close grained, intensely black. Sterling surfacer coatings are ground and mixed from exclusive formulas, each one carefully applied and thoroughly dried.

Each of the coatings serves a definite purpose in the building up of the fine velvety writing surface.

The abrasive qualities are such that only sufficient crayon is used to make a distinct mark. Crayon marks are easily erased and the surface will not wear the eraser excessively.

The black color of Sterling surface absolutely prevents light reflection. Specially treated to prevent the surface from filling up and wearing slick and glossy.

The surface is elastic and thus permanent. It never cracks, checks or peels.

Few Joints—Due to long stock lengths, the number of joints required in a given space is reduced to a minimum.

Strength—It is extremely tough and strong and sufficiently resilient to prevent damage in handling and transit.

Fireproof, Does Not Warp—The material is absolutely fireproof. It is made by the laminated process and especially for the manufacture of Sterling. Only long fibered asbestos, high grade portland cement and first quality oxide of iron are used. All excess moisture is extracted and each board is sealed against moisture so that it never warps or buckles.

Economically Installed—Installation is easily and quickly accomplished without expert labor, since all edges are straight and true and the material is of uniform thickness. Detailed installation instructions furnished with each shipment.

Economically and Safely Shipped—Light in weight (2.4 lb. per sq. ft. crated) and unusually flexible and resilient, so that it is not easily broken in transit.

(B) BLACKBOARD SPECIFICATIONS

Note: The following clauses shall be included under the blackboard specification where and when they apply.

(B1) Preliminary Work

Before erection of blackboards, this Contractor shall examine all preliminary work and shall report to Architect in writing any inaccuracies or variation from specification requirements which will in any way deleteriously affect work under this contract. Failure to so report defects, etc., if any, is construed as acceptance of work as executed and release of those responsible.

(B2) Diagrams and Cutting Schedules

This Contractor shall furnish to the Architect, in triplicate for his approval the manufacturer's cutting diagrams and cutting schedules showing disposition of joints and blackboard sizes for the various rooms distinctly and accurately allocated.

(B3) Materials

(B3a) Blackboards—Blackboards shall be Sterling Lifelong Blackboards as manufactured by WEBER COSTELLO COMPANY, Chicago Heights, Illinois.

All blackboards shall have surfaces perfectly true and uniform, free of defects and from depressions or projecting particles. Joint edges shall be sharp and make angles of 90 degrees with top or hanging edge. The bottom edge shall be parallel with the top edge.

(B3b) Cement—Cement for spot cementing the blackboard to the wall shall be W. C. Sterling Cement.

(B3c) Metal Blackboard Joints—Blackboard joints shall be made with W. C. Metal Rustproof Joints slated finish. All joint mouldings shall be without surface defects, smooth and straight.

(B4) Sizes and Lengths

(B4a) Widths—All blackboard widths (height from chalk rail to top) shall be as designated on the detail drawings and schedules.

(B4b) Lengths—All sections up to 6 ft., 7 ft. or 8 ft. shall be in one piece; all sections over 8 ft. and up to 16 ft. shall be in two pieces; longer sections shall be in multiples of 6 ft., 7 ft. or 8 ft. or fractions thereof, but arranged with

joints symmetrically spaced and with no piece for filling out less than 3 ft. in its horizontal dimensions.

(B5) Storing

All blackboard material shall be properly stored at the building site in such manner as to adequately protect it from moisture or other damage.

(B6) Uncrating

All material which is to be set by the Carpentry Contractor shall be shipped in separate crates and delivered to him crated as received from the manufacturer.

(B7) Setting

(B7a) The setting, leveling and cutting of blackboard shall be in accordance with the manufacturer's recommendations and standard specifications, furnished with each shipment of blackboard.

*(**Note:** In the states of Texas, Louisiana, Mississippi, Florida, Georgia, North Carolina and South Carolina, where the climate is hot and humid, blackboard will be almost certain to sweat unless installed by Weber Costello Company's special patented Ventilated method of installation. Be sure to secure these directions. They must be followed to insure satisfactory results. Insert the following paragraph in specifications covering installations to be made in these states.)*

(B7aa) The setting, leveling, and cutting of blackboard shall be in accordance with the manufacturers' special patented Ventilated method, details of which will be supplied upon request.

(B7b) No blackboard shall be set until the final coat of finish has been applied and has dried on the blackboard woodwork trim (except loose tack mould).

(B7c) All blackboards shall be set by experienced mechanics so that all edges shall be adequately covered by the loose tack mould. The writing surfaces shall be plumb and in a true plane.

(B7d) Tack mould shall be carefully and accurately bradded in position by this Contractor with firm, continuous contact at all edges and brads neatly set for puttying.

(B8) Joints

Metal Joint Moulding—All joints shall be made with Sterling Metal Rustproof Joints. The joint shall be the full width of the blackboard extending back of the tack mouldings which shall be neatly notched out over it at top and bottom.

(B9) Final Cleaning

(B9a) After the painter has applied the final coat of finish to the tack mould, this Contractor shall do the final cleaning of all blackboard surfaces, charging the reasonable cost thereof to those responsible for any damage. All varnish spots or streaks shall be removed; apply W. C. Liquid Blackboard Surfacer rubbed down with fine pumice and water, blending the spots with the rest of the board surface.

(B10) Direction Plate

In each room fasten permanently where directed by the Architect, the metal plate, furnished by the blackboard manufacturer, bearing directions for breaking in and care of blackboard surface.

(B11) Breaking in Blackboard Surfaces

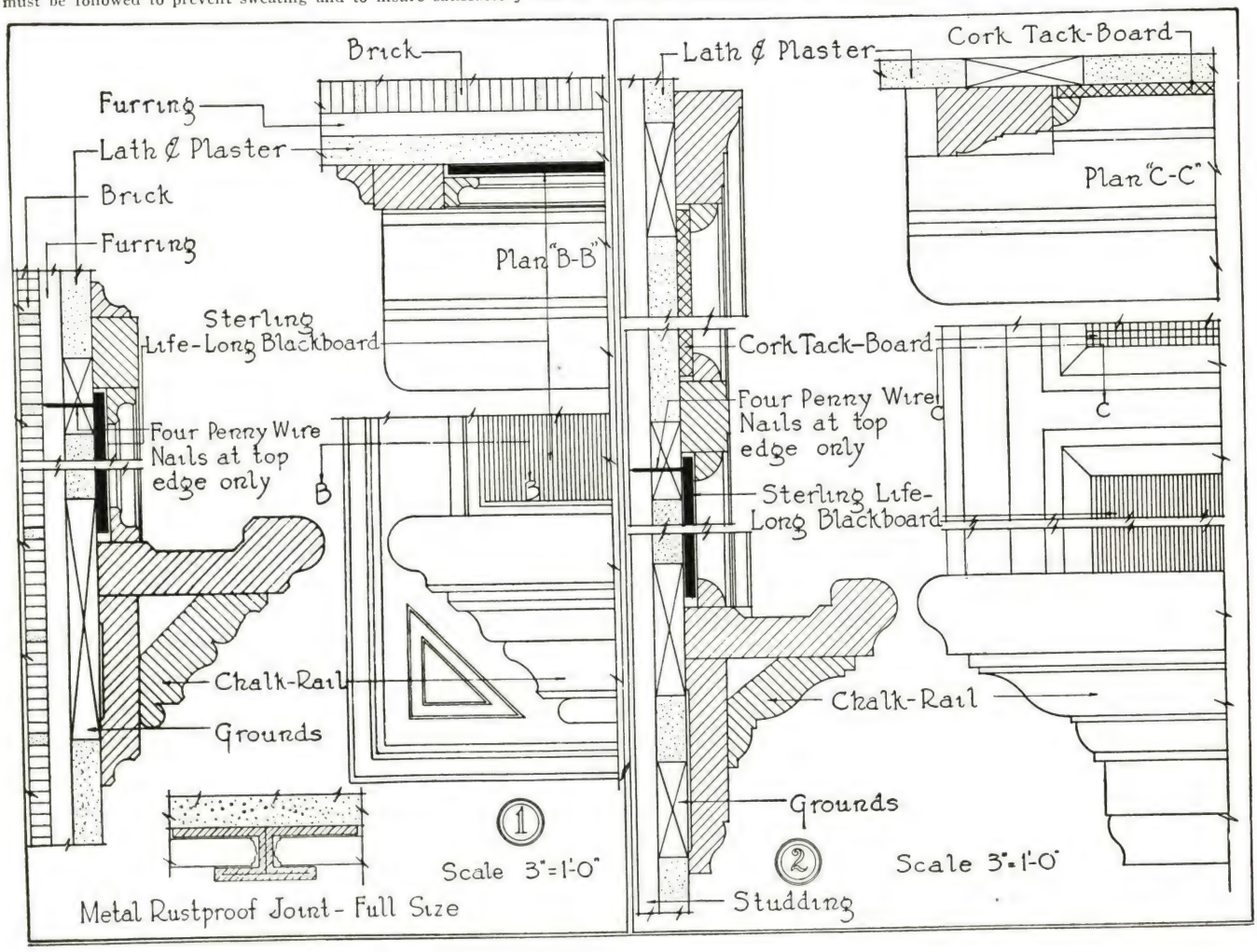
Note: Include where desirable. This Contractor shall break in all blackboard surfaces and leave in clean, perfect, ready-to-use condition as follows:

1—With the side of a piece of good quality crayon, chalk the entire surface of the blackboard. (Use only good grade crayon free from grease or grit. If the crayon is glazed or enameled it should be scraped off.)

2—Work the crayon into the surface slightly by erasing with a blackboard eraser. (No pressure is necessary.)

3—Erase with a clean eraser and follow with a soft cloth or a chamois skin.

The details below provide for installation in normally dry climate. In the following states—Texas, Louisiana, Mississippi, Florida, Georgia, North Carolina and South Carolina—the climate is hot and humid and the manufacturers' special directions for patented Ventilated method of installation must be followed to prevent sweating and to insure satisfactory results. Write for information on these directions.



CHARLES F. BERGER

Fixed Dustless Blackboard Chalk Trough (Patented)

204 East 39th Street, NEW YORK, N. Y.

Product

FIXED, DUSTLESS, GALVANIZED IRON WIRE CHALK TROUGH for school blackboards. All parts permanently and strongly fixed in place. No parts to be moved or lost.

Sanitary

No excuse for dust to accumulate. Chalk and erasers need not be moved for cleaning. Lower dust trough quickly and thoroughly cleaned with damp cloth.

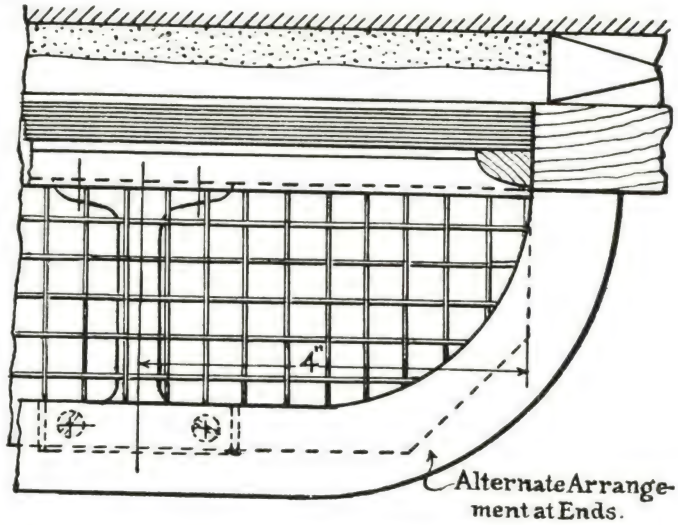
Clean Erasers

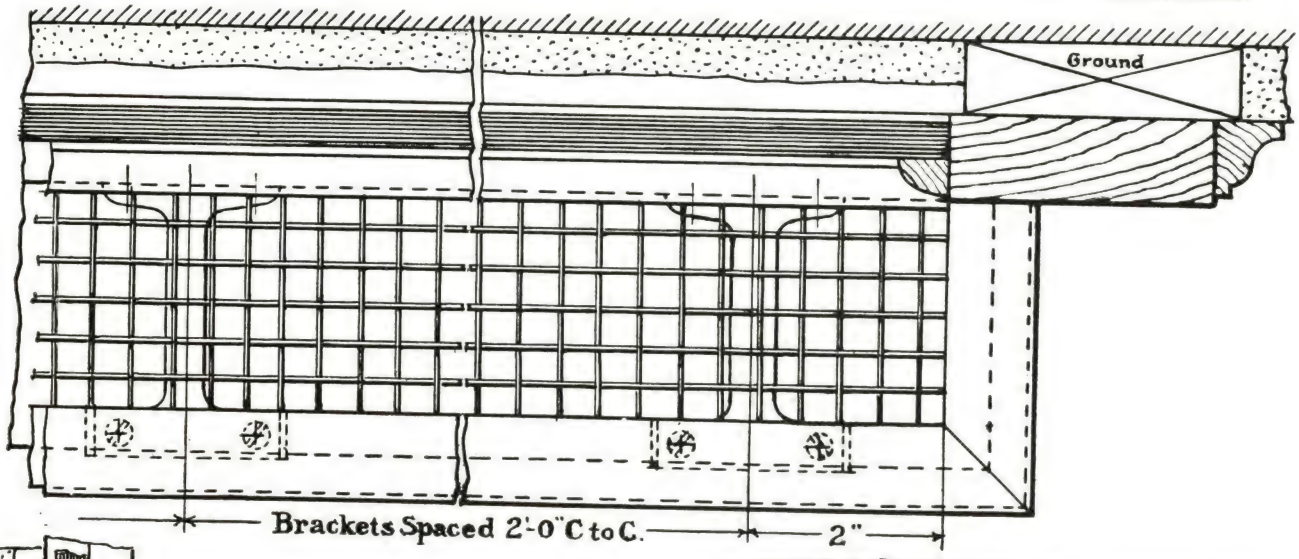
Strong, large gauge galvanized wire chalk trough not only retains chalk of usable length, but by slight lateral movement of the eraser will keep eraser constantly clean.

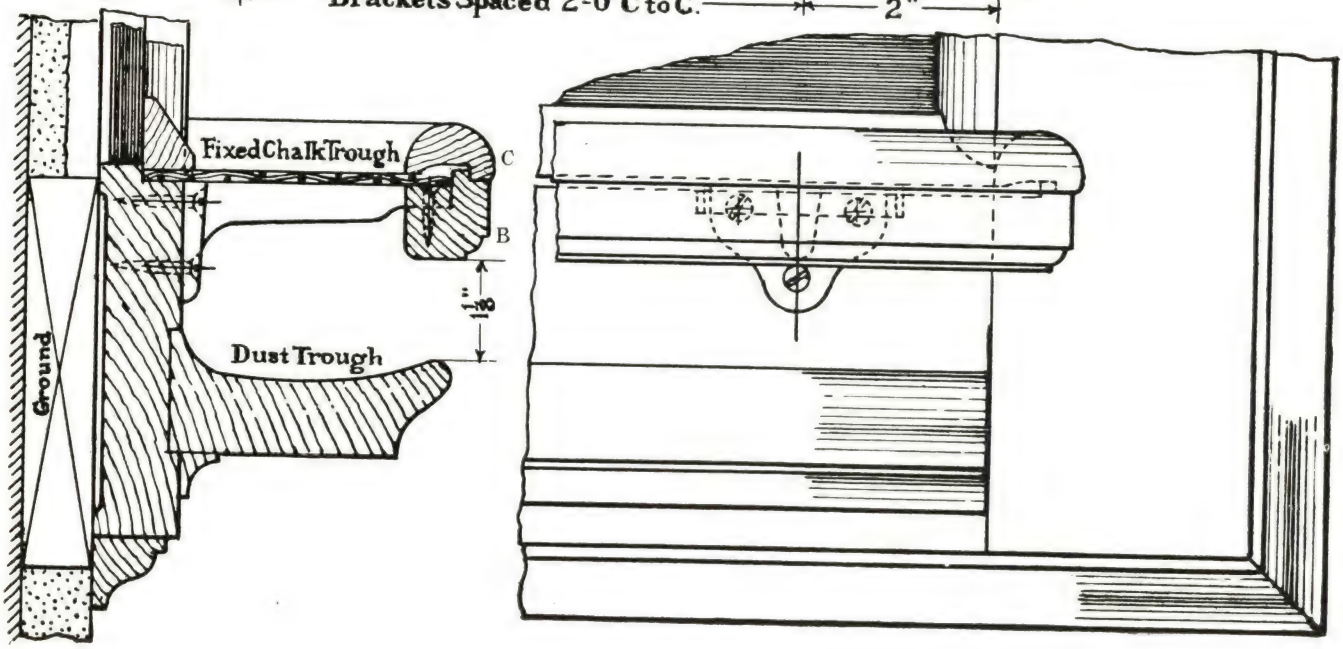
Materials and Erection

Only metal parts are furnished; wire lath woven in strips of proper width. Special wood parts "B" and "C" are to be included with trim items.

Complete erection by sub-contractor for trim. Finishing to be done by painter.







DUDFIELD MANUFACTURING CO.

Manufacturers of Patented Chalk Rails and Metal Blackboard Trim

116 West Kansas Street, LIBERTY, MO.

SALES REPRESENTATIVES IN MOST OF THE PRINCIPAL CITIES

Manufacturer for Pacific Coast States: EMIL BROWN & COMPANY, 300 East Ninth Street, Los Angeles, Cal.

Products

DUSTLESS ALL-METAL CRAYON TROUGH with Eraser Cleaner; METAL BLACKBOARD TRIM; SANITARY METAL BASE.
Also Chair Rail Wainscot Trim and Fittings.

No. 350 Dustless Crayon Trough Complete with Removable Dust Tray and Eraser Cleaner

Main trough is made of 24-gauge long terne sheet steel in 8 and 10-ft. standard stock lengths. Cast metal ends and mitered corners are furnished making installation easy. Sections are butted together when installed, the ends being held firmly in place by a concealed metal bracket at the joints.

The removable dust trays are made of 28-gauge galvanized sheet steel in 47-in. standard stock lengths. The slotted sheet metal eraser cleaner is made of 20-gauge galvanized steel. Erasers are cleaned by rubbing them across the surface of the slotted construction. The center of cleaner is slightly curved upward to prevent scoring or injuring the erasers.

All units, except the galvanized dust tray and eraser cleaner, are given a prime coat of gray paint at the factory. They may then be finished as desired by the architect.

Metal dust tray No. 351 may be used in a wood chalk trough designed to fit. Metal dust flange No. 351-A should also be specified for this type of construction. A very practicable detail is indicated below.

Distinctive features are as follows:

Sanitary—Eliminates chalk dust from the room.

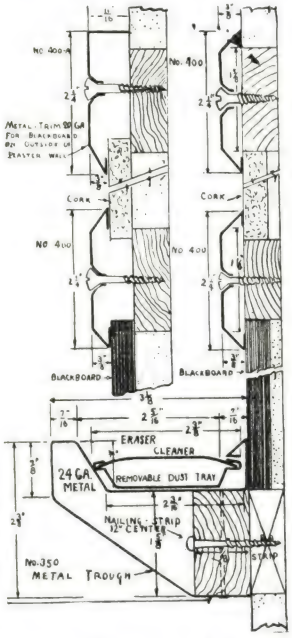
Time Saver—A slight rub on the screen keeps the eraser clean.

Fireproof—Made entirely of metal.

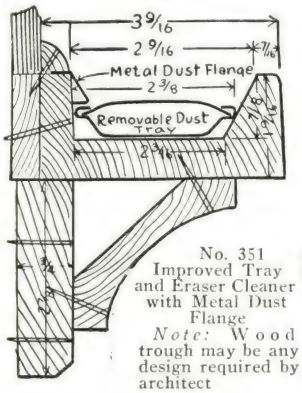
Artistic—Simplicity of construction enriches appearance.

Durable—Heavy gauge metal withstands hard usage.

Practical—Does not warp out of shape or away from the blackboard.

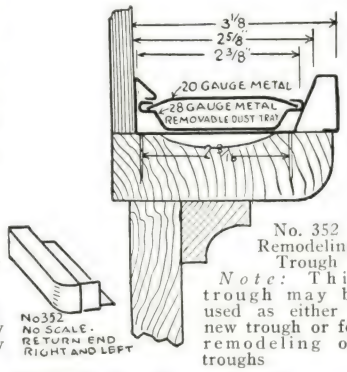


No. 350 Detail of All-metal Trough, No. 400 Metal Trim



No. 351 Improved Tray and Eraser Cleaner with Metal Dust Flange

Note: Wood trough may be any design required by architect



No. 352 Remodeling Trough

Note: This trough may be used as either a new trough or for remodeling old troughs

Sectional Views of Dudfield Dustless Crayon Trough

Only metal parts are furnished by the manufacturer. Metal trough, metal trays and blackboard trim cut to exact lengths when ordered; give outside measurements of blackboards over all. When ordering, state whether blackboards are set flush with or on outside of plastered walls

Metal Blackboard Trim

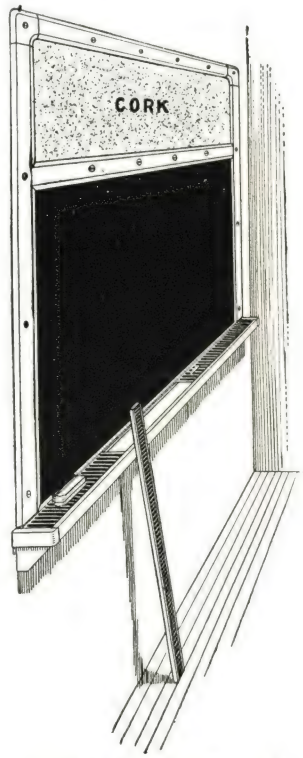
Made of 20-gauge long terne sheet steel in 8 and 10-ft. lengths. The No. 400 pattern is for blackboards set flush with plaster walls; and the No. 400-A for those set on the outside of plaster walls. See profile detail No. 350. Corner caps and "T" fittings furnished, also interior and exterior angles. The No. 400 type may be used as a wainscot cap, also chair rail.

We furnish a special brace fitting at each screwhole which braces the trim to prevent making a depression in the surface when the screws are set.

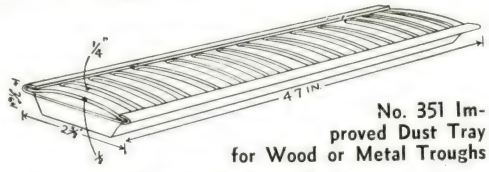
Typical Specifications for Blackboard Trim and Chalk Trough

Blackboard Trim—Contractor shall furnish and install metal chalk trough No. 350 and blackboard trim No. 400, as detailed, in connection with all blackboards. Trough and trim to be that manufactured by DUDFIELD MANUFACTURING CO., Liberty, Mo.

Blackboard Chalk Trough—All blackboard chalk trough shall be of moulded wood as detailed, and shall be equipped with removable metal dust trays No. 351 and metal dust flange No. 351-A as manufactured by the DUDFIELD MANUFACTURING CO., Liberty, Mo.



Dudfield Dustless All-metal Chalk Rail and Metal Blackboard Trim



No. 351 Improved Dust Tray for Wood or Metal Troughs

Slots ¼ in. wide, bars ⅛ in. wide

Official Endorsement and Samples

These products have been endorsed by State school superintendents, boards of health, architects, universities, colleges, sanitary and ventilating engineers.

Specifications for installation furnished on request. Write for samples, full size detail drawings and literature.

Dudfield Sanitary Metal Base

No. 102 one-piece base for use with cement or composition floor.

No. 103 two-piece base for use with wood floors. It has a metal cove which is attached to the floor and compensates for shrinking of rough job flooring.

Finish flush with plaster walls. Construction permits grouting behind which forms a rigid, sanitary and fireproof job. Furnished 4, 4½ or 6 in. high, in 16, 18, or 20-gauge special long terne plate steel, and given a prime coat of gray paint. A complete line of fittings are furnished. The metal cove moulding may be purchased separately for use with wood base and floor.

Write for further information.

ANDREW HOFFMAN MFG. CO.

310 South Michigan Avenue, CHICAGO, ILL.

For Casement Window Hardware, see Manufacturers' Index

The Ideal Map and Display Rail

Used in Schoolrooms, Offices, Conference Rooms, Hospitals

Purpose

The Andrew Hoffman display rail is applied to the walls on old or new trim at a convenient height, for the purpose of hanging map cases, maps, charts, posters, bulletins, drawings, and things of a similar nature.



The Ideal Map and Display Rail

Used in Schoolrooms, Offices, Conference Rooms, Hospitals

Description

This display rail consists of a substantial steel rail of special channel section, in which slide hooks and clips. In schoolrooms, the rail is screwed to the trim at the top of the blackboards. In rooms without blackboards, it is screwed at a convenient height to trim, grounds, or directly to the wall. The screws, which we furnish, are closely spaced for maximum strength.

To provide for the most efficient hanging of various objects, there are two types of hooks: one of very strong one-piece bronze construction that will support the heaviest map cases without turning or twisting—furnished, one to each five feet of rail; and a lighter spring-steel combination hook and spring clip that supports lighter maps, charts, posters, bulletins, etc.—furnished, one to each one and one-half feet of rail.

Either hook may be removed from the rail by lifting it out through the notch. The bodies of the hooks are *inside* the rail; consequently the hooks slide freely without interference, and the appearance is neater. Additional hooks may be inserted through the notches.

Finish

The display rail is finished in statuary bronze to harmonize with the trim customarily used.

Advantages

This display rail is designed and built to give a lifetime of satisfactory and trouble-free service.

Thumb tacks and cork pads are eliminated by the use of the combination hook and spring clip. When the spring hook is lifted, the poster, etc., may be placed beneath, where it is held firmly, yet without injury, by spring pressure, which is, we believe, the only permanently satisfactory method.

The rail may be mortised or rabbeted in any position on the face of the trim or may be screwed to the surface. The rail should be mortised in a groove to attain the most attractive appearance. A mortised rail blends into the ensemble so completely as to be very inconspicuous. See optional positions in small drawing.

The sections of the rail are self-aligning, through the use of the dovetail joint, thus assuring the smooth passage of hooks and clips. Being firmly fastened with screws, the rail cannot pull loose.

It is extremely versatile in its use: the two different hooks provide for the display or hanging of anything from a sheet of paper to a map case weighing 100 lbs.

Sizes

The display rail comes in sections 30 in. long. It is ⅞ in. wide and $\frac{5}{16}$ in. deep. If the rail is to be mortised, the mortise should be only ¼ in. deep to prevent the hooks from scratching the trim.

MASTERS STEEL FRAME COMPANY

1530 Chestnut Street, PHILADELPHIA, PA.

DISTRIBUTERS IN PRINCIPAL CITIES

MASTERS ALL-STEEL BLACKBOARD AND BULLETIN BOARD FRAMES

Description—Masters All-steel Blackboard Frames eliminate *all* the difficulties usually experienced with the use of ordinary blackboard frames. Their construction features are shown by the accompanying installation photograph and detail drawing.

Masters All-steel Blackboard Frames are built solidly into the wall. There is no possibility of anything coming loose, no risk of warping to throw boards out of alignment or cause cracks for the accumulation of dirt, no sinking under continued weight or pressure after years of service, no absorption of moisture.

Nearly all difficulties in the usual type of blackboard frame can be traced back to the foundation strip or ground, since it is almost impossible to fasten this securely enough to modern fireproof wall construction to carry the extreme weight placed upon it. Masters All-steel Frames use an 18 gauge cold rolled steel channel which acts as the plaster ground and blackboard frame and is bolted, toggled or screwed to the bare wall before plastering. The expense of resetting and reblocking of boards, commonly required every few years with other frames, is entirely obviated.



Blackboards, Bulletin Boards and Steel Frame Installed by Masters Steel Frame Company

Masters All-steel Blackboard Frames are made entirely of steel. They are quickly and easily installed by any mechanic. They combine rigidity with strength. The steel clamps, shown in the detail drawing, permit perfect and permanent alignment of boards to an even surface.

Replacement of boards, should it be required, is made without difficulty. Waterproof cement may be used in the joints of boards instead of the solvent glue which must be employed with ordinary frames.

The perforated chalk tray of Masters All-steel Blackboard Frames does away with the old fashioned weekly cleaning of eraser dust. Once-a-year cleaning is sufficient, and this is quickly accomplished by vacuum cleaner or by unhooking the tray and emptying it.

Advantages—The features which make Masters All-steel Blackboard Frames superior to ordinary frames are: the ease of installation; permanence, life as long as the building; economy, absence of repairs and maintenance costs; sanitation; ease of access should replacement of boards be required; appearance which adds distinction to walls in which installed.

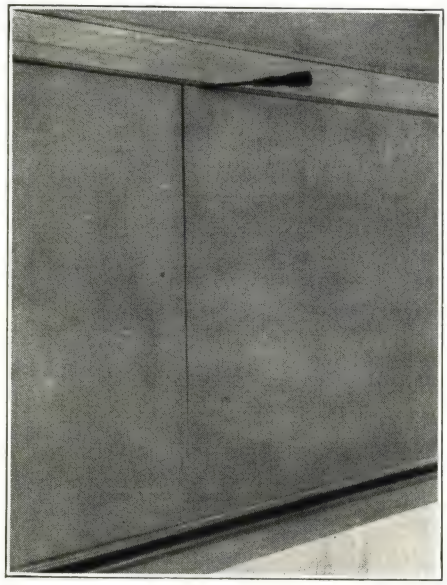
Sizes and Installation—Masters All-steel Blackboard Frames are made to accommodate boards of all dimensions and thicknesses. They work equally well with all types of blackboard material; slate, black glass, or composition. The variations in thickness of slate blackboards are provided for by the clamps, shown in the detail drawing, which force the face of the board with a constant pressure against a straight bead. Thus the surface of a board $\frac{3}{16}$ in. thick will match perfectly with that of an adjoining board $\frac{1}{16}$ in. thick.

Finish and Cost—All concealed parts of these frames receive a baked prime coat. In specifying the architect should state the finish to be given the exposed surfaces. Any kind of finish can be applied and our method of construction at corner eliminates cut edges from showing.

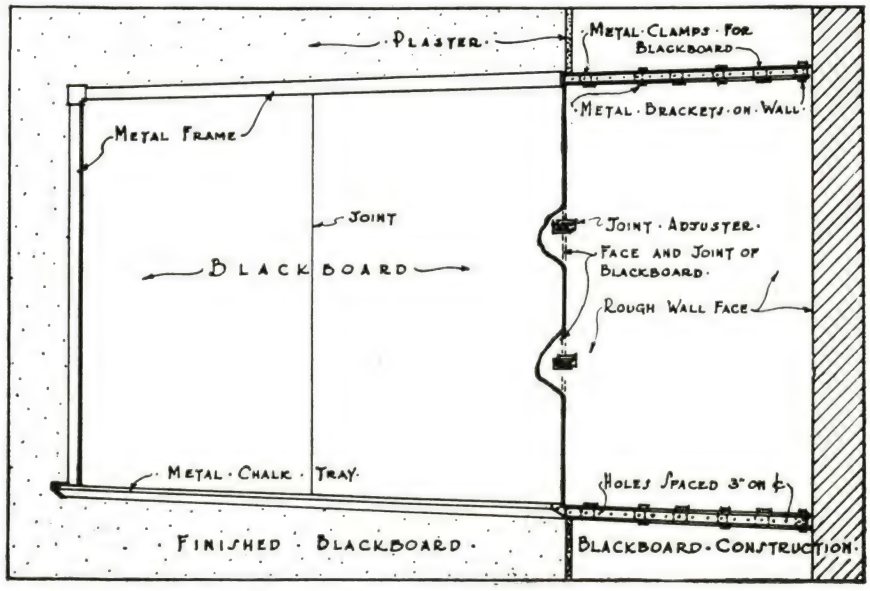
The elimination of wood grounds in the Masters All-steel Blackboard Frames has placed their costs of installation on an equal basis with any good wood installation. Over long periods of service their economies reduce costs to a much lower level than that of wood frames.

Specifications—Architects will cover all necessary points of installation for blackboards if they include in their specifications the following:

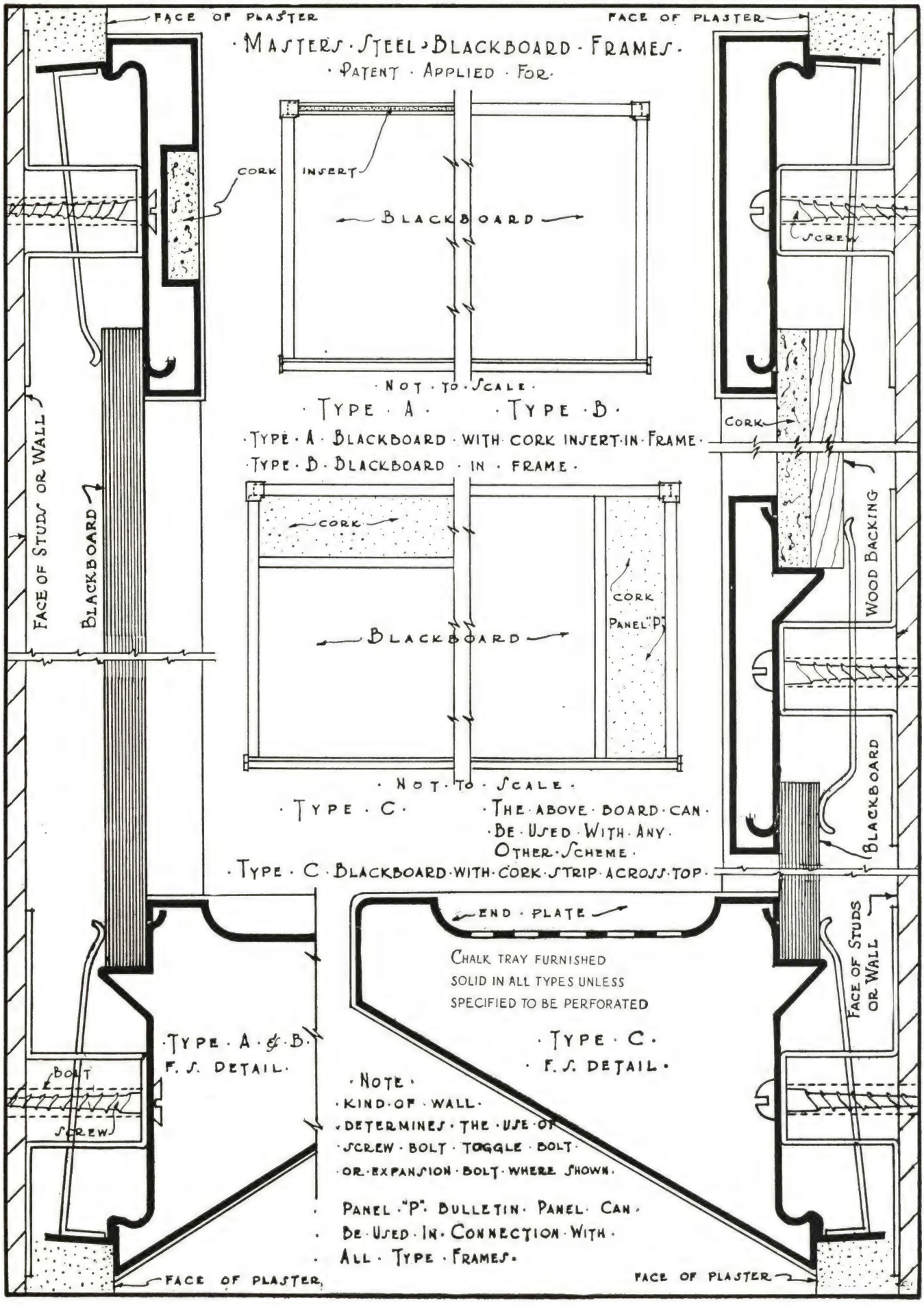
"Blackboards shall be installed in MASTERS ALL-STEEL BLACKBOARD FRAMES, Type ... (select type desired) with (or without) perforated chalk tray. Finish shall be . . . . . (state finish desired). Frames shall be installed in accordance with the directions of the MASTERS STEEL FRAME COMPANY which will accompany all shipments."



Masters Steel Blackboard Frame Eliminates Loose and Sagging Blackboards



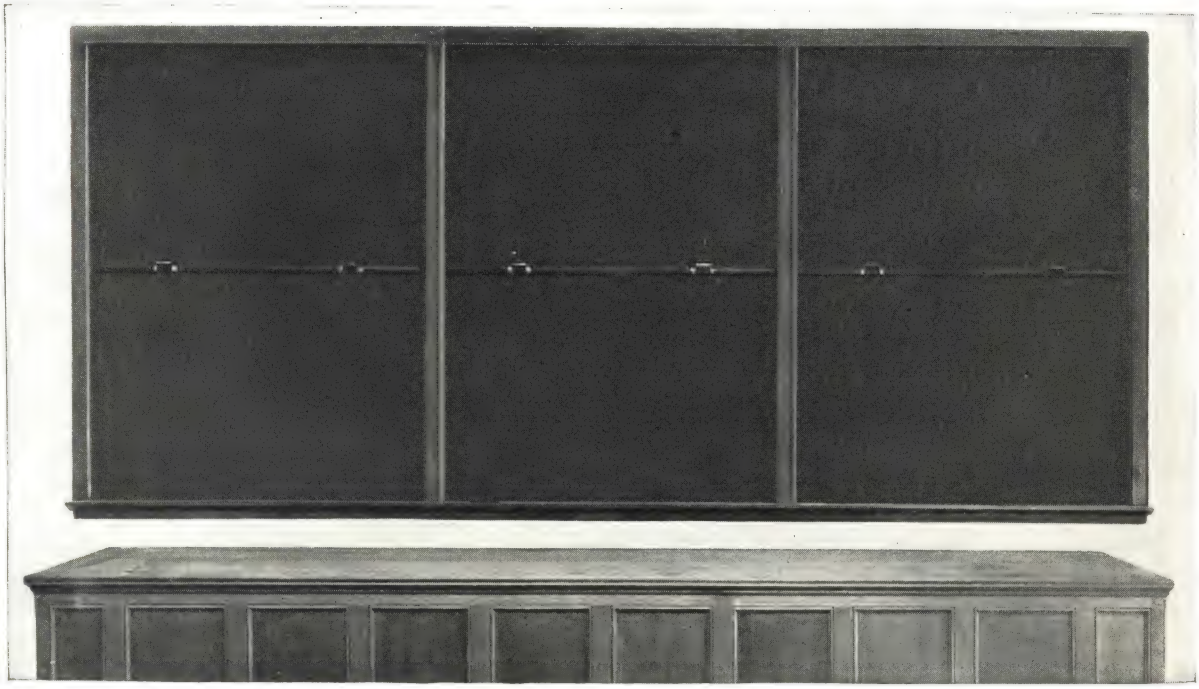
ELEVATION OF BLACKBOARD


FACE OF PLASTER
FACE OF PLASTER
MASTERS STEEL BLACKBOARD FRAMES
PATENT APPLIED FOR
CORK INSERT
BLACKBOARD
SCREW
NOT TO SCALE
TYPE A
TYPE B
TYPE A BLACKBOARD WITH CORK INSERT IN FRAME
TYPE B BLACKBOARD IN FRAME
CORK
FACE OF STUDS OR WALL
BLACKBOARD
CORK
CORK PANEL "P"
BLACKBOARD
WOOD BACKING
NOT TO SCALE
TYPE C
THE ABOVE BOARD CAN BE USED WITH ANY OTHER SCHEME
TYPE C BLACKBOARD WITH CORK STRIP ACROSS TOP
BLACKBOARD
END PLATE
CHALK TRAY FURNISHED SOLID IN ALL TYPES UNLESS SPECIFIED TO BE PERFORATED
FACE OF STUDS OR WALL
TYPE A & B F. S. DETAIL
TYPE C F. S. DETAIL
BOLT
SCREW
NOTE
KIND OF WALL DETERMINES THE USE OF SCREW BOLT TOGGLE BOLT OR EXPANSION BOLT WHERE SHOWN
PANEL "P" BULLETIN PANEL CAN BE USED IN CONNECTION WITH ALL TYPE FRAMES
FACE OF PLASTER
FACE OF PLASTER

MASTERS SLIDING BLACKBOARDS



Boards in Lowered Position



Movable Board in a Raised Position
Inside board is stationary, outside board is movable

Illustrations from Photographs of an Installation in Fine Hall, Mathematics Department Princeton University

CHAS. Z. KLAUDER, Architect

This design consists of three adjoining units, but can be carried out with two units or a single unit, as desired.
This arrangement of blackboards is particularly applicable to lecture work in universities, colleges, preparatory schools, high schools, etc. It may also be used with three boards, having all three movable, or one stationary and two movable. Perfectly balanced so that it can be raised or lowered with one hand. Additional information gladly furnished.

ARMSTRONG CORK COMPANY

Member of the Producers' Council
CORK DIVISION

Manufacturers of Cork Bulletin and Tack Boards
926 Arch Street, LANCASTER, PA.

DISTRICT SALES OFFICES

ATLANTA, GA., Candler Building
BOSTON, MASS., 286 Congress Street
CHICAGO, ILL., 111 North Canal Street
CINCINNATI, OHIO, 232 West Seventh Street
CLEVELAND, OHIO, 603-605 Hanna Building
DETROIT, MICH., 507 Garfield Building
NEW YORK, N. Y., 50 Church Street
PHILADELPHIA, PA., 408 North Third Street
PITTSBURGH, PA., 24th Street
ST. LOUIS, MO., 204 South Third Street
SAN FRANCISCO, CAL., 1853 Folsom Street
MONTREAL, QUE., CAN., 1001 McGill Building
TORONTO, ONT., CAN., 522 King Street, West
WINNIPEG, MAN., CAN., 407 Confederation Life Building

Product

ARMSTRONG'S CORK BULLETIN and TACK BOARDS for schools, colleges, hotels, lodge rooms, offices, factories, etc.

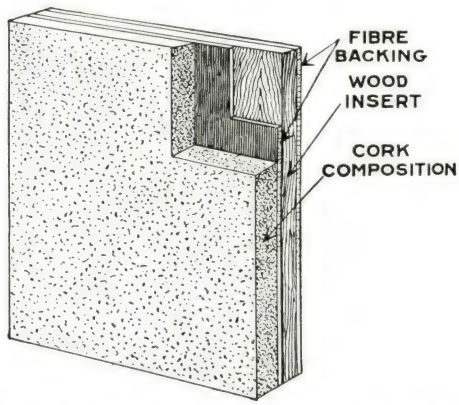
For Armstrong's Corkboard for Building and Roof Insulation, Cold Storage Insulation, Pipe Coverings, Corkoustic, Temlok, Machinery Isolation, Linoleum, Linotile, Asphalt Tile, and Cork Tile, see Manufacturers' Index.

Description

Armstrong's Cork Bulletin and Tack Boards are of two types, wood-backed and burlap-backed. Wood-backed boards are composed of a layer of burlap-reinforced cork composition ¼-in. thick cemented securely to a backing of ¼-in. 3-ply wood insert compo board. Burlap-backed board differs from wood-backed in that it does not have the compo board reinforcing.

Particular Advantages of Armstrong's Boards

Because of the peculiar texture of the cork composition used in their construction, Armstrong's Bulletin and Tack Boards are far more satisfactory than wooden ones. Thumbtacks can be pushed easily into the cork. They are held securely and can be removed readily without the use of a tack puller or knife, and without damage to the finger nails. Furthermore, due to the resiliency of the cork, the tendency of the tack holes is to close up gradually. Hence, Armstrong's Cork Bulletin and Tack Boards are not marred by unsightly splinters and retain a much smoother surface than wooden ones. They can be cleaned easily with soap and water.



Sectional View, Armstrong's Wood-backed Cork Bulletin and Tack Board

Sizes

Standard panels of wood-backed board are 4x6 ft. x ½ in. thick. Boards or strips of smaller sizes can be easily sawed on the job from standard panels, or will be supplied by the factory. Larger sizes are furnished in sections.

Burlap-backed material is supplied in a single piece of any desired length and in any width up to 6 ft.

Colors

Both materials can be supplied in light brown, No. 30; dark brown No. 31; and green, No. 32.

Specifications

Wood-backed Cork Bulletin Board—Provide and install Armstrong's Wood-backed Cork Bulletin or Tack Board where indicated on the drawings or herein specified.

(State here where they are required and sizes.)

All tacking spaces of bulletin boards shall be Armstrong's Wood-backed Cork Bulletin or Tack Board material as made by the ARMSTRONG CORK COMPANY, Lancaster, Pa. (This material is to be ½-in. thick, consisting of one ¼-in. thick layer of cork composition reinforced with burlap and securely cemented to a three-ply backing of compo board with wood core.)

All frames to be of same finish and material to match trim and to have loose cover mould as detailed around all cork bulletin boards. All cork bulletin boards to be securely nailed along all edges before placing cover mould in position.

Grounds—(Paragraph to be included under "Grounds" in Carpentry Specifications.)

Set a 2-in. x ⅞-in. thick (thickness will depend on adjoining trim, etc.) wood grounds to receive Armstrong's Cork Bulletin Boards when these are called for on drawings or specified. All grounds shall be set straight and leveled for all edges and in the middle, running the long way of each bulletin board, also where two sections of the bulletin board may join.

Burlap-backed Cork Tack Board—Provide and install Armstrong's Burlap-backed Cork Tack Board where indicated or herein specified.

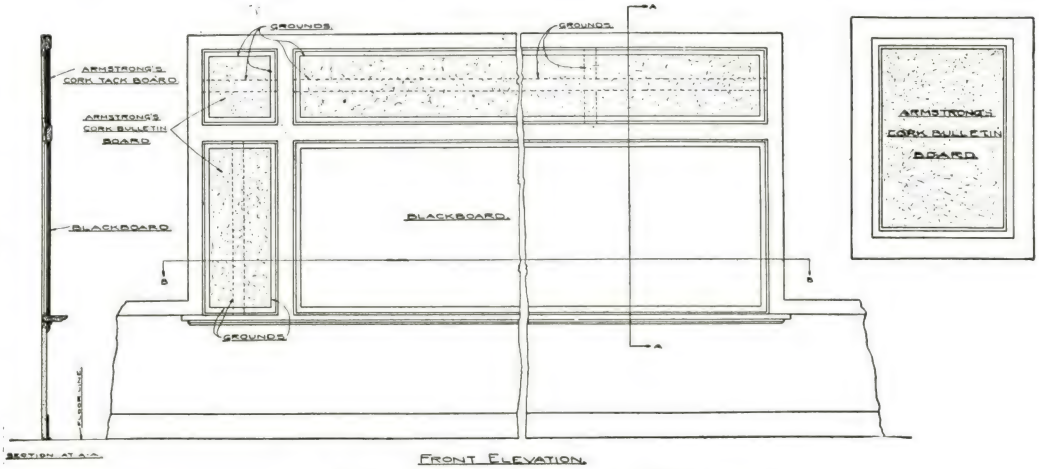
All tacking spaces shall be Armstrong's Burlap-backed Cork Tack Board material as supplied by ARMSTRONG CORK COMPANY, Lancaster, Pa. (This material to be ¼-in. layer of cork composition reinforced with burlap.)

All tack board is to be cemented to finished plaster with Armstrong's Waterproof cement as supplied by the ARMSTRONG CORK COMPANY, Lancaster, Pa.

All frames to have same finish and material as trim and to have loose cover mould as detailed.

Plastering—(Paragraph to be inserted in plastering specifications.)

Finished plaster to be carried over all areas detailed as cork tack boards.



Method of Installing Armstrong's Cork Bulletin Board

MUNDET CORK CORP.

450 Seventh Avenue, NEW YORK, N. Y.

DOMESTIC FACTORIES: HILLSIDE, N. J., BROOKLYN, N. Y.

BRANCHES

ATLANTA, GA. BOSTON, MASS. BUFFALO, N. Y. CHICAGO, ILL. CINCINNATI, OHIO DETROIT, MICH. HOUSTON, TEX. KANSAS CITY, MO. LOS ANGELES, CAL. MEMPHIS, TENN. NEW ORLEANS, LA. PHILADELPHIA, PA. ST. LOUIS, MO. SAN FRANCISCO, CAL. TULSA, OKLA.

AGENTS

CLEVELAND, OHIO, C. S. Ross
DES MOINES, IOWA, John Kennedy
MINNEAPOLIS, MINN., Insulation Sales Co.
PORTLAND, ORE., F. J. Leonard
PORTLAND, ORE., Pacific Asbestos & Supply Co.
SALT LAKE CITY, UTAH, L. A. Roser
SEATTLE, WASH., Pacific Asbestos & Supply Co.
UTICA, N. Y., George Weisenberger
VANCOUVER, B. C., CANADA, T. M. Grindley Company, Ltd.

Product

MUNDET "JOINTITE" BULLETIN BOARDS.

For other Mundet products, including Cork Insulation and Cork Flooring Tile, see Manufacturers' Index.

MUNDET "JOINTITE" BULLETIN BOARD

Uses

Mundet "Jointite" Cork Bulletin Boards are used extensively in schools, colleges, factories, offices, hotels, club rooms and, in general, wherever a soft and durable surface must be provided for the posting of notices. They are easily penetrated by thumbtacks.

Description

Mundet "Jointite" Cork Bulletin Boards are composed of a layer of composition cork ¼ in. thick which has been securely cemented to a backing of ¼-in. 3-ply, wood insert, compoboard. It is a neutral brown in color and makes an ideal background in its natural state.

Advantages of Mundet "Jointite" Bulletin Boards

Cork bulletin boards have several advantages peculiar to the material of which they are constructed. They are so much superior to the conventional wooden bulletin board as to render the latter obsolete. The chief reasons the cork bulletin boards are so superior to those of wood construction are:

(1) A thumbtack can be pushed in with little effort but is held with a firm grip.

(2) No knife or tack puller is necessary to remove thumbtacks.

(3) Due to the resiliency of cork, holes made by thumbtacks have a tendency to gradually close. This results in a far better appearing board than one in which there are many unsightly holes.

Sizes

Mundet "Jointite" Cork Bulletin Boards are furnished cut to any size required. The standard mounted sheets measure 4x6 ft. Unmounted, the cork bulletin board can be furnished in rolls measuring 6x60 ft. Cork bulletin boards can be installed by any carpenter. They are easily cut with a saw.

Specifications

Note: Due to the nature of the material, it is usual to include same in the Carpentry Section of the General Specifications as follows:

Cork Bulletin Boards—Furnish and install Mundet "Jointite" Cork Bulletin Boards where indicated on the drawings and as specified.

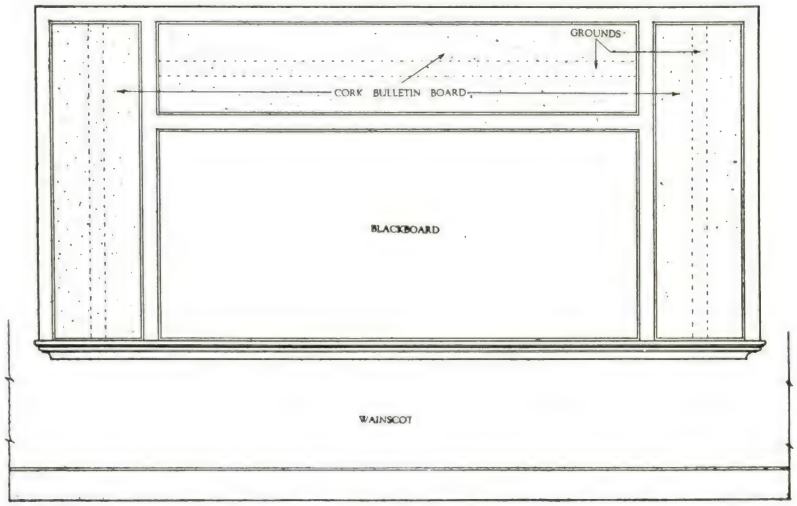
Note: Specifications should further contain a schedule of locations and sizes.

All bulletin boards shall be Mundet "Jointite" Cork Bulletin Boards as manufactured by MUNDET CORK CORP., New York, N. Y.

The material shall be a full ½ in. in thickness, consisting of a ¼-in. layer of composition cork reinforced with a burlap back, securely mounted by cementing same to a 3-ply backing of compoboard with wood core.

All frames shall match the trim and shall have loose cover mould around all cork bulletin boards. All cork bulletin boards shall be securely nailed at edges before cover mould is installed.

Grounds—Set 2-in. wide grounds, of such thicknesses as will be required to conform with that necessary for adjacent trim, to receive Mundet "Jointite" Cork Bulletin Board as called for on drawings, or in specifications. All grounds shall be set straight and level.



A Suggestion for Installation of Mundet "Jointite" Bulletin Board—Front Elevation

THE BRUNSWICK-BALKE-COLLENDER CO.

Manufacturers of Billiard Tables, Bowling Alleys, Billiard and Bowling Supplies, Squash Courts, Shuffle Boards and Closet Seats.

TELEPHONE
Wabash 4020

GENERAL OFFICE
623-633 South Wabash Avenue
CHICAGO, ILL.

BRANCHES IN ALL PRINCIPAL CITIES

Products

BILLIARD TABLES, BOWLING ALLEYS, BILLIARD and BOWLING SUPPLIES, SQUASH COURTS and SHUFFLE BOARDS.

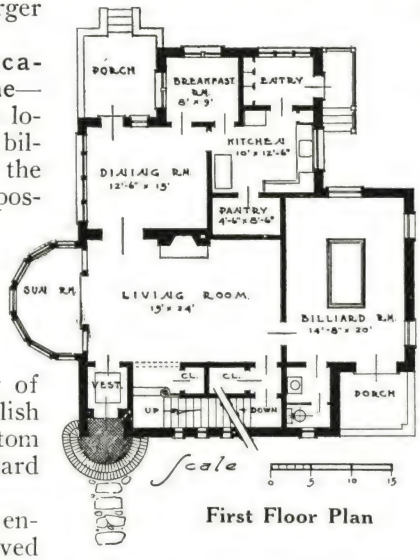
For our pages on Closet Seats, see Manufacturers' Index.

Billiard Tables for the Home

Brunswick Tables are known all over the world, and are standard wherever billiards is known. Professional championship games for many years have been played on Brunswick Tables. The same manufacturing facilities that produce these professional tables are devoted to the production of the table for the home.

Every Brunswick Home Table is a real billiard table, regardless of size. The only difference between Brunswick Home Tables and Brunswick Regulation Size Tables is in the area of the playing surface. But inasmuch as the cushions, cushion angles and the size of the balls have been reduced in the same mathematical proportions as the playing surface, the scientific playing qualities of the smaller tables are identically the same as those of the larger type.

Desirable Locations in the Home—The most desirable location for a home billiard table is on the first floor and, if possible, the billiard room should join the dining room, as billiards is a splendid after-meal exercise. In many of the better English homes it is the custom to so locate billiard rooms.



First Floor Plan

There is much enjoyment to be derived from the game of billiards after dinner, or with neighbors or friends at a later hour, and, for this reason, it is essential that the table be located most conveniently and most accessibly. Since the development of oil burners, many of the smaller houses are providing basement billiard rooms in space no longer needed for coal bins, large cumbersome furnaces, etc.

Brunswick "Home Club" Table

We have developed a convertible home billiard table which is ideal for dining room or living room use.

The "Home Club" Table is the latest development of the craftmans' art in the construction of beautiful furniture. Attractively designed in American walnut, this table completely meets the requirements of the exacting housewife for the dining or living room.

The dining or living room table top is removable, which immediately converts it into a real billiard table, with all the pleasures of carom or pocket billiards available. A disappearing accessory drawer contains playing equipment and keeps it out of sight when not in use. A disappearing ball rack which can also be swung under the table is placed opposite equipment drawer.

The "Home Club" table has been created for those homes and apartments where a special room is not available. The present floor space may be utilized for this table, which can be purchased at a cost but little exceeding that of a dining or living room table of attractive design. Complete with all playing equipment.



"Home Club"—Dining or Living Room Table

Furnished in Two Styles and Two Sizes—The "Home Club" table is available in two styles; either as a pocket billiard table, or as a combination table for playing both carom and pocket billiards on the same table.

TABLE AND ROOM DIMENSIONS "HOME CLUB"

Table size	Room size, not less than
3 x6 ft.	11x14 ft.
3½x7 ft.	12x15 ft.

Combination Table with Interchangeable Cushions—The combination feature is achieved through the use of two sets of cushions, one for carom billiards and a set for pocket billiards. They are quickly and easily interchanged by the mere opening and closing of hand levers under the rails which lock either set firmly in place. A box is furnished to hold the set of cushions not in use.

Brunswick "Junior Grand" Table

The "Junior Grand" is designed along lines especially appropriate for the home having a room or other space available for billiards, amusements, den or recreation room. It is attractively designed and made in two-tone American walnut with vein line ornamentation and hand rubbed finish.

Furnished in Two Styles and Three Sizes—Table is available in two styles similar to the "Home Club" table for pocket billiards or as a combination table for playing both carom and pocket billiards.

Equipped with disappearing accessory and ball rack drawers similar to the "Home Club" table, complete playing equipment furnished.



"Junior Grand"
Sizes: 3x6, 3½x7 or 4x8 ft.

TABLE AND ROOM DIMENSIONS "JUNIOR GRAND"

Table size	Room size, not less than
3 x6 ft.	11x14 ft.
3½x7 ft.	12x15 ft.
4 x8 ft.	13x17 ft.

Brunswick "Grand" Table

The "Grand" is especially designed for homes having a room suited to the use of a billiard table of full regulation size. It is built of highly figured butt walnut, two-tone finish, and decorated with vein line ornamentation on frame, rails and legs. It is a true billiard table in every sense, which means the height of achievement in fine cabinet work and playing standards.

Furnished in Three Styles and One Size—Table is available in three styles: as a carom billiard table, as a pocket billiard table, or as a combination carom and pocket billiard table with convertible rails.

Equipped with disappearing accessory and ball rack drawers. When the table is not in use, all billiard playing equipment is entirely out of sight. Regulation playing equipment furnished.

TABLE AND ROOM DIMENSIONS "GRAND"

Table size	Room size, not less than
4½x9 ft.	14½x18 ft.

Modern Recreation Clubs or Centers and Commercial Establishments

As a result of our extensive and varied experience we have been able to develop and maintain a thoroughly trained organization, who have made a special study of the requirements of the modern recreation centers and will gladly, without charge, co-operate with architects who have such a problem on their boards.

For commercial establishments or recreation centers, upper floors or basements may be utilized to advantage for billiard rooms and bowling alleys.

The modern tendency is to build recreation clubs or centers consisting of two, three or more stories. The floor plans shown on Plate 2 (second page following) are simply offered as suggestions of arrangement and are sufficiently flexible to permit of such changes as may be necessary to utilize floor space available. They give a fair idea of the floor areas required to accommodate the equipment and concessions found in two of the largest recreation clubs, now operating.

Basement space can be used to good advantage for additional bowling alleys, swimming pool, baths, or other attractions, if desired. Some of the newer buildings have provided ideal bowling quarters in this space. The ceilings, of course, should be of sufficient height to give proper ventilation.

If a new building is to be constructed, consideration might well be given to the English type of basement or semibasement. This reduces the amount of excavation required and permits of windows—a feature which adds immensely to the lighting and ventilating of the space.

Trade Table Sizes and Dimensions—The following table gives the dimensions of the four sizes of tables manufactured for the trade:

TRADE TABLE SIZES AND DIMENSIONS

Trade sizes	Actual measurements between extreme outside edges of opposite rails
4 x 8 ft.	4 ft. 7½ in. x 8 ft. 5½ in.
4½x 9 ft.	4 ft. 11½ in. x 9 ft. 1½ in.
5 x10 ft.	5 ft. 5½ in. x 10 ft. 1½ in.
6 x12 ft.	6 ft. 8 in. x 12 ft. 5½ in.

Space Between Tables and from Walls—Between tables, 5 ft. is best; in emergency this can be reduced to not less than 4 ft. From table edge to wall, 6 ft. is preferable, especially where wall seating is provided; in emergency this can be reduced to not less than 5 ft.

Regulation Bowling Alleys

On Plate 1 (following page) will be found plans of alleys in groups, the one for six shows amount of space required for four and two as well as six regulation bowling alleys. Also plan of three and a single pair showing center ball return.

The dimensions are definite and should be maintained to meet with the official American Bowling Congress rules and regulations.

Concrete Foundation Including Provision for Pit—The ½-in. scale cross section details indicate our suggested requirements for foundations to permit proper installation on solid concrete floors. Where alleys are to be installed in basement or on first floor on concrete foundation, a depression must be provided to receive the finished pit, this work to be executed by other contractors.

Special Improved Subfoundations—We furnish and install improved subfoundations for installations above first floor, which is our system of noiseproofing and provides the necessary height required for pit depression.

Space for Players' and Spectators' Seats—Space (3 ft.) for one row of players' benches should be provided for, at approach end in addition to the over-all length of alleys (82 ft.).

Spectators' seats are very essential and should be arranged for in at least one, two or three rows, according to available space, on stepped-up platforms. Where ceiling height permits, platforms can be built to a convenient height allowing space underneath for lockers, check room or storage.

Space for an aisle should be provided, if possible, without loss of units, alongside or between alleys, or in post areas, sufficiently wide to allow access to pin boys' room and storage space, which is usually located at rear of room.

Lighting—Lighting is a very important factor and should receive serious consideration; different size rooms and surroundings require different systems.

The most practical and economical idea is to place the ceiling lights back of beams wherever possible, one row of at least three, and preferably four, lights over center of each alley bed. This system provides an equal distribution and is most desirable, as all lights are concealed.

Another desirable system can be obtained by placing a row of lights over the center division between each pair of alleys, using ceiling fixtures, style of which is a matter of choice, but we recommend the use of either an open white shade deep enough to conceal light bulb—frosted bulb preferred—or a practical semi-indirect fixture placed at intervals most adapted to conditions. General illumination should be provided over approach, players' benches and spectators' seats as well as balance of room.

Pit or pin lights should be placed over the center of each alley bed. If overhead pin setting machines are used, pit lights should be placed 9 ft. 6 in. forward of rear of alleys or 5 ft. 6 in. forward of rear end of alley bed; if no overhead pin setters are used, place pin lights 8 ft. forward of rear of alleys or 4 ft. forward of rear end of alley bed.

We recommend the use of the Brunswick Bowling Pit and Foul Light, which is a combination pin light and foul signal and is universally used where equipment consists of four or more alleys. We furnish instructions on wiring for these fixtures.

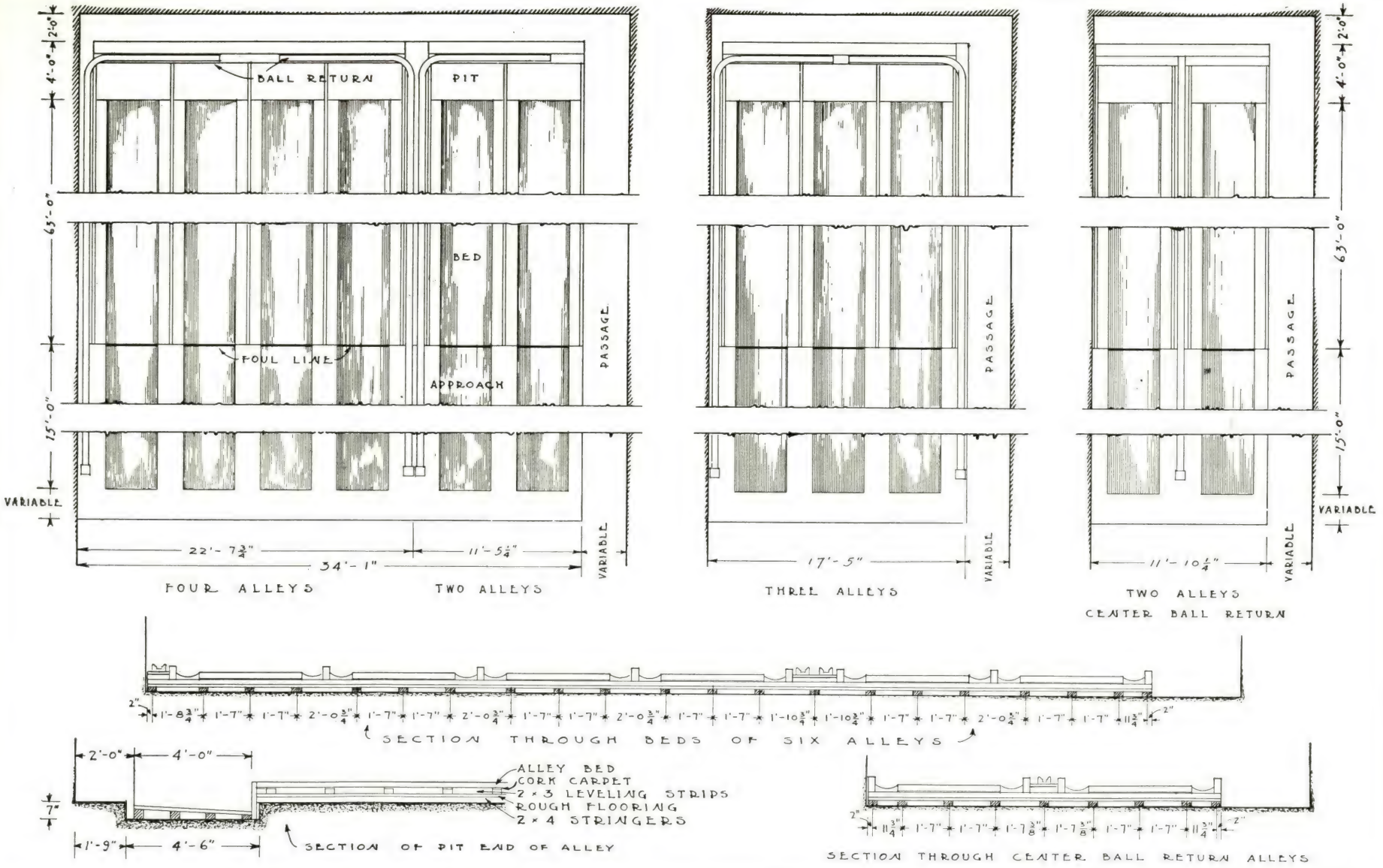
Ventilation—Proper ventilation should be given due consideration. Draughts should be avoided as they are detrimental to the health of both players and spectators. Properly designed artificial ventilation should be used as a protection to the health of the patrons and to conserve the heat in winter.

Experience and Co-operative Service

Our more than 33 years' experience has developed a technical and practical organization thoroughly equipped to handle and economically solve all problems pertaining to the design and proper installation of bowling alleys, squash courts, billiard tables, and shuffle boards.

There is a BRUNSWICK-BALKE-COLLENDER Co. branch in all principal cities in this country and Canada. Refer to telephone directory for the telephone number or address, or write main office. They will furnish without charge, blue prints, estimates and recommendations on any problem regarding Brunswick products.

C 3850 THE BRUNSWICK-BALKE-COLLENDER CO.

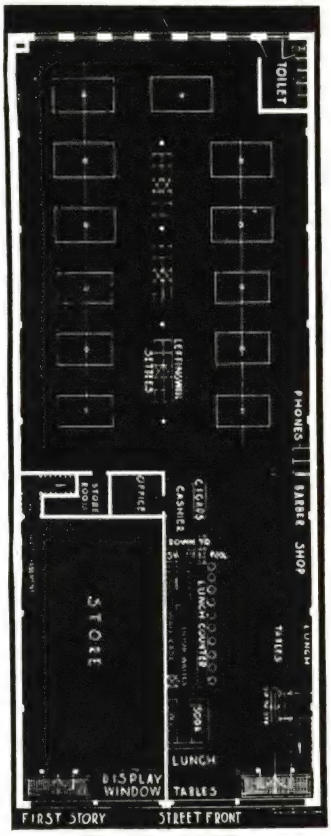


THE BRUNSWICK-BALKE-COLLENDER COMPANY

PLANS AND DETAILS OF BOWLING ALLEYS

STANDARD GROUP LAYOUTS

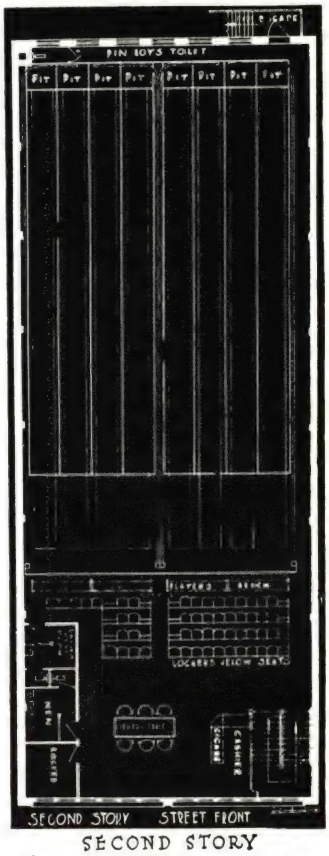
PLATE NO. 1



FIRST STORY

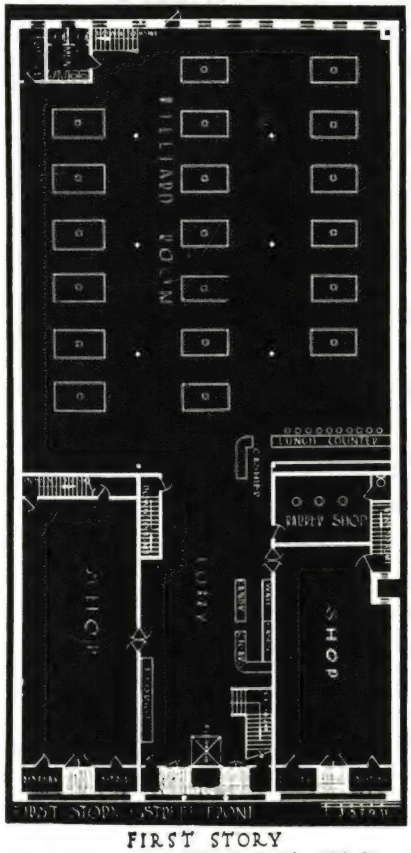
SUGGESTED FEATURES THAT MAY BE INCLUDED IN A MODERN RECREATION CLUB OR CENTER

- Carom Billiard Tables
- Pocket Billiard Tables
- Bowling Alleys
- Soda Fountain
- Lunch Counter
- Cigar Stand
- Barber Shop
- Beauty Parlor
- Check Room
- Locker Room
- Swimming Pool and Showers
- Storage Room
- Office
- Ladies' Rest Room
- Gents' Rest Room
- Lounging Room
- Children's Play Room
- Stores and Specialty Shops

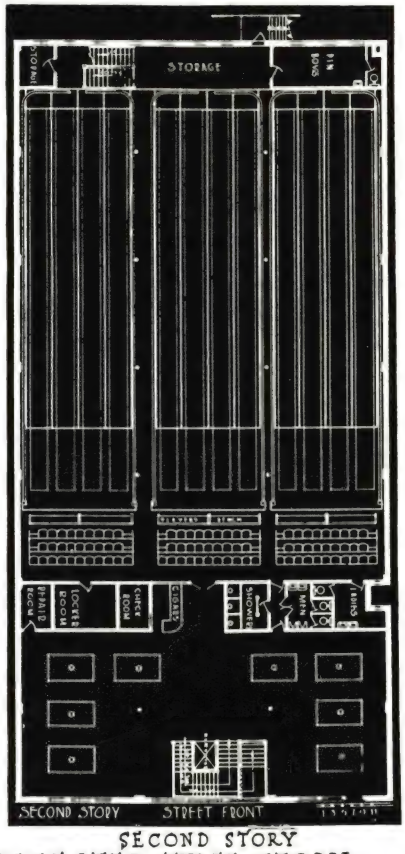


SECOND STORY

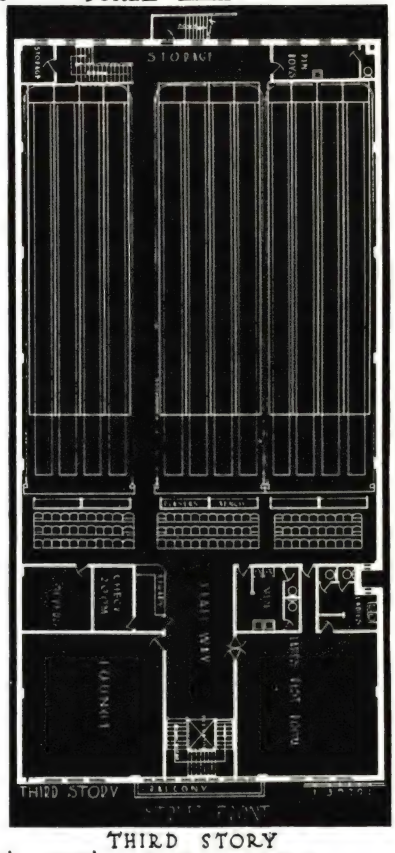
BUILDING Nº 1 • SUGGESTED TWO STORY • 50' x 125' SCALE



FIRST STORY



SECOND STORY



THIRD STORY

BUILDING Nº 2 • SUGGESTED THREE STORY • 75' x 150' SCALE

THE BRUNSWICK-BALKE-COLLENDER COMPANY	SUGGESTED PLANS EMBODYING ESSENTIAL FEATURES FOR A MODERN RECREATION CLUB	PLATE Nº 2 Scales Shown Graphically above

ESTABLISHED 1875

H. WAGNER & ADLER CO.

Manufacturers of Squash Courts, Billiard Tables, Bowling Alleys
Shuffle Boards, and Billiard and Bowling Supplies

EXECUTIVE OFFICES

TELEPHONE
ALgonquin 4-7070, 7071, 7072

44 East 14th Street (Union Square South)
NEW YORK, N. Y.

CABLE ADDRESS
"Cueball, New York"

Products

SQUASH COURTS; BILLIARD TABLES; BOWLING ALLEYS; SHUFFLE BOARDS.

Also Billiard and Bowling Supplies.

Experience

Our business life covers a period of more than half a century and our products are recognized as having no superiors.

Squash Courts

We are builders of the very finest squash racquets and squash tennis courts, and construct them according to standard regulations and rules established by the National Associations governing these games. The speed at which these games are played requires the construction to be absolutely exact and accurate dimensions must be maintained.

All materials used in the construction of our courts have been carefully selected and seasoned in our special manner.

The finished dimensions of squash racquet courts are 18 ft. 6 in. wide, 32 ft. long. Squash tennis courts measure 17 ft. wide, 32 ft. 6 in. long. The ceiling height should not be less than 16 ft. 8 in. So that the proper ground work can be arranged for, we suggest that you refer to us for plans and specifications. We make installations everywhere.

Billiard Tables

The very best which can be had in billiards is the product which we build. As in fine piano making a large part of the labor on our billiard equipment is "hand work" and accounts for the quality of our tables as compared with the machine made table developed by mass production. We necessarily make fewer tables because of this care which we exercise, but our tables are unsurpassed for workmanship and construction.

We can offer most attractive designs that we regularly manufacture for the trade, or build tables specially to order to conform with any architectural scheme of the room in which the table is to be used.

These fine tables can be had as billiard, pocket billiard, combination billiard and pocket billiard or subway tables, and a complete playing outfit is supplied with each.

We are prepared to cater to the club, public room or private home. We make installations everywhere.

Standard Trade Sizes—There are four standard sizes: 4 ft. x 8 ft, 4 ft. 6 in. x 9 ft., 5 ft. x 10 ft., 6 ft. x 12 ft. The over-all dimensions of these four sizes are respectively: 4 ft. 8 in. x 8 ft. 6 in., 5 ft. x 9 ft. 2 in., 5 ft. 6 in. x 10 ft. 2 in., 6 ft. 8 in. x 12 ft. 6 in.

The room in which to comfortably place a billiard table should be not less than 10 ft. wider and 10 ft. longer than the standard dimensions given above; additional space would be an advantage for seating space. A 6-ft. space between table and wall is always ideal.

Space Between Tables—The player wants plenty of room for the free use of the cue. The space most desirable between tables is 5 ft., but in some public places this has been reduced to 4 ft.

Bowling Alleys

A.B.C. Regulation—A.B.C. Regulation means that our bowling alleys are built in accordance with the standard dimensions prescribed by the American Bowling Congress which is the governing body of the bowling game. All our alleys are built of the finest comb grain pine and rock maple which is especially seasoned and kiln dried by our own method. Every improvement in the way of construction, such as bed stock being tongued and grooved throughout its entire length, three-piece round gutters, loop style ball returns, Wanda perfect pin spotters are all found in our alleys.

Regulation alleys require a space 83 ft. in length. This provides a space of 16 ft. in front of the foul line called the approach. The widths necessary for regulation alleys are as follows:

2 alley beds with gutters, etc., and one ball return —11 ft. 6 in.
3 alley beds with gutters, etc., and two ball returns—17 ft. 6½ in.
4 alley beds with gutters, etc., and two ball returns—22 ft. 9¼ in.
6 alley beds with gutters, etc., and three ball returns—34 ft. 3¼ in.

If a greater number of alleys are to be installed, we suggest submitting your proposition to us for arrangement or approval. We make installations everywhere.

Pits—Proper space should be provided for the pits. This space extends the width of the alleys, depending upon the number of them to be installed and is 7 ft. 2 in. wide and 6 in. lower than the rest of the floor at the wall and 8 in. lower than the rest of the floor in the room at a point 4 ft. 2 in. from the wall, and continues for three additional feet at this lower depth on a level until a point 7 ft. 2 in. from the wall has been reached. This provision for pits is only necessary when alleys are to be installed in basements or on street floor level.

Special Improved Subfoundations—When alleys are to be placed on floors above the street floor, we furnish and install subfoundation which reduces noise to a minimum, and as this is a built-up construction, it also provides space for the pits.

Plans—We will supply plans showing the proper regulation arrangement for bowling alleys and details showing arrangement of pits on receipt of your request.

Lighting—Good lighting is a most essential feature, and the best arrangement provides for a fixture hung above the tenpins over the center of each alley bed 8 ft. 6 in. from the wall and the bottom of this fixture should be not less than 3 ft. above alley beds. A series of four additional lights should be placed over the center divisions of each pair of alleys and placed on 12-ft. 8-in. centers. The fixtures over the tenpins should be steel porcelain covered, and the four remaining fixtures above the center division should be white glass domes, 14-in. diameter preferred, and hung so that bottom of fixture will be not less than 9 ft. above alley beds. Our plans show the arrangement of the lights.

Shuffle Boards

We build the very finest shuffle boards, and of materials which have been seasoned in our special manner. These are made in three standard sizes, namely, 24, 28 and 32 ft. These sizes represent the playing surface only and the over-all sizes are 25 ft. 4 in., 29 ft. 4 in. and 33 ft. 4 in. All boards measure 2 ft. 5 in. in width. We can build shuffle boards of any special length required.

Supplies

We are prepared to supply all items of sundry merchandise incidental to the billiard and bowling games, a few of which are:

Billiard—Cloth, cues, cue tips, ivory balls, table covers, triangles, etc.

Bowling—Hard rubber bowling balls, duckpin balls, tenpins, duckpins, mats, finishing materials, etc.

BEACON EQUIPMENT COMPANY

64 Pearl Street, Brookline, Mass.

SWIMMING POOL DESIGN, CONSTRUCTION AND EQUIPMENT

Products and Experience

DESIGNING and CONSTRUCTING with COMPLETE EQUIPMENT, all types and sizes of Pools, including Outdoor and Indoor Swimming Pools, Wading Pools for children, Ornamental Pools and Artificial Ponds for the formal or informal garden.

For years, members of our organization have been pleasing architects and owners of beautiful New England estates by giving careful and individual attention to the various swimming pool problems confronting them.

Engineers and Builders

We fulfill the contract to construct and equip the entire pool or any part of it. However, to obtain the best results the pool should be considered as a unit. One firm should have the entire responsibility of engineering, constructing, equipping and setting into operation a finished product that will satisfy even the most discriminating owner.

Services

Our firm furnishes only the most modern, high grade materials in construction and equipment, and competently performs any one or all of the following services.

(1) Furnishing complete plans and specifications.

(2) Additional engineering information for the whole pool or any part of it, such as: reinforced concrete, waterproofing, plumbing or mechanical equipment, and accessories. If we are awarded the contract no charge is made for engineering. However, if others are awarded the contract we charge the usual engineering service fee.

(3) Construction of the pool.

(4) Waterproofing.

(5) Filtering.

(6) Sterilizing.

(7) Mechanical and plumbing work, such as: furnishing and installing pumps, inlets, outlets, floor drains, heaters, suction cleaners.

(8) Underwater and floodlighting.

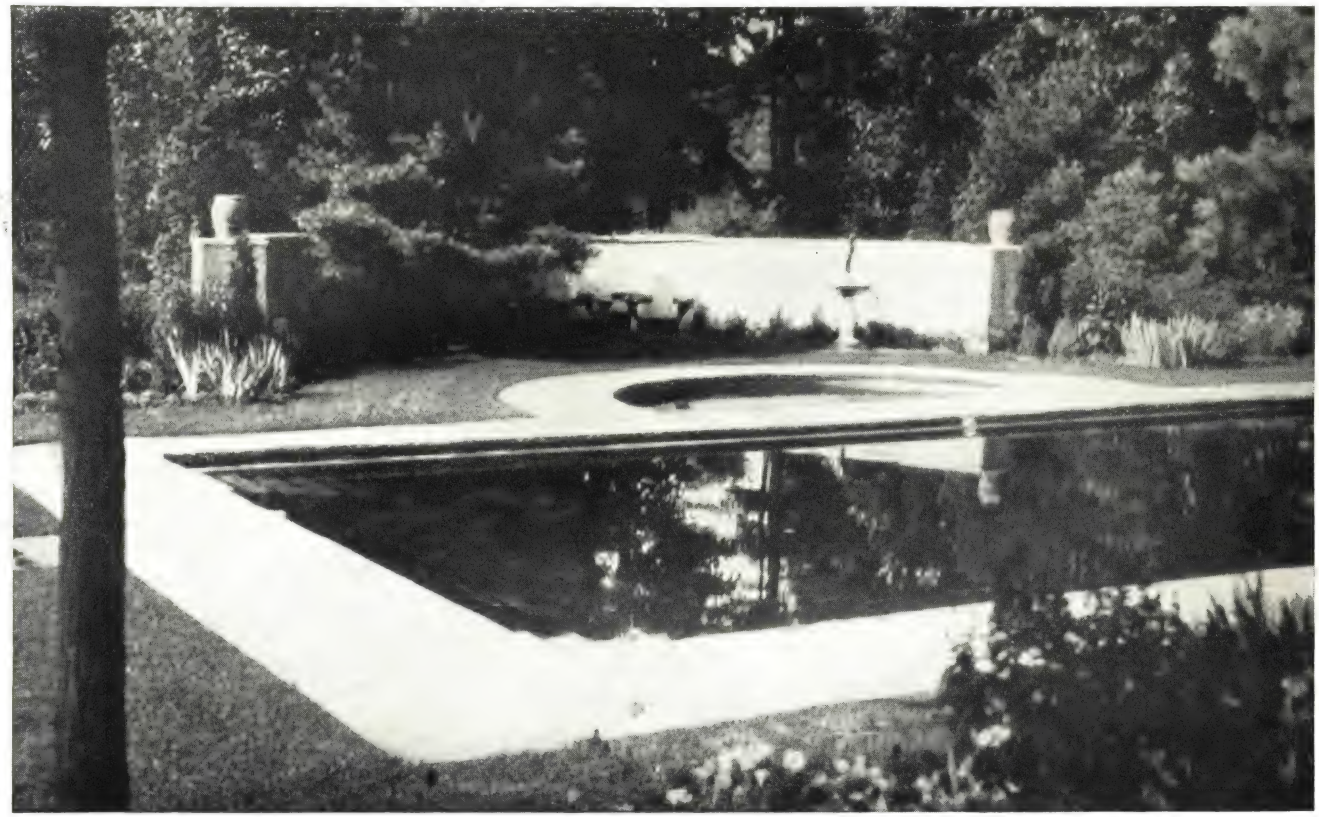
(9) Springboards, ladders, and other pool accessories.

(10) Construction of bathhouses with complete equipment.

(11) Grading and landscape construction.

Uses

Swimming pools are becoming more and more popular and are being constantly erected for estates, amusement parks, playgrounds, clubs, overnight camps, hotels, popular summer resorts.



Swimming and Wading Pool—Private Estate, Chestnut Hill, Mass.

HASBROUCK COMPANY, INC.

Swimming Pool Engineers
Consultants, Engineers and Builders
101 Park Avenue
NEW YORK, N. Y.

The Swimming Pool Problem

There are five major considerations in connection with a swimming pool:

(1) Design (2) Construction (3) Equipment (4) Maximum sanitation (5) Minimum maintenance

The first three must be exact in every detail in order to produce the last two which are of great importance to the health of those using the pool and to those operating the pool.

The arrangement of the showers and dressing rooms has a direct bearing upon the physical condition of the water in the pool. When we think of a pool it is most important to carefully plan for all showers and dressing rooms and locker rooms, which is part of the service rendered by us.

The A.A.U. and intercollegiate rules pertaining to swimming must be considered if the pool is to be usable for official meets, water polo or other aquatic sports.

The initial cost of a swimming pool is the first thought in the mind of the prospective owner, but relatively this is of less importance than that of sanitation and maintenance, which two latter items, after the completion of the pool, are constantly before the owners and become the major factors for the success or failure of the operation of the swimming pool. A sanitary pool means larger attendance, which in turn produces greater revenue and, if the maintenance cost is low, the net profits are naturally larger.

The above is made possible only through theory, research and experience. We have been for nineteen years actively and exclusively engaged in swimming pool work and we are fully organized and equipped to serve as consultants, engineers and builders of swimming pools. We have our own specially trained men for this work. This places the responsibility under one head for the entire contract.

The swimming pool problem is not a simple one, but rather complex, with the following items to consider which must be properly correlated in order that the final result be successful and that the work may be guaranteed and bonded:

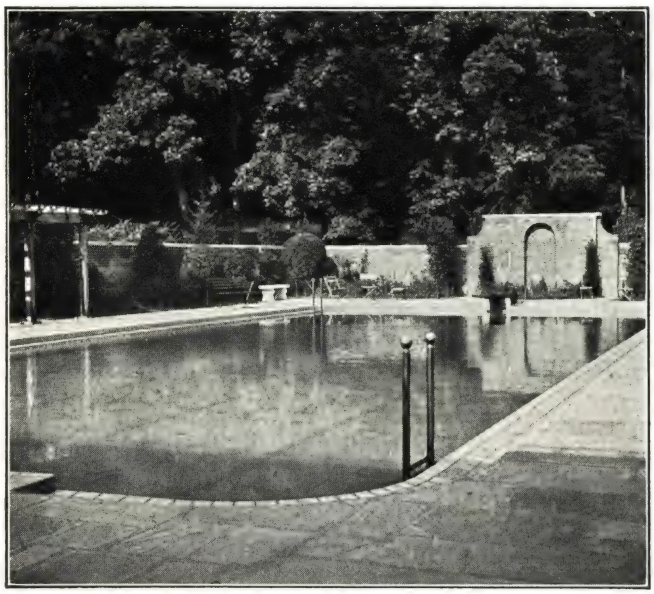
Sanitation	Reinforced concrete
Maintenance	Structural steel tanks
Filtration	Electric arc welding
Sterilization	Heating
Recirculation	Pumps
Ventilation	Motors
Condensation	Painting
Hydrostatic pressure	Special plumbing work
Waterproofing	Springboards
Tile work	Foot tubs
Ladders	Accessories

Architects are invited to consult with us relative to any type of swimming pool.

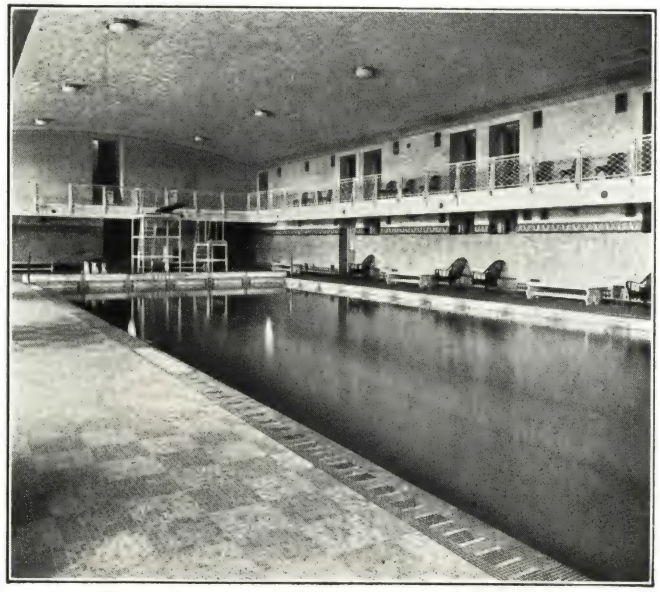
If we are awarded the contract to build a swimming pool we make no charge for services rendered. If we are not awarded the contract, we charge a fee for services rendered.

References

Recreation Centers, Washington, D. C., U. S. Government, Lieut. Col. U. S. Grant 3rd, Director
National Board Y. W. C. A., New York, Miss Lena Farrar
Architectural Bureau Y. M. C. A., New York, N. McMillan
Jewish Welfare Y. M. H. A., New York, L. Kraft
American Red Cross, Washington, D. C., H. F. Enloss
Playground Recreation Association, New York, Geo. Butler
Board of Education, Lakewood, Ohio, G. W. Grill
McKim, Mead & White, Architects
Walker & Gillette, Architects
Waddy B. Wood, Architect
Shepard & Stearns, Architects
Bradley Delehanty, Architect
Goodwin, Thompson & Patterson, Architects
John Russell Pope, Architect
York & Sawyer, Architects



Pool, Columbia Country Club, Chevy Chase, Md.
ARTHUR B. HEATON, Architect, Washington, D. C.



Men's Pool, Penn A. C., Philadelphia, Pa.
ZANTZINGER, BORIE & MEDARY, Architects

ESTABLISHED 1827

WM. H. JACKSON COMPANY

Tile for Swimming Pools and General Decorative Purposes

2 West 47th Street
NEW YORK, N. Y.

318 North Michigan Avenue
CHICAGO, ILL.

WM. H. JACKSON COMPANY, of CANADA, LTD., 112 St. James Street, MONTREAL, QUE.

Products

TILE of all descriptions and for every possible use—Foreign, Domestic and Antique. SWIMMING POOL and BATHROOM ACCESSORIES of every description. Metal Fittings for pools, both ornamental and utilitarian.

For our pages on Ornamental Bronze and Iron Work, Bronze and Aluminum Windows, Antique and Modern Mantels in Marble, Cretan Stone and Wood, Andirons and complete Fireplace Accessories, Electric Fireplace and Bathroom Equipment, see Manufacturers' Index.

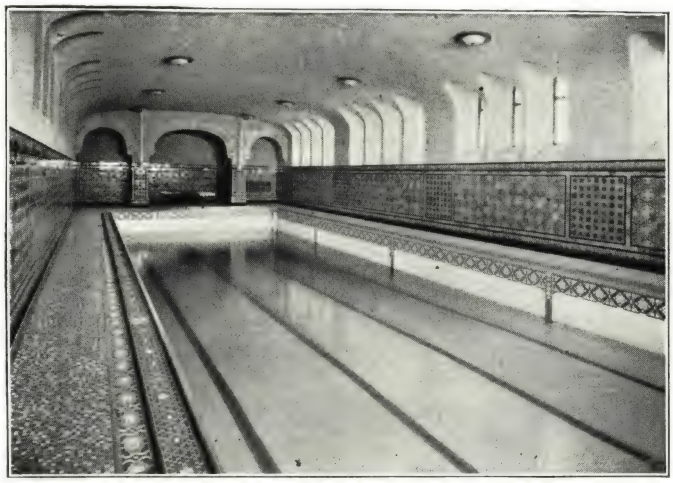
Services

For over one hundred years the WM. H. JACKSON COMPANY has installed fine Tiling. The use of tile is constantly becoming more extensive and complicated. To the architect, owner and builder the WM. H. JACKSON COMPANY offers the services of experts. Our Designing Department is glad to co-operate in the presentation of sketches or finished drawings, and our technical staff is qualified to solve any problems which may arise in connection with Tile Work. A permanent organization competent in every branch of Tile Work is at your service.

Jackson Tile Pools

Jackson Swimming Pools, both interior and exterior, combine either a simple or highly elaborate decorative effect with perfect serviceability. Our tile is suitable not only for the pool, but for the floor, walls and wainscotings as well, thereby obtaining a most satisfactory unity of effect.

Our organization, established in 1827, is the pioneer in the development of the tile industry for swimming pools.



BOYS' POOL, WEST SIDE BRANCH, Y. M. C. A., NEW YORK, N. Y.
DWIGHT JAMES BAUM, Architect

Special Features

Some of the special features of Jackson Swimming Pools are the Jackson Pool Life Rail, the grip coping, the overflow gutters, depth and distance numerals, safety guides, etc.

We also furnish the necessary metal strainers, inlet, outlet, and floor drains, for which we have many special patterns, and diving boards if required.

One of the Three Hundred Pools Installed by Wm. H. Jackson Company

In addition to the general service in the study of decorative tile application, this organization co-operates with the architects and others in the development and study of swimming pool problems, including the correct waterproofing; and, if required, will furnish drawings, specifications and all details for the general construction together with estimates for furnishing and installing.

GENERAL TILE WORK



Patio Fountain
Specially designed
A. L. Deane Residence
ERIC KEBBON, Architect
New York City

This entire installation absolutely true to period. We are specialists in this type of work, including accompanying bronze and iron work.

SWIMMING POOL CONSTRUCTION CORPORATION

TELEPHONE
VAnderbilt 3-8083

Swimming Pool Engineers and Builders

New York Central Building, 230 Park Avenue
NEW YORK, N. Y.

Products and Services

Design, Construction and Equipment of INDOOR and OUTDOOR SWIMMING POOLS, WADING POOLS and ORNAMENTAL GARDEN POOLS.

In addition to complete plans and specifications, our work includes any or all of the following items:

Reinforced Concrete	Tiling
Waterproofing	Pumps
Sterilizers	Heaters
Filters	Inlets
Diving Boards	Outlets
Suction Cleaners	Floor Drains

We are a firm of swimming pool engineers and builders. As engineers, we design indoor and outdoor swimming pools and wading pools. We furnish all the necessary drawings and perform the engineering work for the reinforced concrete and waterproofing. We also lay out all plumbing and mechanical equipment and we write specifications for everything connected with the pool.

As builders, we undertake contracts for swimming pool work complete, or for any portion, such as reinforced concrete, waterproofing, tile, mechanical equipment and accessories. If the contract is awarded to us, we make no charge for our engineering work. If the contract is awarded to others, we charge a regular engineering fee for services.

Designing the Modern Swimming Pool

The rapid growth in the popularity of swimming pools during the last few years has been accompanied by a greater demand for convenience and for sanitary equipment. New systems of filtering, sterilizing, heating and recirculating the water have been developed. The problem of sanitary maintenance has produced changes in the design of the pool itself, while at the same time more attention is being paid to the decorative treatment of the surroundings. As a result of these developments, the work of planning, specifying and building an up-to-date pool has become increasingly complex.

It has been found that the best solution from the architect's point of view is to consult with an experienced firm of swimming pool engineers. In this way the architect can hold down construction costs, avoid excessive demands on his own time, and insure the construction of a satisfactory, permanent swimming pool.

Tile Is the Accepted Material

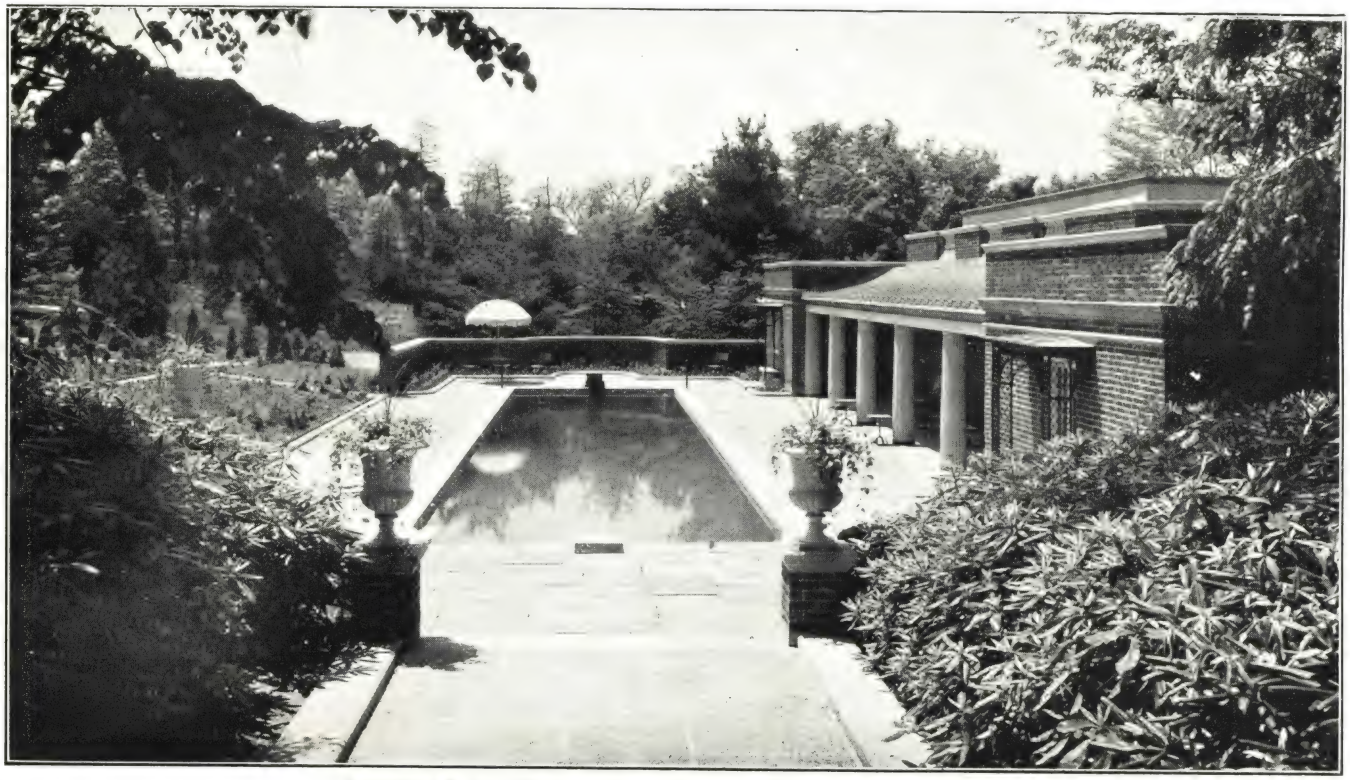
Although this Company is prepared to design and construct pools of every type—including tile, faience, cement and enameled brick—we recommend tile pools in almost every instance. Tile has the advantages of sanitation, beauty, permanence and reasonable cost. It has become the accepted material for lining the modern swimming pool.

Sanitary Value—A smooth tile lining has no cracks or crevices where dirt may lodge. Owing to the dense, non-absorbent nature of tile, impurities cannot penetrate beneath the surface, and this insures the thoroughness of the cleaning operation.

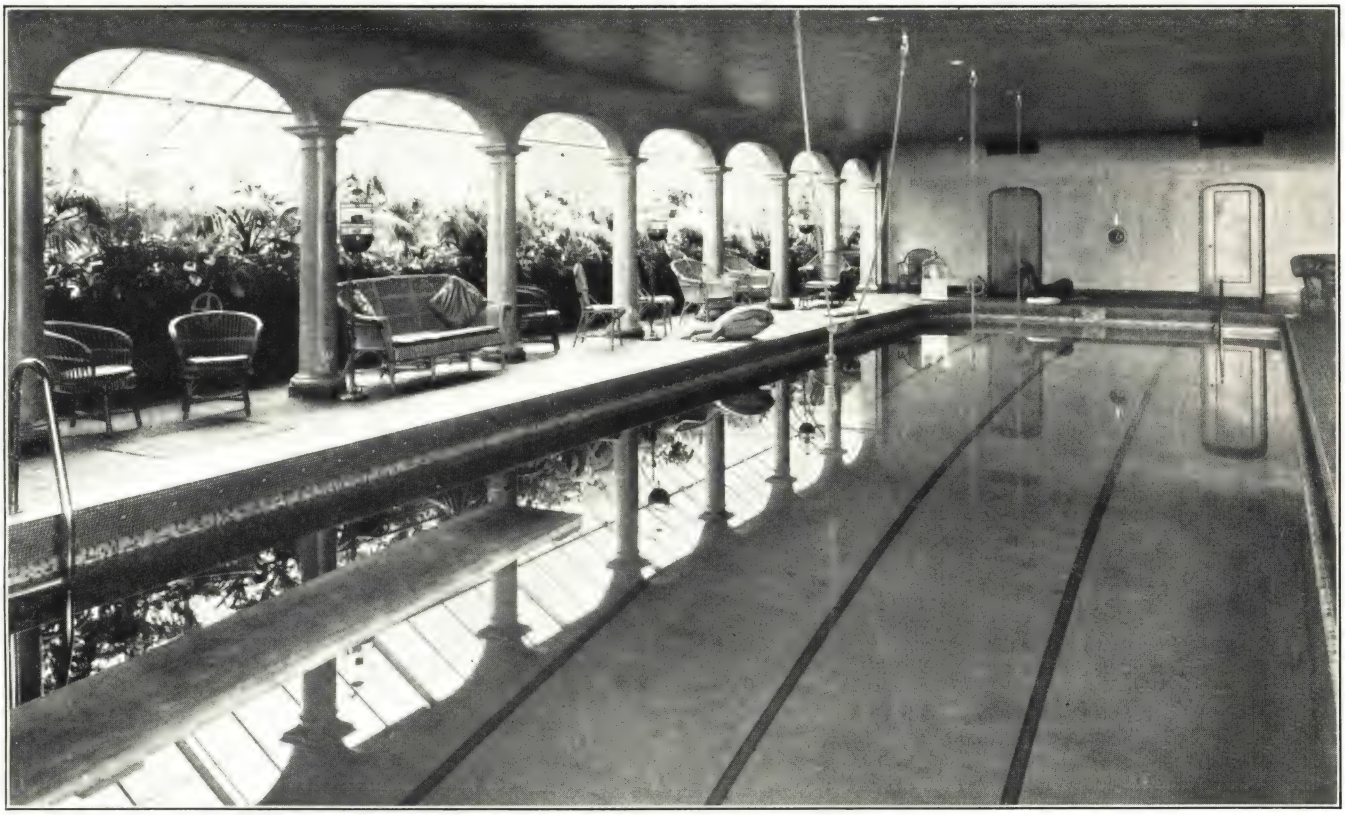
Decorative Value—Much more attention is being paid to the element of attractiveness in swimming pools, and especially to the color scheme. For the walls and floors of the pool, white or tinted tile forms the most pleasing and practical ground, but color is used for the swimming lines, depth markers, gutter and curb; also in many cases for the walk and walls surrounding the pool.

Faience panels in special designs are often built into the walls of the pool room. In general, where tile is used for the swimming pool there are unlimited possibilities of decorative treatment.

Permanence—Tile is the most durable of materials. Continuous contact with the water has no effect on its shape, texture or color.



Swimming Pool on Estate of James Norman Hill, Wheatley, L. I., N. Y.



Swimming Pool in Castle of Dr. Charles V. Paterno, New York, N. Y.

Experienced Tile Setters Necessary—To set tile properly requires experienced artisans and superintendents. This Company is widely experienced in tiling work and can execute the most complicated shapes or patterns with complete satisfaction. We can also help the architect by suggesting staple tiles which can be used for their decorative value without adding to the cost of the pool.

Reinforced Concrete and Waterproofing

The thickness and reinforcement of concrete walls and floors in a swimming pool depend on many complicated factors. Among these are capacity of the pool, ground-water pressure, bearing capacity of the soil and when the pool is located in an upper story, vibration of the building and expansion and contraction of supports. It is necessary for best results that the reinforced concrete be designed by an engineer experienced in swimming pool work.

Concrete should be poured in a continuous operation to avoid construction joints.

As for waterproofing, the integral method is generally sufficient for pools at the ground level. Membranous waterproofing is advised for pools in an upper story, on account of its greater elasticity. Consultation with swimming pool engineers is especially recommended in the case of waterproofing work, as their intimate knowledge of the problem will prevent both unnecessary expenditures during construction and the even more expensive failures due to faulty design or execution.

Water Supply

Only a limited amount of water is required for the upkeep of a modern swimming pool. Once the tank is filled, the water is withdrawn, filtered, sterilized and returned to the pool by a continuous process of recirculation. Only enough fresh water need be added to make up for overflow losses.

The rate of recirculation is regulated so that the entire contents of the pool is renovated one or more times a day, depending on the number of bathers. At intervals of several months the pool is drained and refilled.

In some localities the water supply must be specially treated to make it clear and attractive.

Mechanical Equipment and Accessories

The mechanical equipment for an indoor swimming pool consists in general of pumps, heaters, filters, sterilizers and suction cleaners. This Company can furnish and install approved equipment of all these types.

We also furnish and install diving boards, plain or aerating inlets outlets, and floor drains.

Outdoor Swimming Pools (for Cities, Amusement Parks, Estates and Country Clubs)

The building of outdoor swimming pools is a special branch of the work. Care must be taken with waterproofing to prevent pollution from ground water, and concrete must be designed to resist frost stresses. On the other hand, the omission of heating equipment greatly reduces the construction costs.

Pools for municipalities and amusement parks are generally much larger than indoor pools. Lengths of 150 ft. and more are not exceptional. Circular and oval pools are very popular, and for outdoor work present but little more difficulty than a rectangular pool. Plain concrete lining is the rule.

For estates and country clubs, rectangular pools are the rule. The favorite lining materials for such pools are unglazed vitreous-body tile, ceramic mosaic and faience—all of them strictly frostproof.

A happy variation of the swimming pool is the tiled wading pool for the youngsters. Wading pools should slope to a maximum depth of 1 ft. or less. They can be built at little expense, require no elaborate plumbing and are suited to the smallest grounds.

Special Uses for Swimming Pools

When placed in an elevated position—either on a hillside or in an upper story—swimming pools will serve as tanks for fire protection. This has been done in modern factories and on many country estates.

Country club swimming pools can be drained at night, and the water can be used for sprinkling the golf course and lawns.

Unit Contracts for Swimming Pools

To obtain the best results, the swimming pool should be treated as a unit when apportioning contracts. That is, the entire swimming pool work, including reinforced concrete, waterproofing, tiling, mechanical equipment and accessories, should be let as a single contract. In this way, responsibility for successful results rest on one organization. Preferably the swimming pool contract should be under the direct supervision of the architect and owner.

JOSAM MANUFACTURING CO.

Swimming Pool Equipment

MAIN SALES OFFICE
4900 Euclid Building
CLEVELAND, OHIO

FACTORY AND FOUNDRY
Corymbo Road
MICHIGAN CITY, IND.

DISTRICT BRANCH OFFICES
NEW YORK, N. Y., 215 East 37th Street
CLEVELAND, OHIO, 4900 Euclid Building
CHICAGO, ILL., 307 North Michigan Boulevard
ATLANTA, GA., 189 Trinity Avenue, S. W.
REPRESENTATIVES IN ALL PRINCIPAL CITIES IN UNITED STATES
Manufactured in Canada by Empire Brass Mfg. Co., Ltd., London, Ontario—Branches throughout the Dominion

Products

SWIMMING POOL EQUIPMENT.

Josam Inlets for circulating systems; Bronze Lion Heads for main inlet; Josam Hair Catcher; Josam Floor Drains and Main Outlet Drains; Scum Gutter and Multiple Level Scum Gutter and Overflow Drains; Skimmer and Agitator Inlets with either round or square strainers or with fan shape or needle spray spouts, with adjustable connection; Vacuum Connections for cleaning pool.

Instant Steam Water Heaters for circulating systems, for maintaining non-varying water temperature in pool.

All Josam Swimming Pool Equipment furnished either for Durham or soil pipe installation, except Series 2200 E Scum Gutter Drain which is furnished only with threaded outlet.

For other Josam Products such as: Josam Floor, Shower, Urinal and Roof Drains; New Feature Areaway and Non-clog Drains; Backwater Sewer Valves; Open Seat Swing Check Valves; Shock Absorbers; Josam-Marsh Grease, Plaster Sink, Dental, Surgical, Hair and Sediment Interceptors, see Manufacturers' Index.

Materials

Bodies of iron, brass or Everdur. Strainers, spouts, and all exposed parts brass; nickelplated, Chromium plated or polished, or of white metal.

Waterproofing Provision

Josam Swimming Pool Equipment can be furnished with the Josam positive clamping device, affording absolutely watertight connection between drain and wall or floor construction. All Josam Swimming Pool Equipment used below water line of pools should be specified and ordered *without* weep holes and *with* the Josam positive clamping device to hold waterproofing membrane.

Josam Swimming Pool Equipment

Josam Drains with special feature attachments make ideal swimming pool equipment. Josam Swimming Pool Equipment is used in the largest and best public and private indoor and outdoor pools. Body of Josam Type 353C having 3-in. pipe connection is adapted to practically any use for circulating inlets, overflow, vacuum connection, drain of walkway or floor surrounding pool, diving board base, etc., by interchanging type of Josam Strainer or attachment. Bodies with 1½, 2 or 4-in. pipe connection to take fittings above described, can be furnished when so specified and ordered. See Manufacturers' Index for this and other Josam Drains applicable to swimming pool use.

Service, Literature

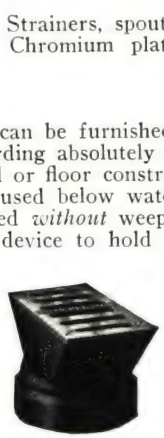
When requesting information or recommendations consult our Engineering Department at Cleveland, sending sketch of condition to be met. Blue prints and literature on Swimming Pool Equipment will be sent upon request.

Swimming Pools, Josam Products Used Exclusively

CAMDEN, N. J., 3 Pools, Camden County Park Commission, Owners; Arthur B. Gill, Architect, Camden, N. J.
CLINTON, S. C., Pool for College Gymnasium, Presbyterian College, Owners; Tucker & Laxton, Inc., Charlotte, N. C., Contracting Engineers
EAST ST. LOUIS, ILL., Pool and Bathhouse (Colored), East St. Louis Park District, Owner, E. P. Griffin, Engineer, East St. Louis, Ill.
GREENVILLE, MISS., Pool for Club Building, Washington County Y. M. C. A., Owner; H. W. Lathrop, Architect, Greenville, Miss.
JERSEY CITY, N. J., Pool, "Washington Park," Hudson County Park Commission, Owner; Hath & Schumm, Architects and Engineers, Jersey City, N. J.
KEANSBURG, N. J., Outdoor Pool, New Point Comfort Beach Co., Owner; David Ach, New York, N. Y., Architect
MILWAUKEE, WIS., Pool, Walter Johnston, Owner; Van Alyea & Spinti, Architects, Milwaukee, Wis.
NEW ORLEANS, LA., Pool, L. P. Schaff, Owner; Theo. Perrier, Architect, New Orleans, La.
NOBLESVILLE, IND., Pool, City of Noblesville, Ind., Owner; A. W. Brayton, Jr., Architect, Indianapolis, Ind.
NUEVO LAREDO, MEXICO, Pool; Junto Federal DeMejoras Materiales, Engineer
READING, PA., Public Swimming Pool (for children), Reading School District, Owner; Neubling & Mast, Engineers; Alexander Smith, Architect, Reading, Pa.
RYE, N. Y., Pool and Bathhouse, Westchester County Club, Mansuring Island, N. Y., Owner; Kenneth Murchison, New York, N. Y., Architect



Series 2242-H
Circulating connection with 4-in. square brass adjustable strainer



Series 2200-E
All-brass scum gutter drain. Shape conforms to narrow course of the gutter. Threaded outlet. Can be furnished with concave top.
A larger size scum gutter drain, primarily for use in large outdoor pools, having a 4x12-in. strainer plate and 3-in. female threaded outlet, is a recent addition to our swimming pool scum gutter drain line. This type is indicated as Type 2253



Series 300
Circulating connection with 4-in. square brass adjustable strainer and collar



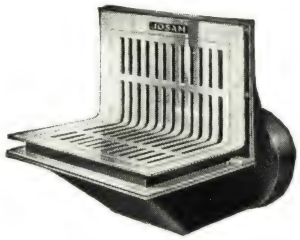
Series 310-CV
With threaded brass adjustable connection for vacuum hose



Series 320-CF
With brass adjustable fan shaped inlet connection



Series 590-M
Pool outlet connection with 12-in. brass top



Series 1200
Combination side and bottom pool outlet connection, with reversible outlet. Angular brass frame and clamping device. Brass removable grate

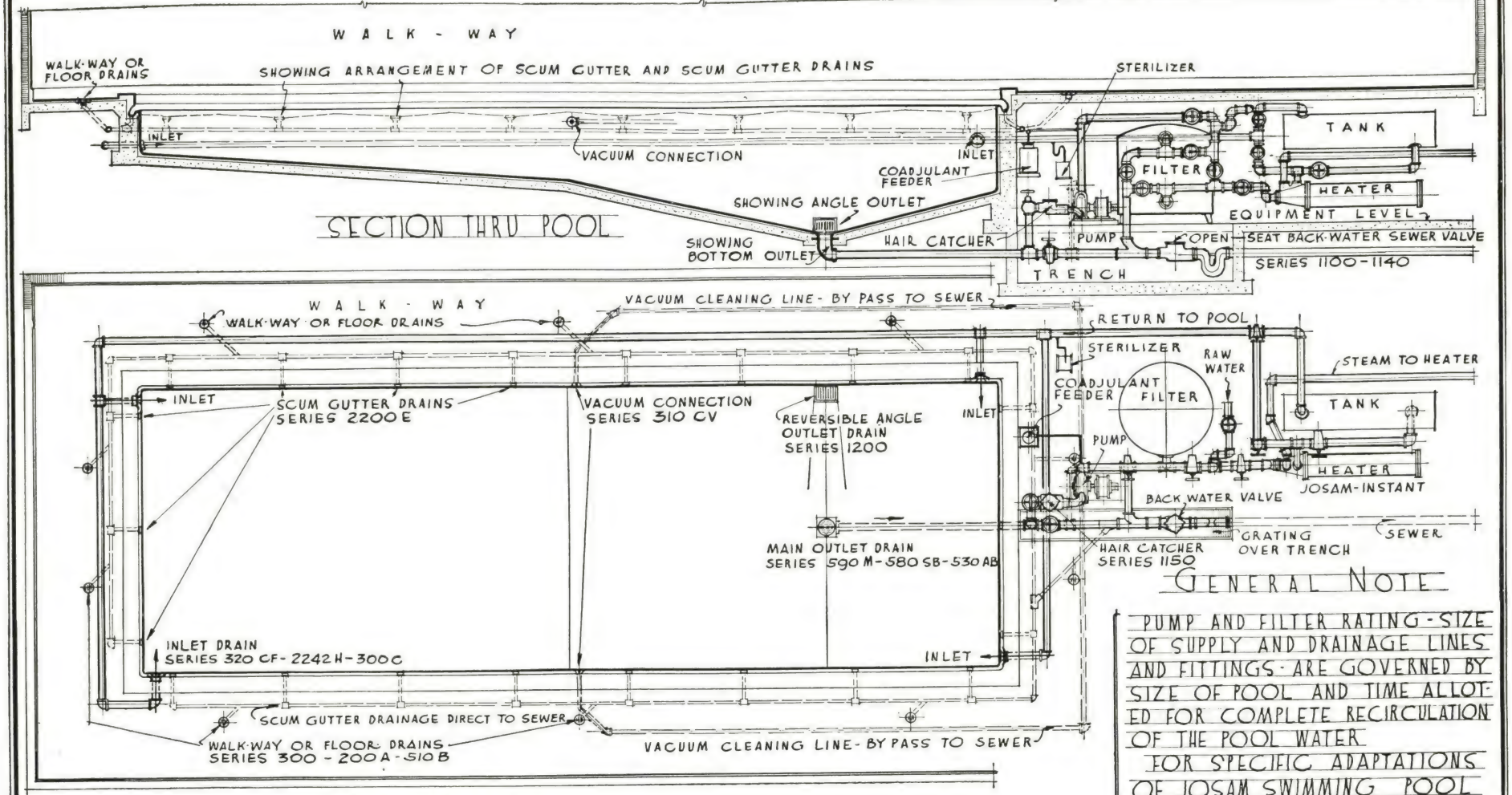


Series 580-SB
Pool outlet connection with 8x8-in. square brass grate and 10x10-in. square brass frame, in 2, 3, or 4-in. outlet



Series 530-AB
Pool outlet connection with brass top. 10 or 14-in. diameter grate, in 2, 3, 4, 5, 6, or 8-in. outlet

Josam Swimming Pool Equipment



PLAN OF POOL

GENERAL NOTE

PUMP AND FILTER RATING - SIZE OF SUPPLY AND DRAINAGE LINES AND FITTINGS - ARE GOVERNED BY SIZE OF POOL AND TIME ALLOTED FOR COMPLETE RECIRCULATION OF THE POOL WATER

FOR SPECIFIC ADAPTATIONS OF JOSAM SWIMMING POOL EQUIPMENT CONSULT OUR ENGINEERING DEPT AT CLEVELAND

JOSAM SWIMMING POOL EQUIPMENT IS FURNISHED WITH BODIES OF CAST IRON - BRASS OR EVERDUR — STRAINERS - GRATES - INLETS - SPOUTS OR NOZZLES FURNISHED IN BRASS - WITH ALL EXPOSED PARTS NICKEL PLATED - POLISHED - CHROMIUM PLATED OR WHITE METAL — FOR COMPLETE INFORMATION ON SWIMMING POOL EQUIPMENT SEE PAGES 46-47-48-49 - JOSAM CATALOGUE "G"

Josam

~TYPICAL ARRANGEMENT ~ SHOWING SWIMMING POOL RECIRCULATING SYSTEM~
~JOSAM MANUFACTURING COMPANY ~ ENGINEERING DEPARTMENT ~ CLEVELAND OHIO~

Josam

ESTABLISHED 1900

HILL-STANDARD CO.

Specialists in Swimming Pool and Bathing Beach Sports Apparatus and One of the Largest Manufacturers of Outdoor Recreation Equipment

ANDERSON, IND.

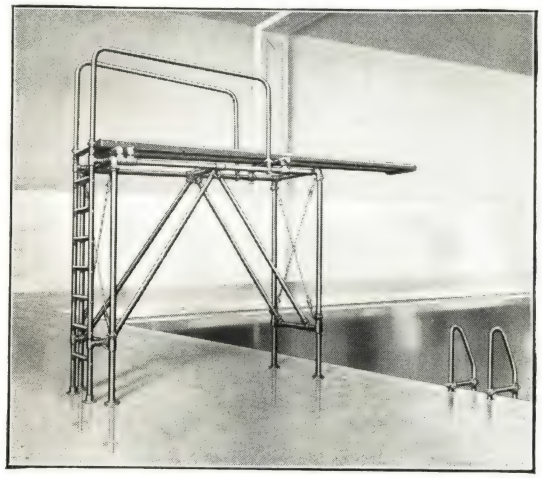
International Regulation Springboards

Built in compliance with specifications of the National Collegiate Athletic Association and Amateur Athletic Union of the United States. Boards are of carefully selected, vertical straight grain Oregon pine of one piece, thoroughly seasoned and treated. Fittings are best quality galvanized malleable iron, except lower base flanges, which are brass and set flush in walk. Boards fitted with adjustable, rubber covered fulcrum. Designed so the complete apparatus may be readily moved, as the upper flanges are attached to lower floor flanges by cap screws. Springboard stands can be furnished in polished brass, brass chromium plated and galvanized steel chromium plated, thus making it possible to match the pool ladders with the springboard equipment. *For either indoor or outdoor pools.*

One of the best the market affords.

National Regulation High Springboards Nos. 1528, 1529 and 1530

In order that this board may be correctly installed, the tip of board must be exactly 10 ft. from water level, and as pools are not uniformly built, we must know the distance from the pool walk down to waterline. Vertical ladder is of improved type, using galvanized malleable iron step brackets, upon which are mounted non-slip flat metal safety treads.



Nos. 1528 and 1529 High Springboard (Olympic)

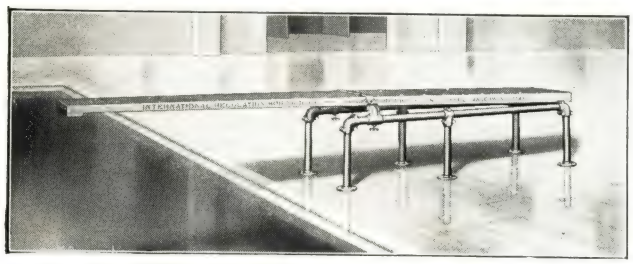
No. 1528—Springboard complete with stand, anchors and all fittings. Board entirely covered with 36-in. safety cocoa matting. Weight about 1000 lb.

No. 1529—Springboard complete with stand, anchors and all fittings. Board furnished with 18-in. strip cocoa matting. Weight about 1000 lb.

No. 1530—Board only, for replacement purposes matting or fittings not included). Weight about 280 lb.

International Regulation Low Springboards Nos. 1525, 1526 and 1527

To be installed as ruled, tip of board to water level must measure 39 in. It is therefore necessary that we have the measurement from walk level to water line.



Nos. 1525 and 1526 Low Springboard (Olympic)

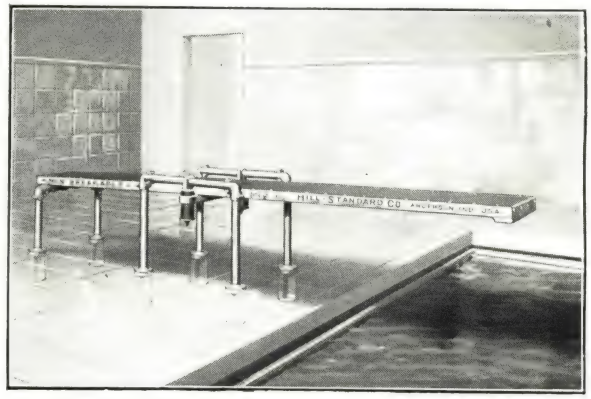
No. 1525—Springboard complete with stand, anchors and all fittings. Board entirely covered with 36-in. safety cocoa matting. Weight about 540 lb.

No. 1526—Springboard complete with stand, anchors and all fittings. Board furnished with 18-in. strip cocoa matting. Weight about 535 lb.

No. 1527—Board only for replacement purposes (matting or fittings not included.) Weight about 275 lb.

Non-breakable Springboards Nos. 1535, 1537

Here is presented the non-breakable springboard. It is of regulation size (i.e. 20 in. x 14 ft.) and otherwise closely resembles the one meter international regulation board. Fitted



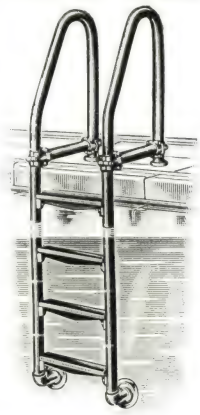
with specially designed adjustable fulcrum and flush type anchors that permit quick removal of entire apparatus. All metal fittings hot galvanized. Board cut tapering, measuring 3 in. at butt and 1½ in. at tip. No holes in springboard at fulcrum point; thus insuring longer life and better action. Shown for concrete or tile installation; made also for planked flooring.

No. 1535—Complete (as shown) with 18-in. matting. Weight about 425 lb.

No. 1537—Complete with 36-in. matting, otherwise as shown. Weight about 430 lb.

Removable Vertical Pool Ladder

Furnished with tubular risers of either 1½-in. i. d. (1⅝-in. o. d.) or 2-in. i. d. (2⅜-in. o. d.). The smaller size is generally used for private pools, the larger by public indoor and outdoor pools.



Both are of same step spacing and width (20 in. center to center of risers); furnished regularly in lengths 3 and 5 ft., measured from walk level to bottom of ladder. Provided with non-slip flat metal safety treads measuring 3x18x⅞ in. thick. Metal treads are not only a safety measure—they present a neat appearance, are comfortable, sanitary, safe and economical.

Anchored only in pool walk, 18 in. from edge; enables lifting of ladders without leaving walk; eliminates breaks in pool wall. Exclusive one-piece dual anchor embedded flush with walk eliminates contraction and expansion strain. Ladder measures 22⅜ in., extreme width, and clears wall 4 in. Handrails 37 in. high and rest 6 in. in anchor sockets. Furnished in polished brass, brass chromium plated and polished, and galvanized steel chromium plated. Approved by leading pool architects and engineers.

No. 1711—3-ft. hot galvanized steel and malleable iron, metal treads Weight about 163 lb.

No. 1713—5-ft. hot galvanized steel and malleable iron, metal treads. Weight about 178 lbs.

Special Water Goods Catalog No. 7

Send for this beautiful illustrated catalog and prices.

Also manufacturers' playground and outdoor floodlighting equipment.

EVERSON FILTER CO.

Manufacturers and Builders of Swimming Pools

LONG DISTANCE TELEPHONE
Chicago, Haymarket 7005

640 North Green Street
CHICAGO, U. S. A.

Products

WATER RECIRCULATING, FILTERING and STERILIZING SYSTEMS for swimming pools; ELECTRIC CHLORINATORS; STERILIZERS; CHLORINATORS; UNDERWATER LIGHTS; AUTOMATICALLY CONTROLLED WATER SOFTENERS for swimming pools; SUCTION POOL CLEANER, built-in and portable; CORAMETAL (non-tarnishing) POOL FITTINGS; COMPLETE SWIMMING POOLS, design and construction; POOL EQUIPMENT; FOOT STERILIZERS; PORTABLE FOOT BATHS.

Also Filters for all purposes; Water Softeners; Water Coolers.

Swimming Pool Experience

For over 25 years, leaders in swimming pool development and construction. Creators of the Everson Recirculating System which fulfills all requirements of all National, State and municipal boards of health and assures clear water of drinking purity at all times. Our staff is made up of a co-ordinated group of experts, each a specialist in his phase of swimming pool design, construction and sanitation.

Equipment for Pools

The Everson Filtering-Clarifying-Purifying System removes all sediment, keeps water germ-free, crystal-clear and pure. The Everson System is sold complete and installed (as shown above) or the following units can be bought separately:

Filters	Underwater Lights
Sterilizers	Hair and Lint Catchers
Pumps and Motors	Inlet fittings
Heaters	Main drain fittings
Vacuum Cleaners	Gutter drain fittings
Ozonators	Floor drain fittings
Chlorinators	Aerating Nozzles
Coagulators	Automatic Water Softeners
Foot Baths	Portable Foot Sterilizers

New Developments and Free Bulletins

The Everson Laboratories and engineers are constantly working out new and better methods and equipment for building and operating swimming pools. The Everson Electric Chlorinator and Everson Underwater Lights are typical Everson products. For twenty-five years Everson has been a leader in the development of equipment and is farther in advance today than ever.



This rectangular style of fitting has largely replaced the round grating types. It offers greater beauty, greater usability and large capacity in confined spaces

To acquaint architects and pool builders with this new equipment as it is perfected, numerous informative bulletins are issued from time to time. These bulletins are sent free, upon request. That you may keep up-to-the-minute on swimming pool equipment, write and have your name put on the mailing list to receive them as issued—no obligation whatever.

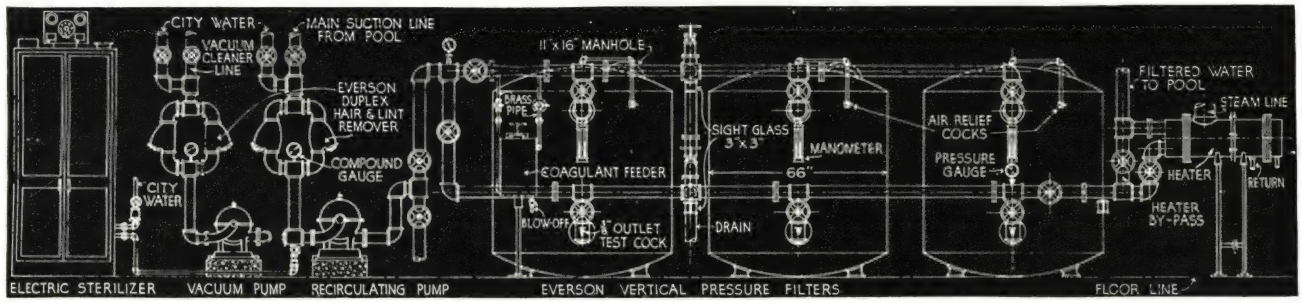
Service to Architects

Advisory and consulting service given to architects without charge or obligation. Detailed information, drawings, specifications and estimates are gladly furnished for complete pools or any part thereof. Feel free to use this service on any contemplated job. Just send us: (1) the capacity of the pool, in gallons, (2) the rate of turnover desired, and (3) space limitations. We will promptly work out and send you: drawings, detailed specifications and cost information for a Recirculating, Filtering, Sterilizing *Equipment that will* fulfill the most rigid requirements. This service is absolutely free to licensed architects and engineers. It obligates you in no way.

Everson Recirculating System

The water of the pool is continuously being purified by this system. It is always germ-free and crystal-clear. With this system it is not necessary to shut down the pool every few days for cleaning and replenishing with heated water. This saving alone often pays the cost of the Everson System within a period of one year. The operation of this system is as follows:

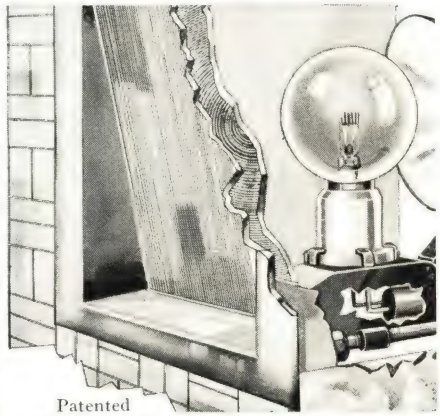
Motor driven pumps draw the water from the pool through the "Outlet Fittings" and "Strainer." At this point the sterilizing solution is fed into the line. The pump then forces the sterile water through the "Filters" and "Heater" and back into the pool through the "Inlet Fittings." This method keeps the filter beds always in a sterile condition, preventing bacterial growth in the filters where the sediment is caught.



Everson Filtering and Sterilizing System for a 100,000-gal. Pool

Everson Improved Underwater Lights

They furnish a veritable flood of evenly diffused light, a glowing mass, through which swimmers glide, fully visible at all depths. They can be installed in any indoor or outdoor pool. These improved underwater lights are of non-corrosive construction and the glass is securely fastened to prevent leakage.



Patented

Phantom View of Everson Underwater Light, Installed

C3862

MARSH ELECTRO CHLORINATION COMPANY, INC.

TELEPHONE
AShland 4-5777

101 Park Avenue
NEW YORK, N. Y.

PERFECT SANITATION OF SWIMMING POOLS

Perfect sanitation of swimming pools requires not only that sterilized water be delivered to the pool, but that it be kept sterilized by adding a persistent disinfecting medium to the water. Chlorination is the universally accepted effective method for accomplishing this result, and as such is approved by all public health authorities.

WATER AND AIR SAFETY MARSH ELECTRO CHLORINATOR PURIFICATION NON-IRRITANT
MARSH SYSTEM
PERFECT SANITATION SWIMMING POOLS
MARSH ELECTRO CHLORINATION COMPANY, Inc.
NEW YORK CITY

However, there are other requirements, in addition to the above, which must be met before perfect sanitation can be obtained by the chlorination process.

The oxidizing agent must be neutral to assure absolutely non-irritating and pleasant sterilized water. In addition, it must be inexpensive to operate and the dosage must be accurately supplied and controlled.

Every one of these essential requirements is fully met by the Marsh System of Electro Chlorination.

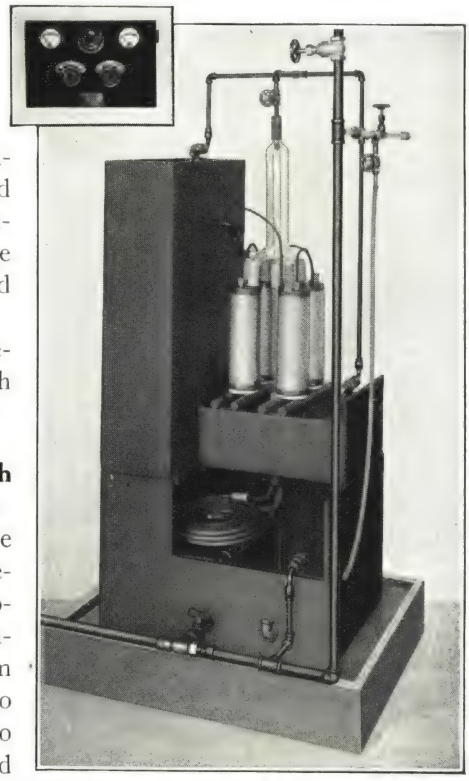
Neutral Disinfection with the Marsh System of Electro Chlorination

The Marsh System provides the safest, most effective and most desirable form of chlorination. It produces a powerful yet neutral (non-irritant) oxidizing solution, sodium hypochlorite, a product similar to Dakin's solution, and delivers it to the water in accurately controlled doses.

How the System Operates—The basis of the system is the Marsh Electrolytic Cell, similar in appearance to an ordinary dry cell, combined with special pyrex and hard rubber manifolds for salt solution feed, chlorine outlet from cells and absorber coils.

By passing an electric current and brine through the Marsh Cell the most efficient form of chlorine, sodium hypochlorite, is produced from common salt solution uniformly and in the quantities desired.

The amount of chlorine dosage delivered is absolutely controlled by the charging current of electricity at the control panel. The chlorine is absorbed in the electrolytic soda and water solution, stabilized and then diluted automatically before it enters the swimming pool circulating system.



Complete Marsh Equipment

Including a battery of Marsh Cells with pyrex manifold, chlorine outlet, electrolytic soda solution feed and absorber coils, battery charger, electrical control board, upper tank containing salt and water for brine feed to cells, middle tank containing soda solution from cells for feed to absorber coils, and lower tank receiving electrolytic sodium hypochlorite solution from the absorber coils for delivery to pool or storage for sanitary uses.

Important Advantages of the Marsh System

Provides complete and uniform sterilization in every part of pool.

Control is accurate, dependable and convenient because it is operated by electricity.

Operates on alternating or direct current.

No commodity to buy but salt.

Simple and easy to install.

Eliminates extra cost for protection in handling and storing hazardous chemicals.

Filtration is improved.

Eliminates outlay for expensive prepared solutions.

Inexpensive to operate.

No irritating and unpleasant conditions in the water.

Has long life because all parts are non-corrodible.

Apparatus is kept new and accurate by inexpensive renewals of Marsh cells.

OTHER USES FOR MARSH SYSTEM

Marsh equipment provides convenient and effective means of supplying solutions for many other purposes as follows:

Hospitals: Highest quality of antiseptic and disinfectant solutions.

Laundries: Neutral electrolytic bleaching solution protects fabrics with reduction of cost in most cases.

Water supplies: Most effective and pleasant form of sterilization.

Sewage problems: Stabilized chlorine solutions produce better results.

Deodorization: For comfort stations in bathing houses, etc.

Country estates, stock farms, dairies: An incomparable disinfectant at the lowest cost.

Note: The finest and purest soda and bleaching solutions can be made for use in textile, paper and industrial plants.

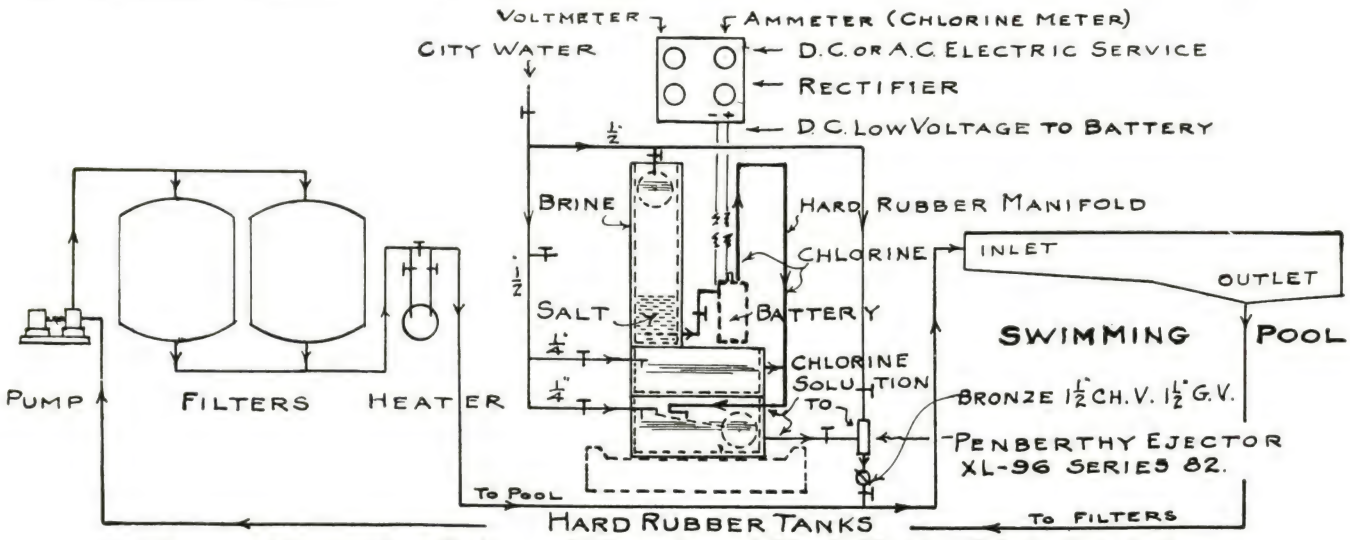


Diagram Showing Installation and Operation of Marsh Electro Chlorination System

DATA MECHANICAL EQUIPMENT
Basis 8-hour Turnover

MARSH ELECTRO CHLORINATOR
Basis Dosage of Available Oxygen or Chlorine 10 Lb. per 1,000,000 Gal.

Pool capacity, gal.	Filters			Pump, gal. per min.	Daily rate, lb.	Type, oz.	Production, lb.		Salt, lb. per 12-hr. operation	Power, kw.-hr. 12-hr. operation	
	Number	Diam.	Gal. per hr.				12-hr.	24-hr.		A-c.	D-c.
40,000	2	48 in.	4,560	100	0.4	2– 5	0.30	0.60	1.3	0.90	1.3
50,000	2	54 in.	5,760	125	0.5	3– 5	0.45	0.90	2.0	1.35	2.0
60,000	2	60 in.	7,200	150	0.6	3– 7	0.63	1.26	2.5	1.90	2.83
80,000	2	72 in.	10,200	200	0.8	3–10	0.90	1.80	3.6	2.70	4.00
100,000	2	78 in.	12,000	225	1.0	4–10	1.20	2.40	4.8	3.60	5.30
200,000	3	90 in.	24,000	450	2.0	4–15	1.80	3.60	7.2	5.40	8.10
300,000	2	8 x 14 ft.	35,400	2– 350	3.0	6–15	2.70	5.40	10.8	8.10	12.15
500,000	3	8 x 16 ft.	61,200	2– 600	5.0	5–30	4.50	9.00	18.0	13.50	20.27
750,000	3	8 x 24 ft.	93,000	2– 800	7.5	8–30	7.20	14.40	28.8	21.60	32.40
1,000,000	4	8 x 24 ft.	125,000	2–1000	10.0	10–30	9.0	18.00	36.0	27.00	40.50
1,500,000	6	8 x 24 ft.	186,000	3–1200	15.0	8–60	14.40	28.80	57.6	43.20	64.8
2,000,000	8	8 x 24 ft.	248,000	3–1500	20.0	12–60	21.60	43.20	86.4	64.80	97.2

Note: For outdoor pools and heavy bathing loads chlorinators of larger capacity are recommended.

Co-operative Service

We will be glad to co-operate with architects and engineers in furnishing them with suggestions as to the proper application of the Marsh System to any water purification requirement, as well as to submit quotations, specifications, and other information desired.

Short Specification for Swimming Pools

Contractors to furnish and install in accordance with manufacturer's directions, one Marsh Electro Chlorinator, manufactured by the MARSH ELECTRO CHLORINATION COMPANY, Inc., 101 Park Avenue, New York, N. Y., of sufficient capacity to provide sterilization by available chlorine dosage in the form of non-irritant (neutral) electrolytic sodium hypochlorite solution.

Installation Suggestions

The following points are of importance when planning an installation of the Marsh System.

(1) Floor drain under the Marsh Equipment.

(2) Air vent when a closet or small room is arranged for equipment.

(3) Electric outlet near equipment and wiring to control board and to cells.

(4) ½-in. city water connection near equipment and four ¼-in. branch lines with valves to electro chlorinator and for wash spray and ½-in. valved branch to ejector.

(5) A ½-in. Penberthy XL-96 Series 82 Hydraulic Ejector connected to high pressure city water service to feed solution into the pool or to recirculation line after filtration.

WIDE SCOPE OF INSTALLATIONS BUILT UP ON SUPERIOR MERIT

The Marsh Electro Chlorinator has been installed over a period of years in every type, size and kind of swimming pool for universities, hotels, hospitals and clubs, and in private pools. Each year finds a larger number installed than the year before. More and more architects and engineers recognize that here is a quality equipment offering the most desirable features of a sterilizing apparatus and yet successfully surmounting disadvantages that have become accepted simply because no one had been able to overcome them.

Architects and engineers can be assured that by specifying a Marsh Electro Chlorinator they are stressing quality and effectiveness of results, the use of modern convenience of electrical control with its ease and simplicity of operation, its dependable accuracy, and above all, pleasantness and non-irritation. They can be assured also that the owner obtains the best at reasonable initial cost, and operating, maintenance and depreciation cost which will keep his overhead at a minimum, year in and year out.

THE PARADON COMPANY

Chlorinators for Water, Sewage and Swimming Pools; Ammoniators, Dry Chemical Feeders, etc.

572 Elm Street, ARLINGTON, N. J.

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IN CANADA: THE GENERAL SUPPLY COMPANY OF CANADA, LTD.

OTTAWA TORONTO MONTREAL MONCTON

Products

CHLORINATORS for the Purification of Water, Sewage and Swimming Pools, for Municipalities, institutions, camps, private estates, industrial concerns, etc.; also CHLORINATORS for Decolorization, Deodorization, Algae Control, Coagulation Control, Bottle Washer Purification and other Sanitary and Industrial uses.

COMPLETE SWIMMING POOL RECIRCULATING SYSTEMS.

DRY CHEMICAL FEEDERS for the Application of Alum, Soda Ash, Lime, and other chemicals.

AMMONIATORS for the Application of Ammonia in the Purification of Water Supplies, Swimming Pools, etc.

CHLORINATING BOATS for Bathing Beaches and Reservoirs.

Paradon CHLORINATORS
for City and Private Water and Sewage Systems, Industrial Plants and Swimming Pools.

Swimming Pool Chlorination

Sanitation is the most important phase of swimming pool operation. Every bather introduces pollution. Efficient chlorination eliminates the dangers resulting from this pollution. The cost is trifling, only about 5 cents daily for the average swimming pool of 50,000-gal. capacity. Chlorination has been endorsed by the Swimming Pool Committee of the American Public Health Association as the most efficient method.

Chlorination is just as necessary with filtration as without filtration. Its purpose is to destroy harmful bacteria. There is no other known agent that will accomplish this result so efficiently and so inexpensively.

The amount of chlorine required for swimming pools is small and in no way affects the physical characteristics of water. Water tastes and looks the same after chlorination as before.

Water Supply and Sewage Chlorination

Chlorine is universally used in the United States for the sterilization of drinking water supplies. It is applicable not only for water supplies of large cities but also for small supplies, as for institutions, country clubs, estates, etc. A slightly smaller dosage is required than for swimming pools, but the same principles and the same apparatus are used.

Likewise the chlorination of sewage presents the same problem. The use of chlorine in the sewage field is becoming widespread. It is particularly adaptable to small sewage plants, such as those for institutions, hospitals, country estates, country clubs, etc., as the cost in this instance is very low and the chlorine can be used not only as a disinfecting agent but also as a partial oxidizing agent to remove odors and prevent subsequent nuisance.

Chlorine Ammonia Treatment

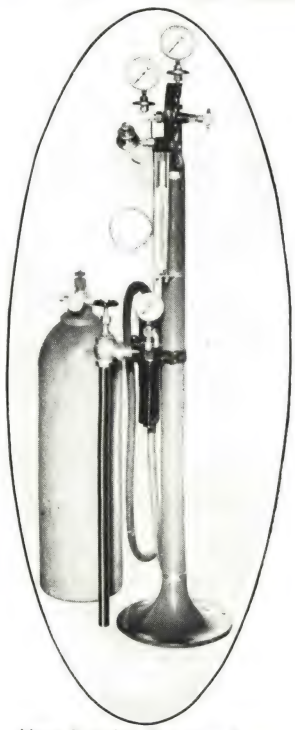
The application of ammonia in conjunction with chlorination is now in widespread use. The ammonia treatment permits excessive chlorination with its high bacterial efficiency. Ammonia also prevents phenol tastes and miscellaneous organic and algae tastes. Its use is also particularly advantageous for many swimming pools.

Paradon Chlorinators

There is a Paradon Chlorinator for practically every type of swimming pool, water supply and sewage plant.

Paradon Chlorinators use two general processes of chlorination: (A) The direct feed where the chlorine gas is applied directly to the water or sewage. (B) The solution feed where the chlorine gas is applied as a solution. All Paradon Solution Feed Chlorinators are licensed under the Ornstein Patent.

There are two styles of Paradon Chlorinators in both the solution and direct feed types: DB series for medium and large sized waterworks, most sewage plants, large outdoor swimming pools, and most industrial and sanitary installations for miscellaneous purposes, and the D series which mechanically is in many ways similar to the DB series but delivers much smaller amounts of chlorine, this unit being applicable for water and sewage plants of medium and small size, also for a majority of indoor swimming pools. The Paradon Chlorinizer known as Type CM applies prepared solium hypochlorite solution and is applicable for the water supplies, sewage systems, etc., of smallest capacities—such as for institutions, camps, hotels, industrial plants and other similar installations.



New Paradon Solution Feed Chlorinator Type DBI
(Licensed under the Ornstein Patent)

Paradon Ammoniator

The Paradon Ammoniator is designed to accurately apply and control anhydrous ammonia. It is supplied in approximately the same types and ranges of capacity and is of the same general design and construction as our line of standard Paradon Chlorinators.

Paradon Chlorinating Scales

All of our Type DB and D series chlorinators (and ammoniators as well) may be mounted on a platform scale, giving a handsome combined chlorinator and platform scale in one unit.

Paradon Dry Chemical Feeder

The Paradon, Type XL, Dry Chemical Feeder is available for the application of alum, soda ash, lime, sulphate of iron and other chemicals. This unit was originally developed by the late F. B. Leopold and is the result of seventeen years' experience in the design and manufacture of dry chemical feeders, during which time nearly 700 units of this type or its predecessor have been installed.

Specifications for a Typical Paradon Chlorinator

(1) Capacity—The chlorinating apparatus shall have a capacity for chlorinating a rate of flow of (give number) gallons per 24 hours (state whether water, sewage, or what).

(2) Details of Construction—The apparatus shall be mounted on an enameled pedestal. All parts shall be interchangeable. It shall be constructed of materials which will withstand the effects of chlorine gas.

(3) Accuracy—Chlorinator shall be provided with an indicating meter which shall indicate at all times the flow of chlorine to an accuracy of within 4%. The chlorine meter shall be entirely hydraulic in its operation.

(4) Guarantee—The chlorinating apparatus is to be constructed of high class material and first class workmanship. All exposed metal parts shall be polished. Apparatus shall be guaranteed for a period of one year from date of shipment against inherent mechanical defects and manufacturer shall be required to replace without charge all parts that prove defective within that period.

Service

If interested in chlorinating apparatus, ammonia control apparatus or dry chemical feeders for any purpose, send the following information and we shall be only too glad to send our recommendations and at no obligation whatsoever:

(1) Maximum flow of water or sewage or other material to be treated per 24 hours.

(2) Desired point of application of chlorine or ammonia.

Send for our assortment of Bulletins S-3.

ROBERTS FILTER MANUFACTURING CO.

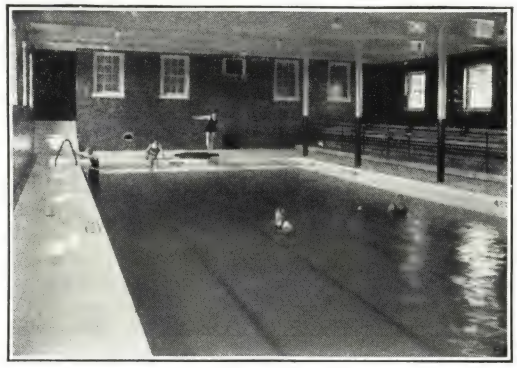
Swimming Pool Recirculation Systems

638 Columbia Avenue
DARBY, PA.

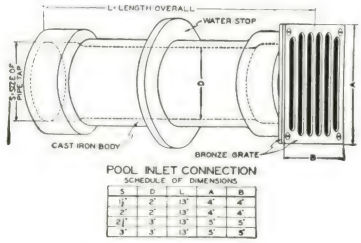
For our pages on Filters, Filtration Plants and Appliances, see Manufacturers' Index

Swimming Pool Sanitation

Recirculation has completely solved the question of swimming pool sanitation. It is mandatory under State Board of Health regulations in many states. With recirculation the water is drawn from the deep end of the pool by a centrifugal pump and returned through filters and sterilizing equipment and in the case of indoor pools, through a heater to the shallow end of the pool.



A typical recirculating plant for indoor pools is shown below, but each large outdoor pool should be given separate study so that the arrangement of pool fittings, recirculating equipment and piping will be such as to insure greatest efficiency and economy.

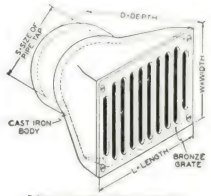


POOL INLET CONNECTION
SCHEDULE OF DIMENSIONS

S	D	L	A	B
1"	2"	13"	4"	4"
2"	2"	13"	4"	4"
2½"	3"	13"	5"	5"
3"	3"	13"	5"	5"

Design

Where the bathing load is normal, the recirculating plant for pools of not more than 100,000 gallons capacity should be designed to recirculate the entire capacity of the pool in 8 hours. For pools containing greater capacity, a recirculating period of 12 hours can be employed. The rate of filtration should preferably be 3 gallons per square foot of filtering area per minute, but in no case should it exceed 4 gallons per minute per square foot.

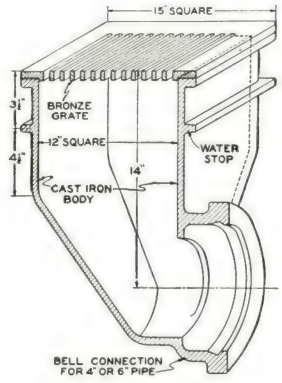


SCUM GUTTER CONNECTION
SCHEDULE OF DIMENSIONS

S	L	W	D
1"	6"	3"	3½
2"	6"	3"	3½
2½	8"	4"	4"
3"	8"	4"	4"

Co-operation

Our Engineering Department is at the service of architects and engineers engaged in the design, construction, or maintenance of swimming pools. We welcome every opportunity of co-operation. Write for our "Swimming Pool" catalogue containing complete data on the sanitation of swimming pools.



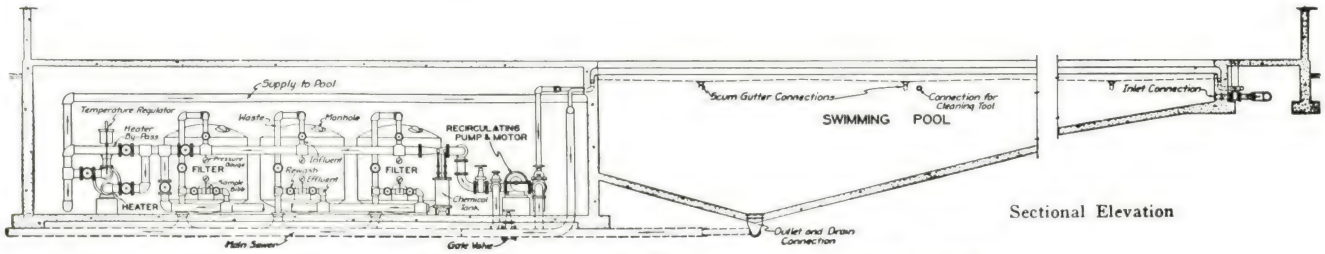
POOL OUTLET AND DRAIN CONNECTION

Specifications

Specification data on all types of Roberts Filters is contained in our pages in the filter section of this catalogue and in SWEET'S ENGINEERING CATALOGUE. Styles "H," "G," "L" and Horizontal are recommended for swimming pool recirculation.

Accessories

We manufacture pool fittings, as shown, hair catchers and other accessories, which will be supplied separate from filters and other recirculating equipment when specified or so ordered.



Typical Arrangement of Swimming Pool Recirculating System

WALLACE & TIERNAN CO. INC.

Manufacturers of Chlorine and Ammonia Control Apparatus
"The Only Safe Water Is a Sterilized Water"

MAIN OFFICE AND FACTORY
NEWARK, N. J.

BALTIMORE, MD. BOSTON, MASS. BRIDGEPORT, CONN. BUFFALO, N. Y. CHARLESTON, W. VA. CHARLOTTE, N. C. CHATTANOOGA, TENN. CHICAGO, ILL. CLEVELAND, OHIO COLUMBUS, OHIO DALLAS, TEX. DENVER, COLO. DETROIT, MICH. FORT WORTH, TEX. HOUSTON, TEX. INDIANAPOLIS, IND. JACKSONVILLE, FLA. KANSAS CITY, MO. KNOXVILLE, TENN. LEXINGTON, KY. LOS ANGELES, CAL. MILWAUKEE, WIS. MINNEAPOLIS, MINN. MONROE, LA. NEW YORK, N. Y. OGDEN, UTAH OKLAHOMA CITY, OKLA. OMAHA, NEB. PHILADELPHIA, PA. PITTSBURGH, PA. ROANOKE, VA. SAN DIEGO, CAL. SAN FRANCISCO, CAL. SEATTLE, WASH. ST. LOUIS, MO. SYRACUSE, N. Y. WICHITA, KAN.

CANADA: Wallace & Tiernan Ltd., MONTREAL, QUE., TORONTO, ONT. and WINNIPEG, MAN.
ENGLAND: Wallace & Tiernan Ltd., LONDON

The Effectiveness of Chlorine for Swimming Pool Sanitation

Chlorine alone gives the residual penetrating action for the complete disinfection of swimming pool water. Sterilization is positive at every point in the pool. Of chlorination, the Report of the Joint Committee of the American Public Health Association and the Conference of State Sanitary Engineers has this to say. . . . "From all available information, the addition of chlorine either as a gas or water solution by use of proper apparatus is today the most satisfactory method of pool disinfection."

Swim in Drinking Water

Today more than 3000 private, commercial and school pools of the United States and foreign countries rely on W&T Chlorinators for positive sterilization.



W & T Type MSP Chlorinator

W&T Type MSP Chlorinator

For the majority of medium-sized pools, this type machine is most suitable. It not only accurately controls the small amount of chlorine but gives a feed range sufficiently wide to include all changes in bathing loads. All control parts are on the outside and a removable hood makes complete inspection possible at any time. Its simple construction and operation are readily understood by the practical pool attendant.



W & T Type MSV Chlorinator
For sterilization of large pools

W&T Type MSV Chlorinator

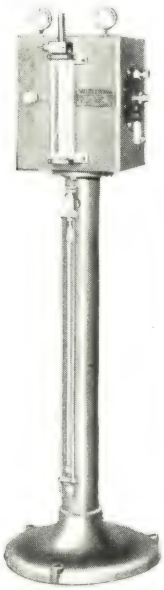
An efficient sterilizer for large pools, having heavy bathing loads.

Simplified design and sturdy construction have combined to make unusual performance records for this type of chlorinator. Of more than 3000 installed since the first one went into service eight years ago, not a single machine has ever worn out.

A survey of repair costs indicates average annual maintenance charges do not exceed one per cent of the initial investment.

W&T Ammoniator

Used with a W&T Chlorinator for the production of chloramine. Chloramine is the most advanced method of pool sterilization. High chlorine residuals can be carried without objectionable tastes or odors. Chloramine rids filters and pool water of algae growths—a real saving in operating costs. Savings of as much as two hundred dollars a season have resulted from the use of chloramine. W&T Ammoniators are made by the same rigid production standards and excellence of materials as in W&T Chlorinators. W&T Ammoniators differ only in the special materials required for the efficient metering of ammonia.



W & T Ammoniator

W&T Chloro Clock

Accurately feeds predetermined quantities of sodium hypochlorite or similar solutions. It is a simple machine which any one can understand and operate. The W&T Chloro Clock is ideal protection for the very small swimming pool.

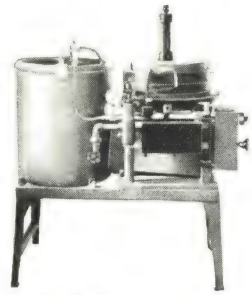
W&T Electrolytic Chlorinator

For swimming pool operators and other commercial users of chlorine who wish to manufacture their own chlorine, the W&T Electrolytic Chlorinator is efficient, correct equipment. Its operating principle and rugged construction combine many features not obtainable in other electrolytic chlorinators. W&T have designed a Chlorinator that will give satisfactory service over long periods with a minimum of trouble and maintenance costs.

At Your Service

We are prepared to study any problems covering the sterilization of swimming pools and a nationwide service organization is responsible for satisfactory performance of W&T equipment.

Current literature on the sanitation of swimming pools is available on request.



W & T Electrolytic Chlorinator

FRED MEDART MANUFACTURING CO.

Manufacturers of Gymnasium Apparatus and Basket Ball Backstops

Potomac and DeKalb Streets
ST. LOUIS, MO.

511 West 42nd Street
NEW YORK, N. Y.

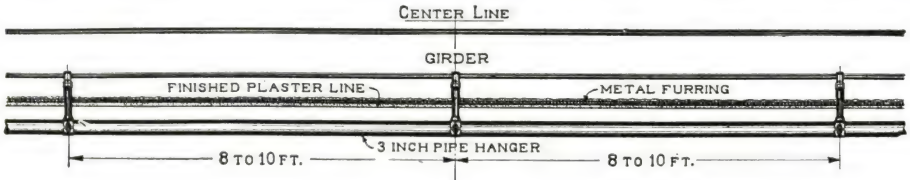
For Steel Lockers and Steel Shelving, see Manufacturers' Index

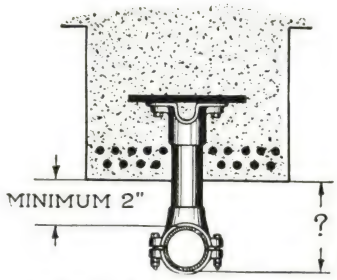
Pipe Hangers for Basket Ball Backstops and Gymnasium Apparatus

When girders of the gymnasium are to be encased in concrete or other fireproof material, girder fittings to carry 3-in. pipe should be included in the general contract.

With the fittings in place, the owner can install basket ball backstops and suspended gymnasium apparatus by the usual method of attaching to 3-in. pipe hangers without having to tear into the finished ceiling.

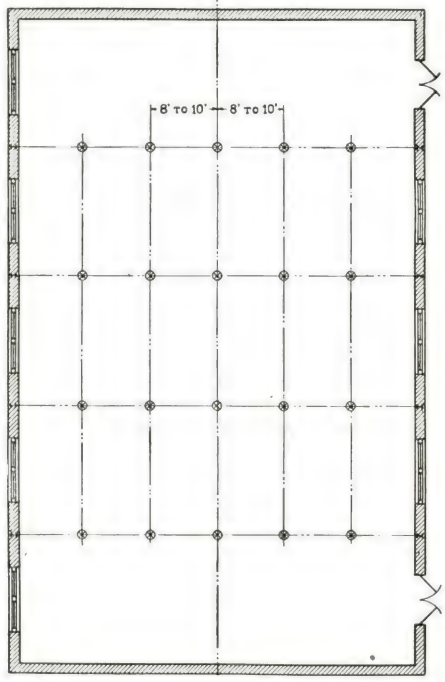
Fittings should be installed on every beam and equally spaced—not more than 10 ft. or less than 8 ft. apart.

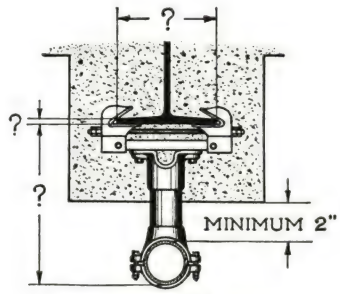




Reinforced Concrete Beams
No. 294

This fitting is for reinforced concrete beams and must be placed in the concrete box forms previous to pouring the concrete. Bore sight all fittings for proper alignment before concrete is poured





Enclosed I-Beams
No. 325

This fitting is used in a majority of cases, especially in gymnasiums having suspended ceilings. The pipe runs directly beneath and in line with the girder. Specify width of girder face and thickness of flange and distance from underface of I-beam to finished plaster line

Basket Ball Backstop Catalog

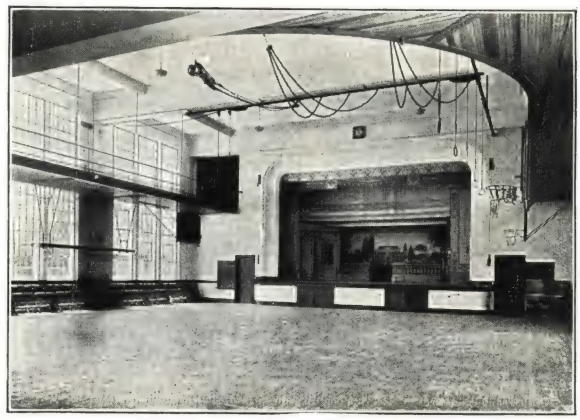
Catalog BB-1 shows a type of Basket Ball Backstop and attachments for any structural condition. Sent free on request

Gymnasium Equipment Catalog

Catalog G-1 completely covers the subject of gymnasium equipment and its installation. Included is the article, "Planning a Gymnasium." Sent free on request

Steel Locker Catalog

Catalog L-3 in which various types of lockers are illustrated and completely described. Sent free on request



Right:
Medart Gymnasium Apparatus suspended from 3-in. pipe hangers attached to girder fittings in concrete beams

ALLITH-PROUTY COMPANY

Manufacturers of Stadium Seat Brackets

DANVILLE, ILL.

For our pages on Airport, Garage and Fire Door Hardware, see Manufacturers' Index

Allith Stadium Seat Brackets

(1) Withstand all loads and shocks; (2) economical to install and maintain; (3) standard on the largest stadia; (4) meet every requirement; (5) are permanent; (6) rust resisting.

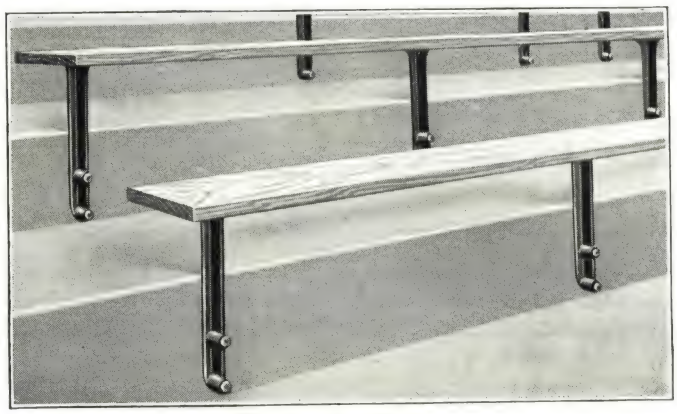
Type "A" Allith Stadium Seat Bracket—Most universally used on stadia. Top can be furnished in several widths to accommodate either a 2x4-in., 2x8-in. or a 2x10-in. seat plank. Strength of bracket is ample to support heaviest load, yet weight is kept at a minimum. Bracket is bolted to face of the riser leaving tread free of all obstructions, thereby simplifying expensive task of cleaning stadium. This design is much more desirable than tread fastened bracket.

Type "C" Allith Stadium Seat Bracket—Designed for use with three 2x4-in. seat planks, and is recommended when wider seat is desired. Type "C" Bracket is secured to the face of the riser giving a clear tread.

Type "D" Allith Stadium Seat Bracket—Is placed on tread of the riser and accommodates three 2x4-in. seat planks. It is very economical when a tread fastened bracket is used, permanent and satisfactory. Type "D" Bracket does not afford clear tread which is obtained with the use of Types "A" or "C" Brackets.

Type "G" Allith Stadium Seat Bracket—Is adjustable and intended to replace wooden blocks that have warped or split. In such cases original bolts are used to fasten bracket to tread of the riser. It is possible to insert a single bracket without removing entire section of seats. Type "G" Bracket may also be used on new installations of varying riser heights if a tread fastened bracket is desired.

CERTIFIED-MALLEABLE IRON



Typical Installation

Type "H" Allith Stadium Seat Bracket—Assembly simplifies installation of brackets and stadium seats. Design is same as Type "A," except one bolt is necessary to hold bracket in place. Two small lugs placed on back of bracket engage in slot of the insert. These lugs keep bracket from rotating while being placed in position preparatory to final adjustment.

Concrete insert of certified malleable iron, giving maximum anchorage, is nailed to inside of concrete forms. Nail slots are located midway between extremities of bolt slot facilitating location of the insert. $\frac{5}{8}$x2$\frac{1}{2}$-in. machine bolt used with assembly has 2-in. vertical adjustment permitting seats to be lined up perfectly in final assembly.

SIZES AND DIMENSIONS IN INCHES

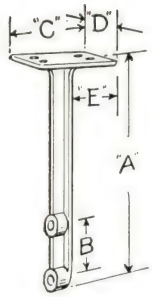
Bracket type and No.	Over-all height "A"	Bolt centers "B"	"U" bolt size	Pad length "C"	Pad width "D"	Overhang on Riser "E"	Bolt height "F"	Seat plank suggested No.	Seat plank suggested Size
A-3	16 1/4	5	5/8	9 3/8	3 1/2	4 5/8	1 1/4	3	2x4
A-5	15 1/4	4	5/8	6	4	3	3/4	1	2x8
A-6	13 1/4	4	5/8	6	4	3	3/4	1	2x8
A-7	15 1/4	4	5/8	8	4	3	3/4	1	2x10
A-8	15 1/4	4	5/8	9 3/8	4	6	3/4	3	2x4
A-9	13 1/4	4	5/8	8	4	3	3/4	1	2x10
A-10	10	4	5/8	6	4	3	3/4	1	2x8
C-1	15 1/4	2 3/8	5/8	10 3/4	3	6	4	3	2x4
D-2	5 3/4	4	1/2	9	3	9	...	3	2x4
D-3	7	3 3/8	1/2	8	4	8	...	1	2x10
G-1	5 1/2 to 7 3/4	...	1/2	10	3	6	...	3	2x4
H-1	16 1/4	...	5/8	6	4	3	4 3/4	1	2x8

Other types available. Write for further information.

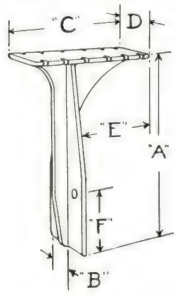
PHYSICAL PROPERTIES OF ALLITH CERTIFIED MALLEABLE IRON

Tensile strength	54,000 lb. per sq. in.
Elastic limit	35,000 lb. per sq. in.
Elongation	20% in 2 in.

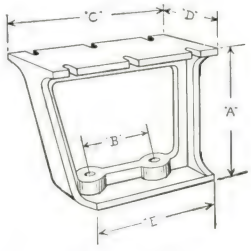
Send us your specific problem. Our Engineering Department will gladly co-operate with you.



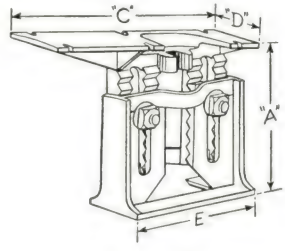
Type "A"



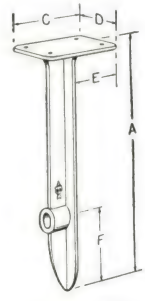
Type "C"



Type "D"

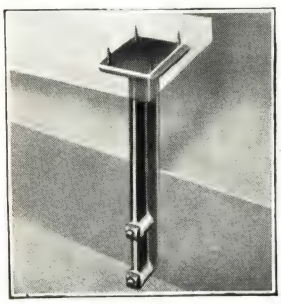


Type "G"

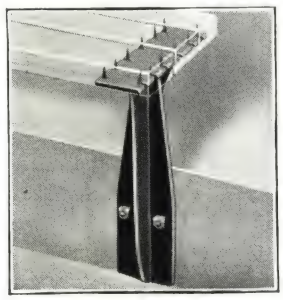


Type "H"

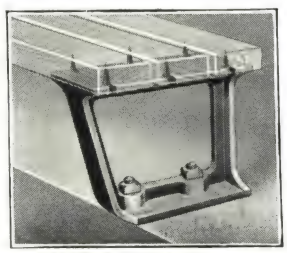




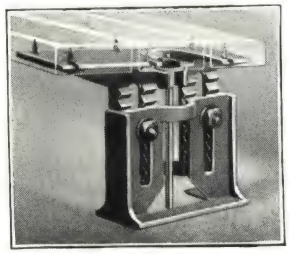
Type "A"



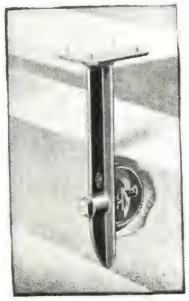
Type "C"



Type "D"



Type "G"



Type "H"

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

Manufacturers of Stadium Seat and Bleacher Support Castings

GENERAL OFFICE
10600 Quincy Avenue, CLEVELAND, OHIO

MALLEABLE IRON PLANTS: CLEVELAND, OHIO; INDIANAPOLIS, IND.; CICERO, ILL.
STEEL PLANTS: SHARON, PA.; MELROSE PARK AND CHICAGO, ILL.

Products

NATIONAL STADIUM SEAT CASTINGS; BLEACHER SUPPORT CASTINGS. Also Malleable Iron and Steel Castings of every description.

Experience, Facilities and Service

Being products of the NATIONAL MALLEABLE AND STEEL CASTINGS CO., National Castings are, of necessity, *quality* products. They have back of them all the experience of more than 60 years devoted to the production of malleable and steel castings, plus the facilities of six modern foundries equipped to produce quantity castings of a quality second to none.

The services of our Engineering and Estimating Department are available to the architect and contractor at all times.

NATIONAL STADIUM SEAT CASTINGS

National Stadium Seat Castings are made of first quality, rust-resisting malleable iron and are of such rigid construction that no bolts or rivets are required to hold the seat bottom. They are, therefore, possessed of strength and durability that make them practically immune to abuse and breakage, as well as to the ravages of time and the elements. All castings are furnished drilled, and painted in any desired color. Available in single or multiple seat-units in the standard design shown in the illustration. This standardization of design eliminates the cost of making special patterns, dies and jigs—an economy that is reflected in the comparatively low prices of National Stadium Seat Castings.

Prices and blue prints will gladly be sent on request. Please state quantity of seats contemplated.



Stadium Seats

About 67,000 National Stadium Seat Castings were furnished for chairs like the above, installed in the New Cleveland Stadium, Cleveland, Ohio

NATIONAL BLEACHER SUPPORT CASTINGS

Like the stadium seat castings, National Bleacher Support Castings are made of malleable iron and have an equally great resistance against breakage and rust. They are furnished painted in any desired color ready for use and are quickly and easily installed. Extensively used in large and small stadia.

Blue prints and prices on request. Please state quantity involved.

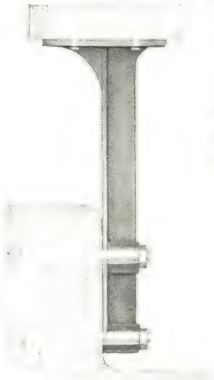
No. S-93 Bleacher Support Casting—Accommodates 2x8 or 2x10-in. seat plank. Is securely attached to the face of the riser by means of a ⅝-in. U-bolt which is inserted in the concrete. This gives maximum anchorage and tread of riser is thus left free of obstruction, facilitating cleaning work.

No. S-129 Bleacher Support Casting—Accommodates 2x8 or 2x10-in. seat plank. Is attached to the tread of the riser by ½-in. U-bolt sunk in concrete. Top has 6 slots for ⅜-in. lags.

No. S-130 Bleacher Support Casting—Accommodates 2x8 or 2x10-in. seat plank and is similar to No. S-129 in design and method of securing to tread or riser. Top has 4 slots for ⅜-in. lags.



No. S-129



No. S-93



No. S-130

PORETE MFG. CO.

Makers and Erectors of Permanent Steel and Concrete Seating Decks for Stadiums, Arenas and Auditoriums

Porete Avenue
NORTH ARLINGTON, N. J.

For our pages on Roofs, Floors and Nailing Concrete, see Manufacturers' Index

THE PARTHENON SEATING SYSTEM

An improved steel and concrete deck construction for seating indoor or outdoor crowds. Riser, seat and tread units are fabricated at a central plant and assembled at the site.

Features

(See Standard Details)

(1) Dense, durable 1½-in. thick precast reinforced concrete slabs. (2) Elastic bearing strips. (3) Impervious joints. (4) Edge grain all heartwood seating. (5) Seats fastened to brackets from below. (6) Structural steel seat brackets integrated with (7) built-up steel riser joists spaced and braced by (8) separator tie bolts. All steelwork heavily paint coated before erection.

Suitable for all types of substructures and architectural designs, the outstanding advantages are light dead weight of only 28 lbs. per sq. ft., flexibility due to numerous expansion joints 35 ins. on centers, high quality workmanship, rapid field assembly, and low cost.

Parthenon Service

(a) Furnishing of deck materials. (b) Furnishing of materials for substructures of masonry, concrete or structural steel. (c) Furnishing and erection of all or part of the above. (d) Parthenon Engineering Department under the executive direction of a nationally recognized stadium engineer. We offer complete design and cost consultation and co-operation to architects and engineers.

Development

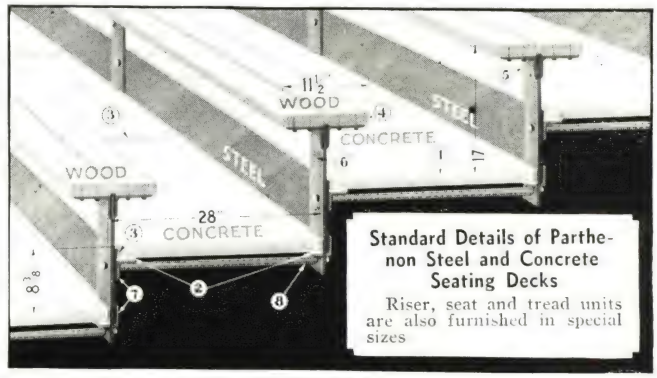
The two general types of crowd seating accommodations are *bleachers* and *stands*. *Bleachers* have decks with open riser spaces, being used where cheapness and/or portability are desired. Stands have solid risers which carry loads and brace the deck. They are used for all important indoor and outdoor seating where permanence and dignity are essential. *Grandstands* are stands with roofs.

Experience of many years with ordinary field poured monolithic concrete, as used in stand construction, indicated to investigators a great deal of deck deterioration. It was mainly due to excessive deck dead load and lack of expansion joints. This caused foundation settlement with consequent structural cracks and spalls. Poor workmanship was also a factor. Demand for improvement was met with a composite deck design of structural steel riser joists supporting precast reinforced concrete tread slabs of superior manufacture. First used for professional baseball stadiums in 1925, this design eliminates practically all the deterioration factors noted.

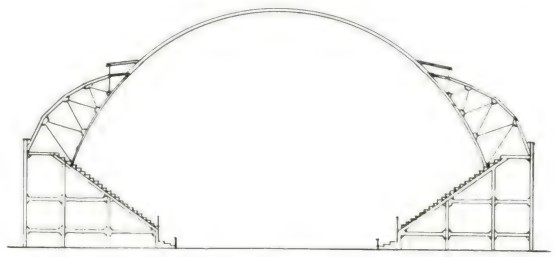
The composite method, with the integral seat bracket and other improvements, is the Parthenon System now available for large or small seating accommodations in stadiums, auditoriums, drill halls, field houses, gymnasiums, arenas, race track grandstands, and outdoor theatres.

Literature

Ask for literature and full information about the Parthenon System. If you are starting plans for indoor or outdoor seating, consult our engineers without obligation. They will advise fully regarding sight lines, layout and structure, and you will be assured that the finished design reflects the latest and best features of modern crowd seating accommodations.



Parthenon System Decks are used over substructures of masonry, concrete, or structural steel, and are adapted to all architectural designs

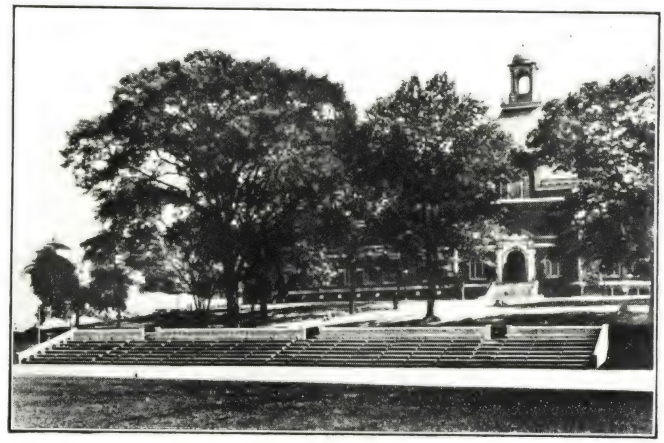


ARENA



BASEBALL FOOTBALL

Lightness, flexibility and stiffness against crowd sway are important in large indoor or outdoor seating decks. Parthenon Decks are designed to meet all conditions economically



Parthenon Deck, Franklin School Field, Ridgewood, N. J.

Especially adapted for small school and recreation field stands requiring permanence and dignity. Starting with a small initial installation, units of 250 seats may be added from time to time

H. V. BRIGHT

Manufacturer of Turnstile Equipment for Entrances and Exits

1104 Prospect Avenue, CLEVELAND, OHIO

Products

TURNSTILES for any use desired, including Registering Automatic Patterns, Coin Controlled and Non-registering Turn Stiles; for use at swimming pools, museums, libraries, pay-toilet rooms, stadia, baseball parks, university or high school athletic fields, amusement parks, expositions, fair grounds, self-serve groceries, ferry and boat landings.

Estimates furnished for subways and elevated railroad Turnstile Equipment.

HARDWARE for metal or wood Exits or Baffle Gates, including Ratchet, Dogs, etc.

Also Ticket Canceling Machines.

Installations

This concern has been manufacturing and furnishing turnstiles for more than twenty-five years and for use at many different places, including the baseball clubs of both the American and National Leagues; the Sesqui-Centennial and Municipal Stadium at Philadelphia; the new Cleveland Stadium; Woodland Hills Park Swimming Pool at Cleveland, and "Playland" Amusement Park at Rye, N. Y.; Wisconsin State Fair; Arlington Park Race Course at Arlington Heights, near Chicago, and the Chicago Indoor Stadium.

"BRIGHT'S" TURNSTILES

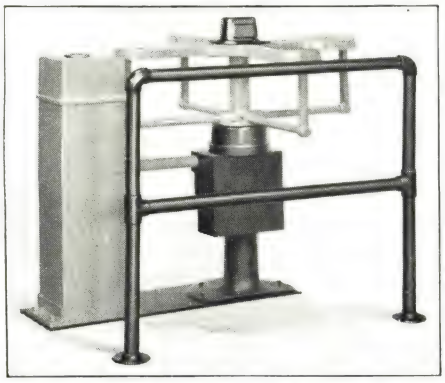
Automatic Pattern Turnstile—Eliminates the necessity of foot lever release or other mechanical movement by attendant, so that patrons practically operate turnstile. Slight pressure on foot lever will stop arms at any point desired. Equipped with shock absorber that checks the arm at each quarter-turn.

Coin Controlled Turnstile—An arrangement of a coin machine working in conjunction with a turnstile. Operates through admission in slot of one coin of any denomination desired, which allows the arms to be released by the patron. Galvanized coin box within the machine. All the necessary locks included.

Turnstile Registers—Turnstiles can be equipped with *printing* or *plain register*. Either registers from 1 to 100,000. Printing register records opening and closing numbers on a specially prepared slip which is inserted in an opening and printed by the turning of a key. Registering Turnstiles are made to revolve either way, but are not reversible.

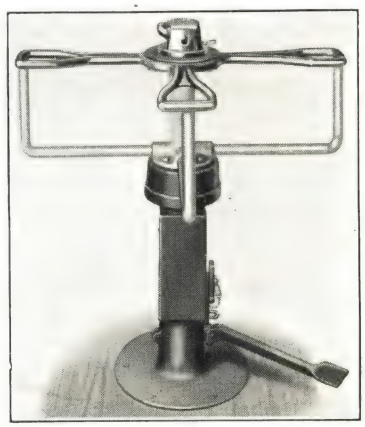
Turnstile Locks—Turnstiles are equipped with device for locking when not in use.

Blue Prints—Blue prints are furnished, giving suggestions for installation of turnstile with booth, railings, etc.



The "Bright" Coin Controlled Registering Turnstile with Broad Aluminum Top Type Arms

Height to top of register, 41½ ins.; to top of arms, 37¾ ins.; to bottom of arms, 25¾ ins. Length of arms over all, 39 ins.

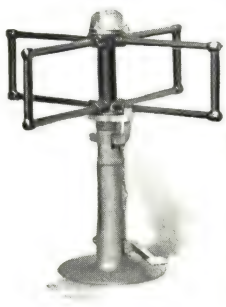


Automatic Pattern Registering Turnstile "D" with Open Top Type Brass Arms

Height to top of register, 41 ins.; to top of arms, 37½ ins.; to bottom of arms, 25½ ins. Length of arms over all, 39 ins.

Below:

Registering Turnstile "A"

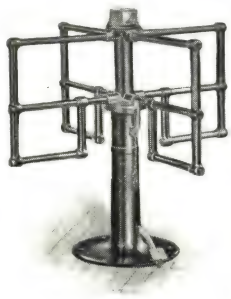


Used where an inexpensive turnstile is desired. It is under control of foot lever. Furnished with either printing or plain register. Arms of steel tubing and iron castings. Also furnished with broad type arms.

Height to top of register, 40½ ins.; to top of arms, 36 ins.; to bottom of arms, 24½ ins. Length of arms over all, 39 ins.

Below:

Registering Turnstile "B"



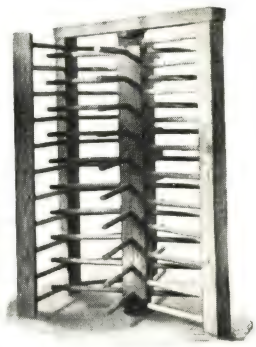
Drop arms give additional protection against any one crawling underneath. Also furnished without register for inside exit turnstile. Register case of polished brass. Arms of seamless 1¼-in. tubing and iron castings.

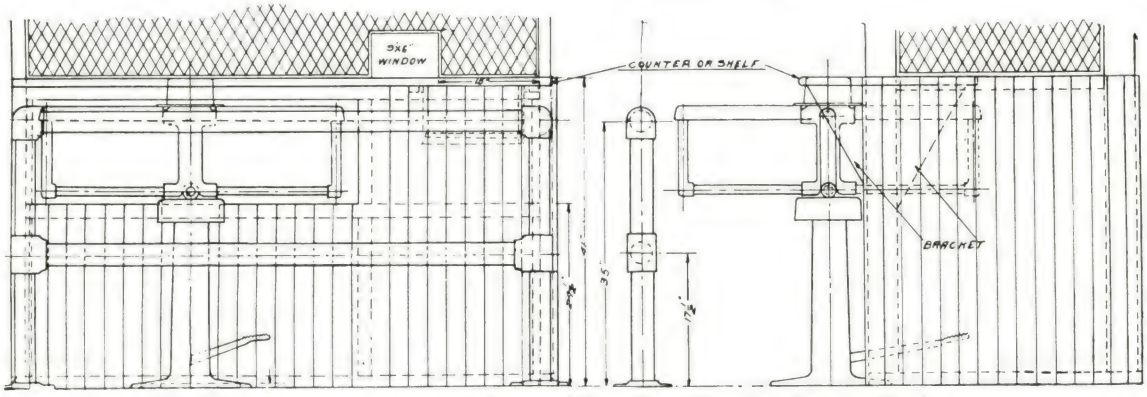
Height to top of register, 40½ ins.; to top of arms, 36 ins.; to bottom of drop arms, 16½ ins. Length of arms over all, 39 ins.

Right:

Wood Exit Turnstile or Baffle Gate

Operates one way only, allowing people to leave but not to enter. No attendant necessary. Hardware only is furnished for this turnstile, consisting of the top and bottom castings, ratchet plate, dogs, etc. Blue print furnished giving dimensions, etc. of the principal wood parts used in the construction. Complete turnstile can be built in your own locality





Turnstile Installation with Arms and Foot Lever Extending Into the Booth

PEREY TURNSTILES

MANUFACTURED BY
PEREY MANUFACTURING CO., INC.
101 Park Avenue, NEW YORK, N. Y.

Perey Turnstiles Are Standard Equipment

Perey Turnstiles, Passimeters, Coinpassors, Registering Fare Boxes, and Baffle Gates are recognized as standard equipment at all public places for collecting fares and admission fees, maintaining accurate registration of attendance, controlling the direction of the movement of the public and safeguarding exits. They are not subject to error or tampering by employees.

National Council of Y. M. C. A.'s
Steeple Chase Park, Coney Island, New York
Riverview Park, Chicago
Tokyo Underground Ry., Tokyo, Japan
Eagle Pass Toll Bridge, Texas
New York City Public Schools
Central Airport, Camden, N. J.
Museum of the City of New York
Young Million Dollar Pier, Atlantic City
LaCroze Subways, Buenos Aires
Union County (N. J.) Park Commission
Camden County (N. J.) Park Commission

What Perey Turnstiles Do

Perey Turnstiles serve both as gates and registers. They may be used either with or without tickets.

They give an independent, untamperable check on cash received. This check-up is not controlled by the cashier or ticket seller, since the registration is made by the patrons themselves as they pass through the turnstile.

They prevent pilfering or fraud on the part of the cashiers or ticket sellers by registering accurately and unalterably the number of persons admitted.

They prevent "gate crashing" through regular entrances.

They speed up the handling of patrons by reducing the amount of work that cashiers or ticket sellers must do.

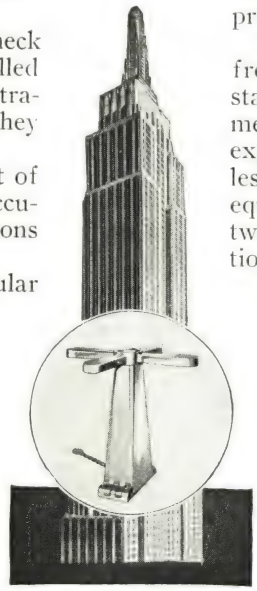
They save the wages of ticket takers and the cost of tickets.

Where Perey Turnstiles Are Used

Swimming pools
Amusement parks
Public lavatories
Botanical gardens
Street railways
Boat piers
Bathhouses
Exposition grounds
Public parks
Museums
Subways
Boat landings
Athletic stadia
Fair grounds
Zoos
Railroads
Ferries
Street Cars
Busses

Representative Perey Turnstile Users

Bronxdale Swimming Pool, New York
Westchester County, N. Y., Park Commission
Long Island State Park Commission
BMT Subway and Elevated Ry., New York
Philadelphia Rapid Transit Co., Philadelphia
Boston Elevated Railway, Boston
Boston Revere Beach & Lynn Ry., Boston
Chicago Rapid Transit Co., Chicago
City of Philadelphia, Broad St. Subway
Public Service Corporation of New Jersey
Grand Central Station (Lavatory), New York
South Station (Lavatory), Boston
North Station, Boston
Atlantic City Steel Pier
Hotel Astor (Lavatory), New York
Hotel St. George (Swimming Pool), Brooklyn
City of Chicago Public Parks
Brooklyn Botanic Gardens
Metropolitan Museum of Art, New York
Fort Lee Ferry, New York
Municipal Ferries, New York
Harvard University (Stadium), Cambridge
Cincinnati National League Baseball Club
City of New York Museum
Palisades Interstate Park Commission
Detroit River Bridge
Detroit-Windsor Tunnel



Empire State Building

Perey turnstile used in the Observation Tower of the world's tallest building. Special cast aluminum model, handsome, quiet, accurate. Description on following page

Perey Quality

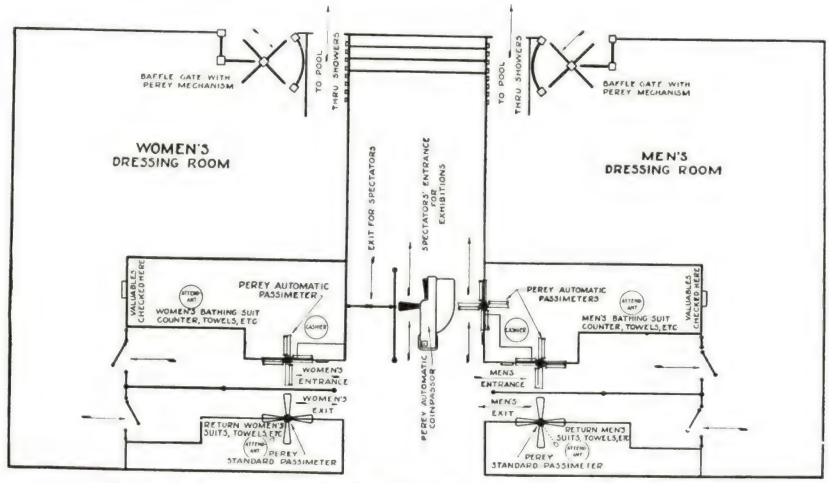
The Perey registering and controlling mechanisms of today represent the ultimate refinement in apparatus of this type that many years' experience and constant striving for improvement have been able to produce.

They are manufactured with the utmost care from the finest materials and are built to withstand the most severe usage to which such mechanisms are subject. It has been found from experience that Perey Turnstiles outlast and cost less per year of useful service than any other equipment on this type. They have served for twenty years or more in congested subway stations without breakdown.

The Perey Recording Meters are made in Perey shops especially for this service and are guaranteed to stand up.

Perey Service to Architects and Builders

It is advisable for architects designing plants and structures where accurate mechanical registration of attendance or means of controlling peoples' movements are desired, to consult us in advance of construction to ascertain the most suitable system and mechanism for the purpose and to plan for its use in the most efficient way. We suggest you write us concerning your projects involving turnstile equipment and let us supply you with data, without obligation.



Typical Arrangement of Swimming Pool Using Perey Turnstiles

A—Automatic Perey Passimeter

A fast registering turnstile for entrance and exit use, eliminates delay or congestion. Passimeter is unlocked by patron pushing the arm while passing through, allowing cashier or ticket taker to devote the utmost attention to making change or inspecting tickets, avoiding error or confusion. Can be held locked by means of lever at the base whenever necessary to exclude dead beats and undesirables. Careful workmanship and rugged construction insure long life and satisfactory service. This Passimeter is fitted with a positive lock and backlock, permitting only one-quarter turn forward at a time and preventing backward turning. Other features include: built-in tamperproof 5-digit recording meter; spread type arms; built-in shock absorber; compression spring throw; clockwise or counter-clockwise rotation (direction of rotation desired to be specified). Equipped with wood arms or drop arms to special order. Standard finish, black. Net weight, 240 lb.; gross weight, 300 lb. Spread of arms, 38 in.; height to top of arms, 37 in.

B—Standard Perey Passimeter

The Standard registering turnstile for use at pay-enter entrances or pay-leave exits and for swimming pool exits to prevent removal of rented property. The Standard Passimeter is always locked and must be unlocked for each individual admitted. Fitted with trip latch which enables operator merely to trip hand or foot control levers to unlock the Passimeter for the passage of one person, after which it automatically relocks. Special features include: tamperproof, 5-digit recording meter built into pedestal; solid brass spread type arms; automatic lock and positive backlock; built-in shock absorber; levers for both hand and foot control; compression spring carrying throw; clockwise or counter-clockwise rotation (direction of rotation to be specified). These Passimeters are strongly and durably built and handsomely finished. Standard finish, battleship gray. Net weight, 240 lb.; gross weight, 300 lb. Spread of arms, 38 in.; height to top of arms, 36 in.

C—The Popular Perey Turnstile

A reliable registering turnstile of the established Perey quality at a moderate price where first cost is important consideration. It is designed according to the best turnstile practice and is ruggedly built to give satisfactory service. The Popular is of the "always locked" type and is unlocked by cashier by a foot treadle. Recording meter, located in head of this turnstile, is geared directly to the shaft and is enclosed and fitted with a lock. Arms are "spread type," painted uniformly with pedestal. Pedestal base is cut off at one side to prevent people entering turnstile from tripping over it. Rotation, clockwise or counter-clockwise (direction to be specified). Standard finish, black. Net weight, 165 lb.; gross weight, 225 lb. Spread of arms, 39 in.; height to top of arms, 36 in.; height to top of register, 40½ in.

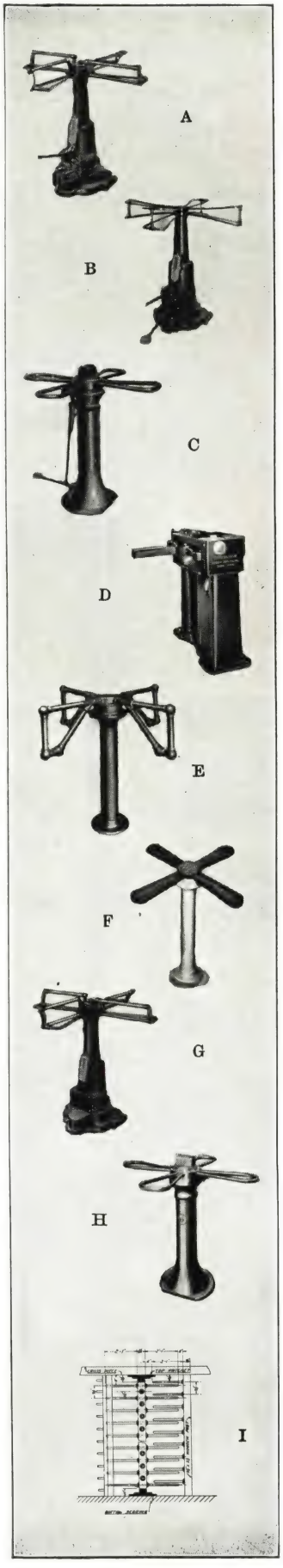
D—Perey Coinpassor—A Coin-controlled Turnstile

An efficient and economical turnstile for use where a uniform admission fee, payable with a single coin is collected. It collects the money and admits patron automatically, registering each admission on a tamperproof recording meter. Coin unlocks the Coinpassor, the patron does the rest in passing through—no operator is required. Widely used in subways, elevated railways, trolley and bus pre-payment and post-payment stations and in pay lavatories, etc. The Coinpassor is entirely mechanical, is entirely self-contained in one unit and, when used in batteries of two or more, no railings are required between them. Installed by simply bolting to floor. The Coinpassor can be arranged to operate on any coin or metal token. It can be supplied for either one-way or two-way operation (coin-controlled entrance and free exit). Standard features include: wood arms; cast iron base and coin receptacle compartment; nickelplated coin slot with lock; tamperproof recording meter. Specify direction of rotation clockwise or counter-clockwise and coin on which it is desired to operate. Standard finish, gray. Net weight, 700 lb.; gross weight, 850 lb. Height over all, 38 in.; width across top, 41½ in.; length across top, 54½ in.; floor dimensions, 37x15 in.

The Coinpassor can be furnished in a smaller model known as Perey "Little Giant" Coinpassor. This turnstile can be calibrated to operate on any coin or token and operation is similar to Heavy Duty type. Arms are chromium plated steel rod, pedestal and coin compartment are heavy gauge sheet steel. Specifications furnished on request.

E—No. 10 Perey Turnstile

For exit use where registering and locking are not required. Widely used also for enforcing one-way movement of pedestrian traffic. Swimming pools, amusement parks, dance halls, skating rinks, cafeterias, self-service stores, etc., use these turnstiles to advantage. No. 10 Turnstile is strongly built and will stand hard usage either indoors or out. Arms are drop type. Turnstile has no register and does not lock. It is arranged to turn in one direction only, but can be supplied for either clockwise or counter-clockwise rotation (direction to be specified). Standard finish, aluminum bronze. Net weight, 75 lb.; gross weight, 100 lb. Spread of arms, 40 in.; height to top of arms, 36 in.; height to bottom of arms, 23 in.



F—Perey No. 11 Turnstile and No. 12 Turnstile Stand

This turnstile is non-registering and non-locking and used for enforcing one-way pedestrian traffic in cafeterias, self-service stores, amusement pavilions, Y. M. C. A.'s, museums, libraries, or any indoor location. Not suitable for outdoors. Head and arms are of solid oak, highly polished, with cast iron drum enclosing ratchet and pawls and can be furnished without pedestal for mounting on counter or railing, post or table, or Perey No. 12 Cast Iron Turnstile Stand can be furnished for mounting at proper height. Turnstile can be supplied for clockwise or counter-clockwise rotation (specify direction required). Specifications—Perey No. 11 Wooden Arm Turnstile: net weight, 27 lb.; gross weight, 60 lb.; spread of arms, 40 in.; height to top of arms, 4 in. Perey No. 12 Turnstile Stand; net weight, 43 lb.; height, 31 in.

G—Perey "Non-attendant" Passimeter

This turnstile is widely used for registering attendance at public places such as museums, libraries, community centers, parks, zoos, botanical gardens, stadia, playgrounds, etc. Records attendance accurately and automatically without attendants and without effort or annoyance to the public, Turnstile rotates in one direction only and is always locked, but is unlocked by the person passing through as he pushes lightly and naturally against topmost arm. Recording meter, located in pedestal, is geared directly to rotating shaft and is accurate and tamperproof. Head and pedestal are cast iron, arms are spread type steel rod with unlocking (upper) arms of brass tubing. Action of turnstile is very fast. It is durable and of pleasing appearance. Equipped with compression spring carrying throw to return arms to locked position after every quarter turn, built-in shock absorber, automatic locking and unlocking devices. Direction of rotation (clockwise or counter-clockwise) to be specified. Standard finish, black. Principal dimensions: spread of arms, 38 in.; height to tops of arms, 37 in.; net weight, 240 lb.

H—Perey Bronze Museum Type Turnstile

This registering turnstile is made entirely of art bronze of pleasing design and especially adapted for use in museums, art galleries, libraries, public auditoriums and other public buildings to register attendance and to regulate traffic into and out of the building. Pedestal and head are bronze castings, arms are "spread type" of heavy 1-in. bronze tubing and the accurate, tamperproof, 5-digit Perey recording meter on the head of this turnstile is enclosed in a decorated bronze casing. Turnstile is non-locking and rotates in one direction only. It can be furnished for either clockwise or counter-clockwise rotation as specified. Quiet and smooth in operation and durable in construction, its handsome appearance will enhance the beauty of its surroundings wherever it is used. Principal dimensions: spread of arms, 39 in.; height to top of arms, 36 in.; height to top of register, 40½ in.

I—Perey Baffle Gate Mechanisms

These are standard for this type of equipment. For all exits not under observation, baffle gates constructed with Perey mechanisms are sure protection. They are ideal for use in swimming pools and bathhouses to compel one-way movement without an attendant. Mechanisms are substantially built to withstand the most severe usage. Top ratchet and post cap and bottom bearing and post cap only are furnished, the center post, arms and baffles to be constructed to suit individual conditions as to height, spread, etc., according to instructions which will be furnished. Ratchets can be supplied for either clockwise or counter-clockwise rotation (direction to be specified).

Perey Aluminum Automatic Type Turnstile

(Illustrated on preceding page)

Designed for installation at entrance to Observation Tower of the Empire State Building, and is thoroughly in keeping with the modern treatment of this tower and its fittings. Head and arms are aluminum, cast en bloc, and pedestal is also cast aluminum. This gives unusual lightness combined with ample strength and the bright, metallic outside finish so popular today. Operation is on the "Automatic" principle, arms being always locked but unlocked by the patron himself as he presses against one of them in passing through. There is a positive stop lock operated by foot treadle by means of which cashier or attendant may hold turnstile locked, preventing entrance, whenever necessary. Fitted with a positive backlock to prevent rotation in reverse direction and compression spring carrying throw to bring arms home to locked position after every quarter turn. It is fitted with a Perey 5-digit, tamperproof recording meter set into pedestal and geared directly to revolving shaft, giving positive and accurate registration of every admission. A shock absorber is built into the base to prevent damage to mechanism from violent usage. Mechanism is made from the most durable materials and is silent in operation. Finish is natural aluminum, polished. Rotation (clockwise or counter-clockwise) to be specified. Ideal for public buildings, museums, parks, zoos, libraries, or any place where a locking, registering turnstile of highest quality and finest and most modern appearance is desired.

GRIGOR-HEYMAN CORPORATION

Manufacturers of Coat Room Checking Systems and Equipment

510-512 West 25th Street, NEW YORK, N. Y.

Products

De Luxe Coat Room Checking Equipment and Systems for convention halls, auditoriums, hotels, clubs, churches, community centers, institutions, schools, offices and factories; De Luxe Hospital and Institutional Wardrobe Checking Systems; Swimming Pool and Skating Rink Wardrobe Checking Systems.

Also Theatre Dressing Room Racks, Make-up Tables and Shelving.

De Luxe Coat Room Checking Equipment

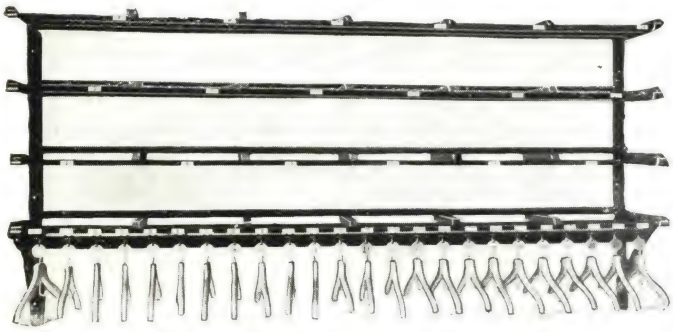
Constructed for durability, practicability and stability. Steel uprights of 1½x1½-in. No. 20 gauge square full welded. Angle cross members are full welded to tubing allowing shelf placement without shifting. Shelving is constructed to form individual compartments for hats. White fibreloid number plates with black numbers, assuring visibility. Manufactured in three types: portable, wall and stationary floor racks.

Service

Consult our Engineering Department which will render all assistance in planning your check room, cheerfully laying out same, submitting estimates without any obligations whatsoever.

Description of De Luxe Wall Type Rack No. 1

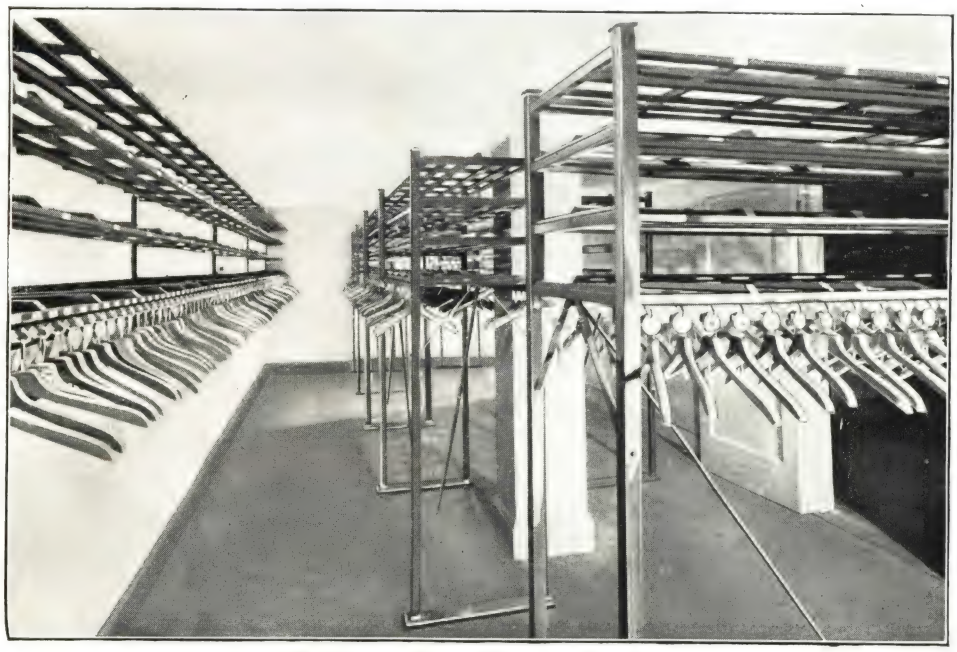
With this type of equipment every inch of space in a coat room is made available for checking purposes. The wall rack is fastened to the walls on sturdy wall brackets backed by a 3 in. x 1 in. cleat fastened with either rawl plugs, toggle bolts or expansion bolts, depending on the type of wall. Accommodating four persons per foot, every coat on a hanger, every hat in its individual space numbered to correspond with the hanger. It is also recommended for offices and factories where checking facilities for employees' clothes are limited as well as when planning permanent coat rooms for hotels, auditoriums, convention halls, clubs and so forth.



De Luxe Wall Type Rack No. 1



De Luxe Portable Rack No. 1



Stationary Floor Type De Luxe

Description of De Luxe Portable Rack No. 1

Standard length 6 ft. 3 in., height 6 ft. 6 in., width 2 ft., mounted on 3-in. "Perfect" ball bearing casters. Each rack accommodates 48 persons. Every coat on a hanger, every hat has its individual space. Can be dismantled or erected in a few minutes and a check room had in any part of the building desired.

Typical Check Room Showing Wall and Stationary De Luxe System

The illustration shows a typical check room consisting of both wall and stationary floor racks carrying the De Luxe Checking System of four persons per square foot of rack. The De Luxe Stationary Rack No. 1 carries the same principle as the De Luxe Portable Rack, with the exception that the casters are eliminated and the base fastened to the floor. De Luxe Stationary Rack No. 1 used only in permanent coat rooms.

WHITNEY DUPLICATING CHECK CO.

DeSaussure Single-Post Coat Room Equipment—Originators of All-Steel Hat and Coat Racks

SALES AND DISPLAY ROOMS

TELEPHONE
LAC 4-6277-8-9

45 West 45th Street, NEW YORK, N. Y.

Products

DeSaussure All-Steel Coatroom Equipment for hotels, clubs, restaurants, auditoriums, theatres, churches, schools, hospitals, offices, etc., consisting of Stationary and Portable Floor and Wall Racks, Overshoe and Umbrella Racks.

Service

We maintain an engineering staff to solve the coatroom problem and will gladly submit to architects, gratis, blue prints of the most practical coatroom arrangement.

A catalogue and descriptive literature of DeSaussure all-steel hat and coat racks sent upon request.

Architectural Specifications and Construction Details

End and Intermediate Posts—Supporting post members are interchangeable for end or intermediate position. The introduction of intermediate supports in long assemblies does not add to lineal length or reduce accessibility of hat or coat spaces at point of support, all space being available.

Posts are 18-gauge 1½-in. square steel tube.

Cross arms for supporting shelving are tapered tubular double channel design of 20-gauge steel, constructed of an outer and enclosed channel so that double thickness of metal is introduced in the sidewalls which support the load. Cross arms are slotted to receive shelf lugs.

Base member is rectangular tube 1½x2¼ ins. of double channel construction, with braces welded to the post.

Shelving—Shelving is dust-free, open slat type, of 20-gauge steel reinforced with angles of 12-gauge, spaced to form hat spaces. Edges of shelving reinforced with 16-gauge hard steel, to which is added a steel ½-in. channel to contain a numbered strip. The bottom shelf is constructed with a Z-bar in the second slat position, reinforced with 12-gauge steel in which specially spaced openings are provided for coat hangers. Ends of shelf are provided with lugs to fit into cross member slots.

Wall Brackets—The brackets are of truss suspension type, with the same general construction of hanger rail and shelving as described above.

All racks are electrically spot-welded.

Structural Strength

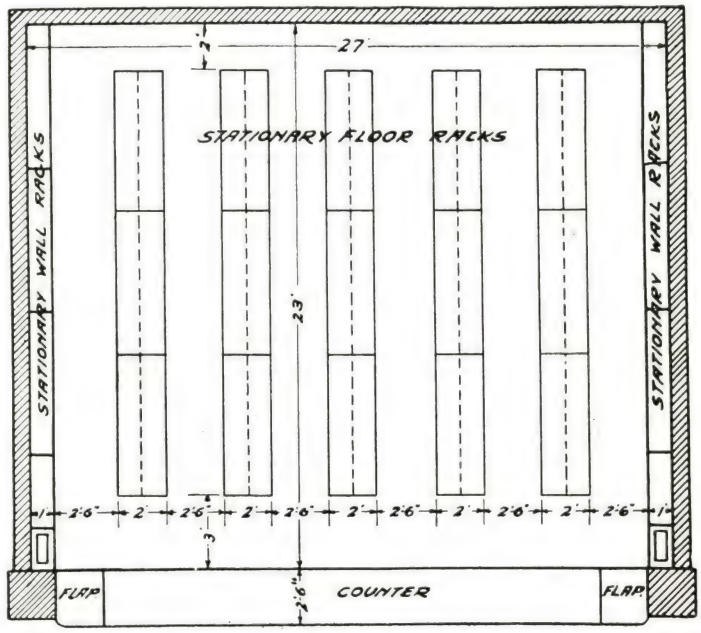
Floor racks will support 100 lbs. and wall racks will support 50 lbs. per square foot without set or fracture of hanger rail.

Numbering

Numbering is done on fibreloid in strip form. The numerals are impressed by a special hot process impregnating the strip with color material.

Finish

Two coats of pyralin lacquer in any color desired.



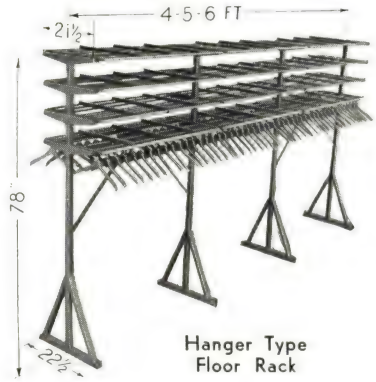
⅛ *inch scale.*

Specimen floor plan designed by our engineering department

To estimate approximate hanger capacity of a room like this: (1) Get area of room in square feet (27'x23'=621 sq. ft.). (2) Multiply this figure by 4 (621x4=2484). (3) Take two-fifths of this product (2/5x2484=994), which would give the approximate hanger capacity. (Add 50% capacity for hook type racks.)

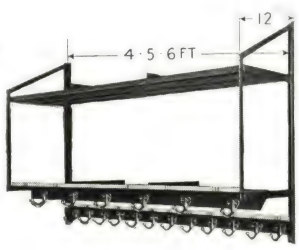
Prominent Installations

Waldorf Astoria Hotel, New York, N. Y.
Rockefeller Institute, New York, N. Y.
Salvation Army, New York, N. Y.
Cornell University, Ithaca, N. Y.
N. Y. Telephone Co., Brooklyn, N. Y.
East View Junior High School, White Plains, N. Y.
St. George Hotel, Brooklyn, N. Y.
Elks Home, Danbury, Conn.
Yale University, New Haven, Conn.
Ætna Life Insurance Co., Hartford, Conn.
Harvard University, Cambridge, Mass.
Convention Hall, Asbury Park, N. J.
Scottish Rite Temple, West Collingswood, N. J.
Soldiers & Sailors Memorial, Trenton, N. J.
John Wanamaker, Philadelphia, Pa.
Battle Creek Sanitarium, Battle Creek, Mich.
Chateau Laurier, Ottawa, Canada
National Theatre Supply Co., Standard Equipment
Young Men's Christian Association, Standard Equipment
Canadian National Railways, Standard Equipment
Johns-Manville Company, Standard Equipment
Beth Israel Hospital, New York, N. Y.
American Women's Club, New York, N. Y.
Junior League Club, New York, N. Y.
Mayfair Theatre, New York, N. Y.
Perrott Memorial Library, Sound Beach, Conn.
St. Paul's Rectory, Cranston, R. I.
St. Leo's Parochial School, Irvington, N. J.
School of Fine & Industrial Arts, Newark, N. J.
Loyal Order of Moose, Lancaster, Pa.
Strawbridge & Clothier Dept. Store, Philadelphia, Pa.



Hanger Type Floor Rack

Made in 4, 5 and 6 ft. sections

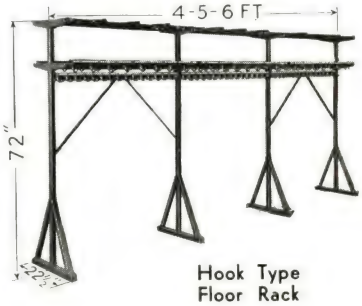


Hook Type Wall Bracket Rack

Made in 4, 5 and 6 ft. sections



Hanger Type Wall Bracket Rack



Hook Type Floor Rack

Made in 4, 5 and 6 ft. sections

VOGEL-PETERSON CO.

Manufacturers of Peterson Checkroom and Wardrobe Equipment

1801 North Lincoln Street, CHICAGO, ILL.

Products

PETERSON ALL-STEEL CHECKROOM and WARDROBE EQUIPMENT for clubs, hotels, leagues, association buildings, auditoriums, theaters, museums, churches, schools, banks, stores, offices, hospitals, etc., consisting of Stationary and Portable Floor and Wall Racks; Overshoe, Umbrella and Baggage Racks; Racks for Bathhouse Checkrooms; a complete line of Closet Equipment and Costumers.

T. M. Reg. U. S. Pat. Office

Service

Our long experience in solving checkroom problems fits us to plan arrangements which will insure the greatest all-round efficiency. We will gladly submit to architects, gratis, blue prints indicating the most practical checkroom arrangements. Complete catalogue describing the Peterson system and equipment sent on request together with list of prominent installations.

PETERSON ALL-STEEL CHECKING EQUIPMENT



The Peterson One-check Checking System

Advantages—Unlike any other checking system the Peterson One-check Checking System increases speed, eliminates errors and utilizes any given space to provide the greatest capacity. Coats, hats, packages, umbrellas, canes, overshoes are taken care of quickly and accurately with the least possible expenditure of space or effort.

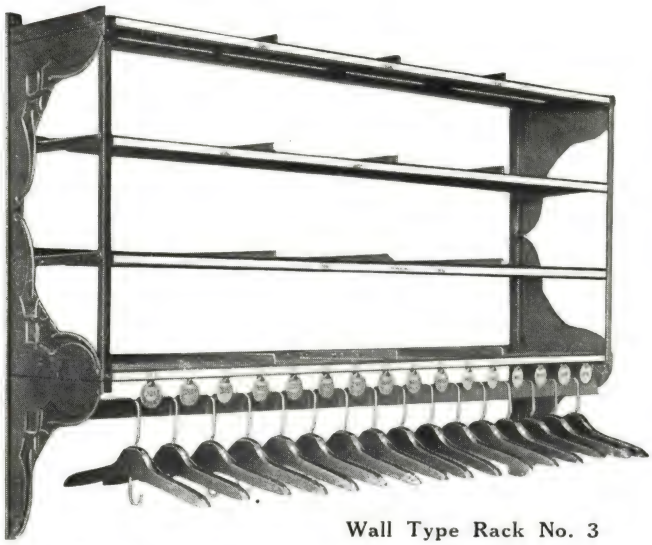
Operation—Each coat goes on its own hanger where it is held in shape; it is not subjected to the damaging results of sagging on an ordinary hook. Each hat has its correspondingly numbered section above the hanger. Canes, umbrellas, rubbers, overshoes or luggage are disposed of with equal care by means of systematically numbered umbrella, overshoe and baggage racks.

Regardless whether one or all of the above items are checked, it is only necessary for the guest or patron to be given one check which identifies every item. Only the Peterson One-check System offers this remarkable service.

Portable Rack No. 1

A standard unit—Length, 6 ft., height 6 ft. 7 in., width 2 ft. Capacity, 48 hangers and spaces for hats. Completely equipped with hangers, numbered shelves and guest checks imprinted with user's name. End frames are seamless tubular steel and all braces and shelves are electrically welded. Mounted on large, rubber, ball bearing casters. This rack can be assembled or knocked down without the aid of any tools in a few minutes. Can be stored in 2 sq. ft. of floor space.

With these racks a checkroom can be set up in any part of your building. It is easily moved from one location to another and will go through any ordinary doorway. This unit is very popular with users who find their permanent checkroom space too small or where no checkrooms are provided. The rigid construction and proper bracing in this unit prevents swaying. Standard finish: walnut-mahogany brown enamel. Wood panel end frames of special finish may be specified.



Wall Type Rack No. 3

Wall Type Rack No. 3

Extends 1 ft. from wall and is installed at height to correspond with Stationary Rack No. 2. Furnished in any length, 3 ft. and over. Capacity, 4 hangers and spaces for hats to each 1 ft. length of rack. Brackets and shelves electrically welded. Furnished complete with hangers, numbered shelves, guest checks imprinted with user's name, and all necessary hardware for installing. This rack provides increased capacity in any room by utilizing the otherwise lost wall space. It is a very popular rack in larger offices, providing a centralized wardrobe, and eliminating the use of bulky lockers. Finish, walnut-mahogany brown enamel.

Note: *Also made to be fastened to or stand on floor same as portable No. 9 without casters.*

Stationary Floor Rack No. 2

Height, 6 ft. 7 in.; width, 2 ft., furnished in lengths 4 ft. and over. Capacity, 8 hangers and spaces for hats to every lineal foot of rack. Equipped with hangers, numbered shelves, guest checks imprinted with user's name, and all necessary hardware for installing. End frames are seamless tubular steel, and all braces and shelves are electrically welded. An installation of this unit with Wall Type Rack No. 3 gives the user the best permanent installation of checkroom equipment. Finish, walnut-mahogany brown enamel.

Note: *Heavy fully enclosed steel bases are equipped with rubber blocks, allowing installation to be made without fastening to floor.*

Portable Wall Rack No. 9

A standard unit. Length, 6 ft.; height, 6 ft. 7 in.; width, 1 ft. 6 in. Capacity, 24 hangers and spaces for hats. Completely equipped with hangers, numbered shelves and guest checks imprinted with user's name. End frames are seamless tubular steel, and all braces and shelves are electrically welded. Mounted on large, rubber tired, ball bearing casters or rubber blocks for stationary set-up.

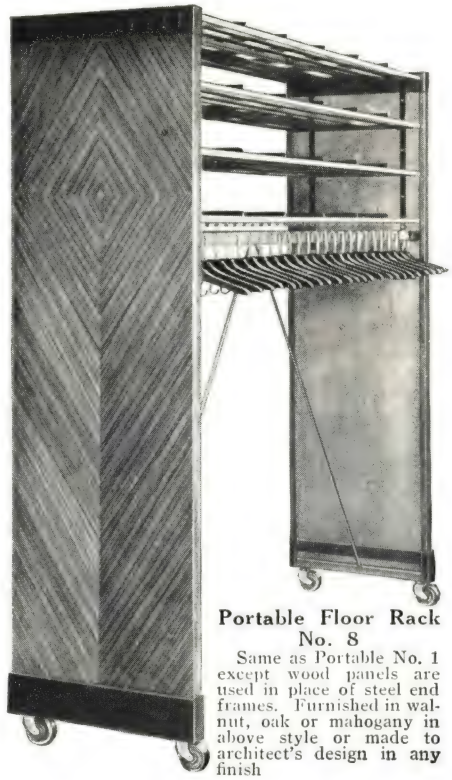
This rack can be assembled or knocked down without the aid of any tools in a few minutes. Moves easily from one location to another, and will go through the ordinary size doorway. The rigid construction and bracing prevents swaying. A very popular rack where space will not permit the use of a portable No. 1, or where a permanent installation of Wall Rack No. 3 cannot be made. With this unit, checkroom service can be set up quickly at the entrance to the dining room, coffee shop, or in barber shops, etc. Finish, walnut-mahogany brown enamel.

Umbrella Rack No. 4

Height, 36 in. to top of backboard; width, 1 ft.; furnished in lengths of 1 ft. 6 in. and up. Capacity, 16 umbrellas or canes to each 1 ft. length of rack. Equipped with guest checks imprinted with user's name. Drip pan has a pet cock for draining. This rack answers the question of what to do with wet umbrellas. Finish, walnut-mahogany brown enamel.

Overshoe Rack No. 7

Usually supplied in counter height, 15 in. deep, any width. Each compartment is 6x6x15 in. and accommodates one pair of rubbers or overshoes. Furnished in sizes to accommodate 24 pairs of overshoes and up. The question of handling wet and slushy overshoes is answered with this popular rack. It is sturdily constructed of heavy gauge steel, and handsomely enameled. Each compartment is numbered and numbered guest checks are also furnished. Finish, walnut-mahogany brown enamel.



Portable Floor Rack No. 8

Same as Portable No. 1 except wood panels are used in place of steel end frames. Furnished in walnut, oak or mahogany in above style or made to architect's design in any finish

Baggage Rack No. 6

Height, 84 in.; depth, 24 in. Furnished in 3-ft. sections, five shelves high, including top and bottom. Adjustable shelving, and with or without backs and sides. Capacity, 15 suitcases to each 3-ft. section. Finish, walnut-mahogany brown enamel.

Peterson Bathhouse Rack System

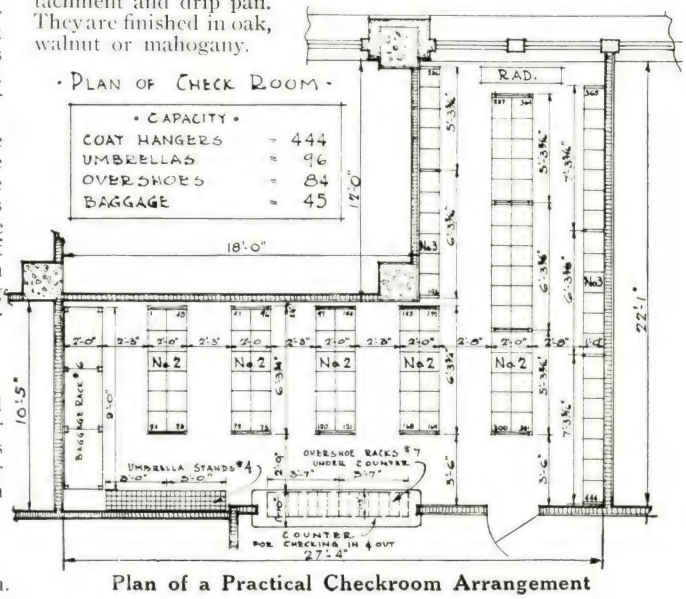
This equipment combines with the Peterson Checkroom Rack the convenience of a special hanger and bag to protect bather's apparel in the least possible space. It makes possible the handling of larger crowds and keeps the dressing rooms continually in use. Wire baskets and steel shelving also furnished.

Peterson Garment Hanging Equipment for Hotels, Apartments, Clubs, etc.

This efficient equipment comprises a complete line of garment hangers for wardrobes—wall hooks, shelf hooks, extension and stationary closet rods. Complete information concerning these Peterson products will be furnished on request.

Peterson Costumers

These include designs of costumers furnished in all-steel construction. Costumers may be furnished with umbrella attachment and drip pan. They are finished in oak, walnut or mahogany.



Plan of a Practical Checkroom Arrangement

THE LIQUID CARBONIC CORPORATION

Manufacturers of Soda Fountains and Luncheonette Equipment

3100 South Kedzie Avenue, CHICAGO, ILL.

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LIQUID CARBONIC PACIFIC CORPORATION

LOS ANGELES, CALIF. SAN FRANCISCO, CALIF. SEATTLE, WASH.

Products

Soda Fountains and Soda Fountain Equipment.

Complete Luncheonette Installations, including Kitchen Equipment and Luncheonette Equipment.

Also Soda Water Carbonators.

The Company

The first soda fountain built by The Liquid Carbonic Corporation, more than thirty years ago, embodied a number of original features that immediately won for it a high place in the esteem of users of this type of equipment. Throughout its history this organization has maintained a policy of pioneering research in its line, and of incorporating the results of its thorough planning in constantly improving equipment, the details of which are described below.

Representatives of The Liquid Carbonic Corporation are experts in luncheonette and soda fountain equipment, and are always ready to assist architects in planning, specifying and selecting the correct units of equipment.

Guarantee

All luncheonette and soda fountain equipment manufactured by The Liquid Carbonic Corporation is unconditionally guaranteed against defects of workmanship, and is backed by one of the largest manufacturers in the world of this type of equipment.

Luncheonette Equipment

Experience of Engineering Staff

When the luncheonette idea first appeared the engineering staff of The Liquid Carbonic Corporation were prepared to plan the necessary equipment because of more than thirty years of experience in planning soda fountain equipment. The specialized experience in luncheonette planning they have gained since that time in laying out installations for such well-known chains as Liggett, Interstate, Kresge, McCrory, Metropolitan, and many others makes them unusually well equipped to plan luncheonette layouts to meet all requirements with maximum efficiency.

Service Rendered by Representatives

The representatives of The Liquid Carbonic Corporation, with headquarters in most of the populous centers of the country, are in close touch with the luncheonette business, and know its needs. Each representative is equipped to render the last word in service in assisting architects and owners to plan luncheonette equipment.

Production Facilities

The facilities of The Liquid Carbonic Corporation are unsurpassed for large scale production of luncheonette equipment, being among the largest manufacturers of this equipment in the world. This results in economy of manufacture and speed in getting the job done. As an example, a job recently completed for the Merchandise Mart, Chicago, Ill., had over 750 ft. of counter space. Few other manufacturers could attempt to handle a job of this size.

Types of Luncheonette Equipment

The most successful principles of the numerous installations that have been planned by this organization have been combined in a series of stock units that are offered at attractive prices for equipment of this high character.

By way of demonstrating the complete range of luncheonette equipment offered, a large and an average sized installation are shown. The first illustration (Fig. 1) shows the luncheonette installation in the Merchandise Mart in Chicago. It contains over 750 ft. of counter space, sufficient for over 350 stools, and is thoroughly equipped for service on this scale.



Fig. 1. Merchandise Mart Luncheonette Installation, Chicago, Ill.

Fig. 2 shows a typical layout made up entirely of stock units, with the exception of the workboards.

Mechanicold Cooler Box—The Mechanicold cooler box shown (A) in Fig. 2 is 7 ft. 6 in. long, with a capacity of 30 gal. of bulk ice cream and 10 gal. of brick or package cream. It is equipped with a milk pump, crushed fruit jars, syrup pumps and draft arms (two soda and two water), all conveniently arranged for speedy service. Also made in stock sizes from 6 ft. 6 in. to 9 ft. 6 in.

Mechanically Refrigerated Combination Salad and Toaster Cabinet—The mechanically refrigerated salad and toaster cabinet (B) is 4 ft. 9½ in. long. It contains ten deep inserts and one shallow pan, all made of porcelain enamelware. Also includes crumb drawer, plate rack, cutting board and shield. Any desired temperature can be maintained in the cooling compartment.

The toaster section of this cabinet contains two drawers. The lower drawer is for loaf bread storage. Sliced bread is kept in the top tilting drawer which is provided with a partition.

Workboard—The workboard (D) is 6 ft. long. It is of metal construction with built-in dishwasher. There are four shelves for dish and silver trays. Also includes extra basin, running water, dipper well and refuse chute.

Steam Table—The steam table (C) is 3 ft. 5 in. long, of full metal construction. All exposed parts are monel or lichrome metal. Equipped with a gas burner. Has six 1-gal. porcelain enamel vegetable pots, and one meat pan which is provided with a metal hood. Equipped with a 9-in. wood cutting board, and has ample shelving space in the lower section.

Urn Stands and Pastry Cases—In addition to the units that comprise this layout, urn stands and pastry cases in stock units are also available.

The pastry cases are of plate glass and nickel silver construction.

Complete Layout—With these stock units as a basis an outfit to meet any averaged sized requirement can be assembled at a very moderate cost. No job is too large for THE LIQUID CARBONIC CORPORATION'S facilities and none too small to merit their most thorough attention to details.

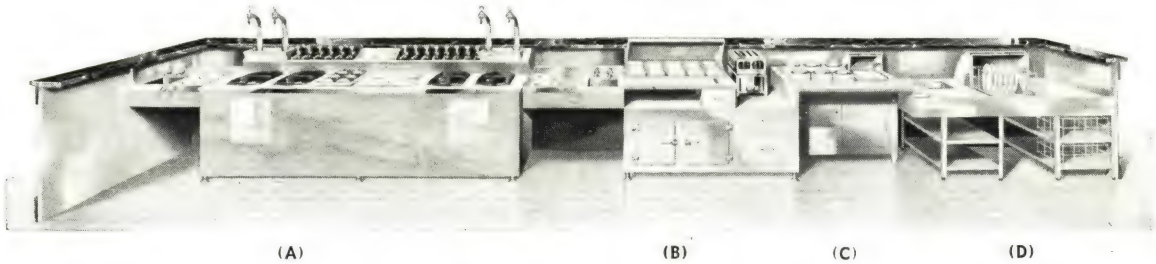


Fig. 2. A Typical 30-ft. Luncheonette Installation

(A) Mechanicold Cooler Box
(B) Mechanically Refrigerated Salad Cabinet and Toaster Section
(C) Steam Table
(D) Workboard with Built-in Dishwasher

Soda Fountain Equipment

The mature experience of more than thirty years is built into "Liquid" Soda fountains in the form of hidden value details of which the following are typical:

Stub Brine Tank (Fig. 3)—Makes possible the maintenance of a uniform temperature throughout the entire ice cream can, top to bottom. Result, ice cream of uniform consistency, no shrinkage.



Fig. 3. Stub Brine Tank

Refrigerated Syrup Enclosure (Fig. 4)—Syrups are refrigerated by means of an ice water bath at the bottom of the syrup enclosure in which the syrup jars set. This insures cold, fresh syrup providing colder drinks and prevents spoilage.

Pure corkboard surrounds the entire enclosure and strips of non-conducting material break the metal contact, insuring complete insulation.

Insulated Draft Arms—(Fig. 5)—Made of pure nickel silver, silver plated. Pure corkboard is packed around the block tin delivery tube to conserve refrigeration. They represent a distinct departure in artistic design.

Non-conducting Rings and Insulated Cover (Fig. 6)—The rings around the sleeves of the ice cream compartment are made of non-conducting material. Perfect fit effectively breaks metal contact, reducing the escape of refrigeration. Covers are of same material, and in addition have 1¾-in. cork insulation. The pitch of the top prevents water from running into the cans. Ring and cover effectively seal cans against air circulation.

Marble Cooler Boxes (Fig. 7)—Constructed of marble, will not warp, twist, corrode, or deteriorate in any way. Completely insulated with pure cork.



Fig. 4. Refrigerated Syrup Enclosure



Fig. 5. Insulated Draft Arms



Fig. 6. Non-conducting Ring and Insulated Cover



Fig. 7. All-marble Cooler Box with Pure Cork Insulation

THE ALUMINUM COOKING UTENSIL CO.

NEW KENSINGTON, PA.

BRANCH OFFICES

BALTIMORE, MD., 608 Lexington Building
BOSTON, MASS., 1027 Statler Building
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CLEVELAND, OHIO, 962 Hanna Building
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MINNEAPOLIS, MINN., 704 First National-Soo Line Building
NEW YORK, N. Y., 393 Seventh Avenue
OAKLAND, CAL., 45th and Adeline Streets
PHILADELPHIA, PA., 1306 Commonwealth Title & Trust Co. Building
PORTLAND, ORE., 601 Board of Trade Building

Products

"Wear-Ever" Aluminum Steam Jacketed Kettles and Urns; Range Utensils.

The Company and Its Products

For 31 years The Aluminum Cooking Utensil Co. has manufactured and distributed "Wear-Ever" aluminum cooking utensils for use not only in homes, hospitals, hotels and on shipboard, but everywhere that cooking is done.

Constant advertising during these years has brought a recognition of the value of aluminum from housekeepers, chefs and stewards. Each year it has also secured the approval of an increasing number of architects.

WEAR-EVER
T.A.C. ALUMINUM U.C.CO.
TRADE MARK
Reg. U. S. Pat. Off.

Advantages of Aluminum for Cooking Utensils

Lightness—Bulk for bulk, the weight of aluminum is about one-third that of iron or tin, three-tenths that of copper and one-quarter that of silver. This difference in weight means much in the hot, hurried conditions of some kitchens.

Heat Conductivity and Specific Heat—In heat conductivity, aluminum ranks twice as high as tin and three times as high as iron. In specific heat (heat retaining ability) aluminum outranks all commercial metals by a large margin. The combination of these two characteristics makes aluminum preeminently suitable for cooking. By its use an even cooking temperature is easily maintained. Aluminum vessels cook not only from the point under which heat is applied, but also from every other point where the utensil is in contact with the food.

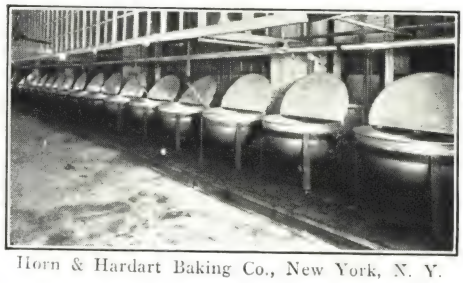
No Tinning Necessary—Aluminum never forms a poisonous compound with any food. It is therefore unnecessary to tin the surface of an aluminum utensil.

Economy and Durability—"Wear-Ever" utensils are good for years of continuous service. They are decidedly economical, for not only is there no tinning expense, but there is no time lost in sending out the utensils to be tinned. One large nationally known hotel put in a complete equipment of "Wear-Ever" at a total cost of $2300, and, according to their own statement, have saved $100 in tinning bills every month since the equipment was installed.

Sanitary Qualities and Non-absorption of the Surface—The metal used in "Wear-Ever" equipment is rolled under tremendous pressure, giving a sheet that is hard, dense, and smooth. It is easy to clean and, being non-porous, food will not penetrate the metal and later contaminate other foods cooked therein.

Special Consultation Services to Architects

At each of the branch offices listed above, there is a man who, through years of training and experience, is able to render valuable assistance to an architect in laying out kitchen equipments and in writing specifications. These men are glad to render assistance when asked to do so.



Horn & Hardart Baking Co., New York, N. Y.

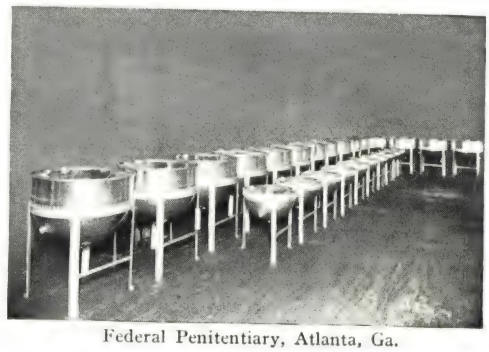
Catalogue

An 80-page book and catalogue showing the complete line of jacketed equipment and range utensils will be sent promptly in answer to a request sent either to the home office or to any of the branch offices.

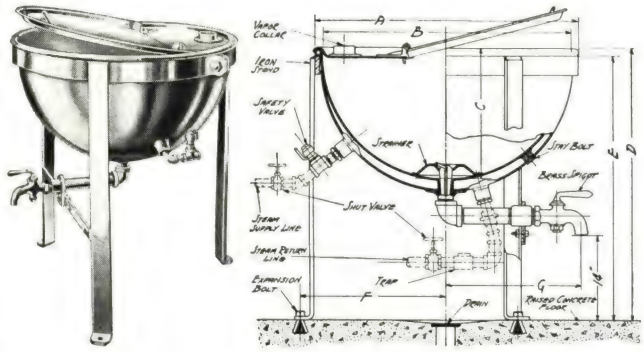


Georgetown University, Washington, D. C.

Three Typical Installations of "Wear-Ever" Kettles



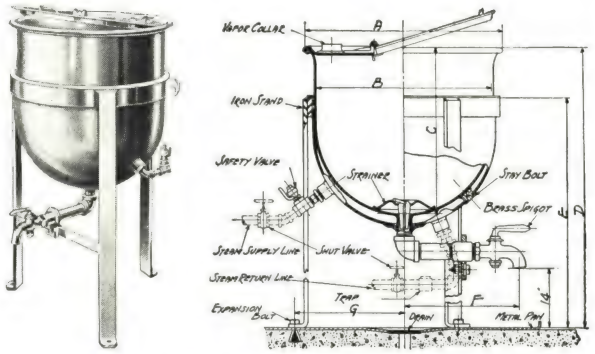
Federal Penitentiary, Atlanta, Ga.



Steam Jacketed Kettle Type 1

This kettle is jacketed to the top, insuring maximum results. Its uses are many and varied—roasting meat, canning and preserving fruits, etc. Being shallow and broad, it is ideal for cooking cereals of all kinds and dried fruits. The fruit is not crushed by its own weight as it would be in a deeper, narrower kettle. Kettles 125 gal. and larger, in addition to having the shells welded together, are reinforced with line of rivets

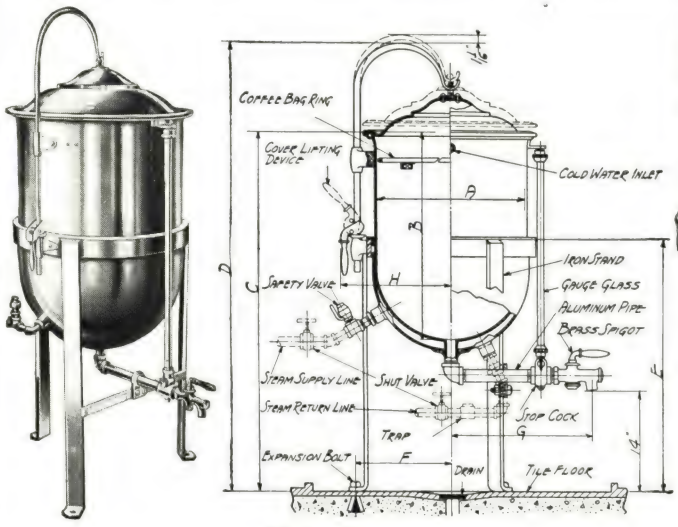
Dimensions of Type No. 1 Steam Jacketed Kettles												
Capacity in Gallons	5	10	15	20	25	40	50	60	75	100	125	150
A	18 1/2"	22 1/2"	25 3/8"	27 5/8"	29 3/4"	33 1/8"	38"	40"	42 1/8"	44 1/2"	50 1/2"	52 1/2"
B	17"	21"	24"	26"	28"	32"	36"	38"	40"	42"	48"	50"
C	8 1/2"	10 1/2"	12"	13 1/4"	14 1/2"	17"	18"	19"	21"	24"	24"	26"
D	28 1/8"	30 1/8"	32 3/8"	33 5/8"	34 7/8"	37 3/8"	39 1/2"	40 3/16"	42 9/16"	45 3/16"	46 7/32"	48 5/32"
E	28 1/8"	30 1/8"	31 3/16"	32 7/16"	34"	36 7/16"	38 1/2"	39 5/16"	41 1/8"	43 5/16"	45 1/2"	47 5/32"
F	10 3/16"	12 1/2"	14 1/4"	15 3/32"	16 3/32"	18 1/8"	20 5/16"	21 1/8"	22 1/32"	23 7/32"	26 1/8"	27 1/8"
G	12 1/4"	13 1/4"	14 7/32"	14 11/16"	15 7/32"	16 7/16"	18 9/32"	18 7/16"	19 3/4"	20 1/8"	28 1/4"	29 3/16"
Number of Legs	3	3	3	3	3	3	3	3	3	4	4	4
Number of Stay Bolts	—	—	—	—	—	—	3	3	3	3	3	3
Steam Inlet Size	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"
Steam Outlet Size	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"
Safety Valve Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"
Kettle Outlet Size	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	2"	2"	
Vapor Collar Dia.	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2"	3"	3"



Steam Jacketed Kettle Type 3

This kettle is jacketed two-thirds of the way up and offers maximum cooking capacity for the floor space occupied. It is particularly recommended for cooking delicate foods. Scorching is prevented by the evenness of the heat distribution and the ease in controlling the amount used. Foods and meat allowed to stand in "Wear-Ever" steam jacketed kettles will not darken. Kettles 125 gal. and larger, in addition to having the shells welded together, are reinforced with line of rivets

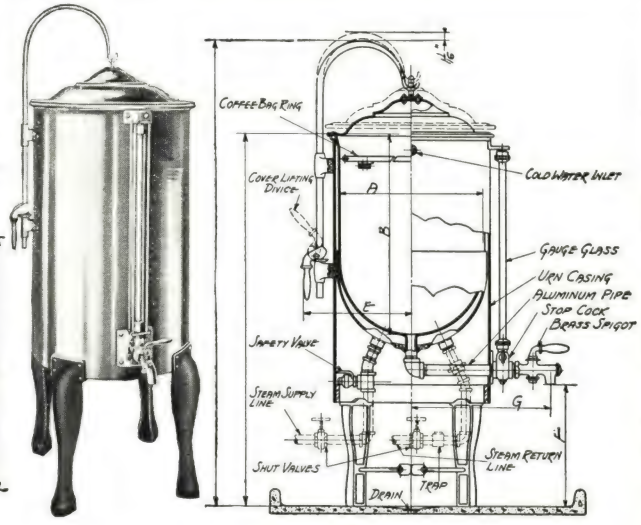
Dimensions of Type No. 3 Steam Jacketed Kettles																
Capacity in Gal.	5	10	15	20	25	30	40	50	60	75	80	100	125	150	200	250	300
A	15 7/8"	18"	20 3/16"	22 3/16"	23 1/16"	26 1/4"	28 1/4"	30 3/16"	33 3/16"	33 3/16"	36 3/16"	45 1/2"	46"	55 3/16"	55 3/16"	57 3/16"
B	14"	16"	18"	20 1/16"	21"	21"	24"	26"	28"	30"	30"	33"	40"	44"	52"	52"	54"
C	10"	15"	18"	18 3/16"	21"	24"	25 1/2"	26 1/16"	28"	30"	32"	33"	30 1/16"	31"	31"	36"	39 1/2"
D	30 7/16"	35 3/16"	38 1/32"	39 1/16"	41 3/8"	44 3/16"	45 3/16"	47 7/16"	49 1/16"	51 1/16"	53 1/16"	54 7/16"	57 3/16"	53 3/16"	53 3/16"	58 1/32"	61 7/8"
E	29 1/16"	31 3/8"	32 7/16"	35 1/16"	36 3/8"	38 1/16"	37 1/16"	39 1/16"	41 1/16"	41 3/16"	43 1/16"	43 7/16"	40 7/16"	44 7/16"	44 7/16"	44 7/16"	45 7/16"
F	11 3/16"	12 1/16"	12 7/16"	13 1/4"	13 7/16"	13 7/16"	14 7/16"	15 3/16"	16 5/16"	17"	17"	17 1/16"	26 1/16"	26 1/16"	32 1/16"	32 1/16"	35 1/8"
G	8 7/8"	9 7/8"	11 3/8"	12 7/16"	12 7/16"	12 7/16"	14 3/32"	15 3/16"	16 1/2"	17 3/16"	17 3/16"	19 1/16"	22 1/4"	24 1/2"	28 1/2"	28 1/2"	30"
Number of Legs	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	6
Number of Stay Bolts	—	—	—	—	—	—	—	—	—	—	—	3	3	5	5	5	6
Steam Inlet Size	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"	1"	1"	1"
Steam Outlet Size	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"	1"	1"	1"
Safety Valve Size	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1"	1"	1"
Kettle Outlet Size	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2"	2"
Vapor Collar Size	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2"	2"	2"	2"	3"	3"	3"	3"	3"



Liberty Urn

The Liberty Urn is an outgrowth of the United States Government's need for a plain urn that could be produced quickly in large quantities. Like all other "Wear-Ever" equipment, it requires no tinning and, because of its shape, is easily and quickly cleaned. Its entire surface, inside and outside, is readily accessible. Because of simplicity of construction, cost of labor and material to make it is comparatively small; the selling price is quite reasonable. Arrow shows glass gauge protected by aluminum tubing indicating contents in gallons

Dimensions of Liberty Urns													
Capacity in Gallons	A	B	C	D	E	F	G	H	Number of Legs	Cold Water Inlet Size	Steam Inlet Size	Steam Shut Size	Safety Valve Size	Kettle Outlet Size
20	18"	24 3/4"	44 3/4"	55 11/16"	32"	11 3/8"	14 5/8"	12 1/8"	3	1/2"	1/2"	1/2"	3/4"	1"
30	21"	27 1/8"	47 1/8"	59 1/4"	33"	12 1/8"	17 1/8"	14 5/8"	3	1/2"	1/2"	1/2"	3/4"	1"
40	21"	33 1/8"	53 1/8"	65 5/16"	33"	12 1/8"	17 1/8"	14 5/8"	3	1/2"	1/2"	1/2"	3/4"	1"
50	24"	33 1/2"	53 1/2"	66 3/16"	37"	14 7/8"	19 1/16"	15 1/8"	3	1/2"	1/2"	1/2"	3/4"	1"
60	25"	34 1/2"	54 1/2"	68 1/16"	38"	15 3/8"	20 1/16"	16 1/8"	3	1/2"	1/2"	1/2"	3/4"	1"
80	30"	34 1/2"	54 1/2"	71 1/16"	48"	17 7/8"	22 3/16"	18 1/8"	3	1/2"	1/2"	1/2"	3/4"	1"
100	30"	41 1/2"	61 1/2"	78 1/16"	48"	17 7/8"	22 3/16"	18 1/8"	3	1/2"	1/2"	1/2"	3/4"	1"
125	33"	43 1/2"	63 1/2"	81 1/16"	42"	15 1/16"	24 3/16"	20 1/16"	4	1/2"	1/2"	1/2"	3/4"	1"
150	33"	49 1/4"	69 1/2"	88 1/16"	42"	15 1/16"	24 3/16"	20 1/16"	4	1/2"	1/2"	1/2"	3/4"	1"



Encased Urn

The encased urn is more beautiful than the Liberty Urn and consequently is preferable if appearance is of greater importance than utility or price. Both this urn and the Liberty Urn are fitted with covers, cover lifting device, stand, gauge glass protected by aluminum tube which also forms an indicator showing the contents of the urn in gallons, 1-in. spigot, steam inlet and outlet and ring for coffee bag (coffee bags not supplied). The 20 and 25-gal. sizes can be furnished either with or without cover lifting device

Dimensions of Encased Urns												
Capacity in Gallons	A	B	C	D	E	F	G	Number of Legs	Cold Water Inlet Size	Steam Inlet Size	Steam Outlet Size	Safety Valve Size	Kettle Outlet Size
20	18"	24 3/8"	60 5/16"	62 5/8"	13 1/2"	20 1/2"	16 1/8"	4	1/2"	1/2"	1/2"	3/4"	1"
30	21"	27 1/8"	53 1/8"	66 1/16"	14 1/2"	20 1/2"	18 1/8"	4	1/2"	1/2"	1/2"	3/4"	1"
40	21"	33 1/8"	59 1/8"	73 1/16"	14 1/2"	20 1/2"	18 1/8"	4	1/2"	1/2"	1/2"	3/4"	1"
50	24"	33 1/2"	59 1/2"	73 1/16"	16 1/2"	20 1/2"	19 1/2"	4	1/2"	1/2"	1/2"	3/4"	1"
60	26"	34 1/2"	60 1/2"	75 1/16"	17"	20 1/2"	20 1/2"	4	1/2"	1/2"	1/2"	3/4"	1"
80	30"	34 1/2"	60 1/2"	78 1/16"	19 1/2"	20 1/2"	23 1/2"	4	1/2"	1/2"	1/2"	3/4"	1"
100	30"	41 1/2"	62 1/2"	80 1/16"	19 1/2"	15"	23 1/2"	4	1/2"	1/2"	1/2"	3/4"	1"
125	33"	43 1/2"	64 1/2"	83 1/16"	21 1/2"	15"	24 1/2"	4	1/2"	1/2"	1/2"	3/4"	1"
150	33"	49 1/2"	71 1/2"	90 1/16"	21"	15"	24 1/2"	4	1/2"	1/2"	1/2"	3/4"	1"

Kettles and Urns for Hotels, Restaurants and Hospitals

Uses of the kettles and urns illustrated are described under each type. The number of each to use for various conditions is given under the general notes.

Standard Specifications

Furnish and install where shown on plans, "Wear-Ever" kettles and urns as follows:

Type No. 3 Kettle—..... (quantity) "Wear-Ever" aluminum steam jacketed kettle(s), ... gal. capacity, Type No. 3, two-thirds jacketed, complete with machine steel stand, safety valve, hinged cover, aluminum draw-off pipe, faucet, strainer and collar for vapor pipe. Baffle plate and inlet fitting to be integral. Both shell and jacket to be made from cold rolled, hard, thick sheet aluminum. Jacket and shell to be welded together. Kettles 125 gal. and larger in addition to having shells welded together are to be reinforced with line of rivets. (Kettles 100 gal. and larger shall have shell and jacket stayed with 3 tubular stays.) Legs of the stand to be welded securely to the stand and draw-off support to be attached to the legs by welding.

Type No. 1 Kettle—..... (quantity) "Wear-Ever" aluminum steam jacketed kettle(s), ... gal. capacity, Type No. 1 full jacketed complete with machine steel stand, safety valve, hinged cover, aluminum draw-off pipe, faucet, strainer and collar for vapor pipe. Baffle plate and inlet fitting shall be integral. Both shell and jacket to be made from cold rolled, hard thick, sheet aluminum. Jacket and shell to be welded together. Kettles 125 gal. and larger in addition to having shells welded together are to be reinforced with line of rivets. (Kettles 60 gal. and larger shall have shell and jacket stayed with 3 tubular stays.) Legs of the stand to be welded securely to the stand and draw-off support to be attached to the legs by welding.

Liberty Urn—..... (quantity) "Wear-Ever aluminum Liberty institution urn(s), steam jacketed, ... gal. capacity, complete with stand, safety valve, draw-off pipe, clean-out type faucet, gauge glass, dome-shaped cover, cover lifting device and coffee bag ring. Both shell and jacket to be made from cold rolled, hard, thick, sheet aluminum. Jacket and shell to be welded together. Baffle plate and inlet fitting shall be integral. Legs to be welded securely to the stand and draw-off support to be attached to the legs by welding. Urn(s) to have ½-in. cold water inlet fitting placed in back as near top as possible. To have indicator bar spaced in multiples of 5 gal., said indicator bar and gauge glass protector to be one and the same.

Encased Urn—..... (quantity) "Wear-Ever" aluminum encased urn(s), steam jacketed, ... gal. capacity. Body made of two hard sheet aluminum plates welded together. Body to be encased in highly polished sheet aluminum casing, fitted on black enameled legs and fitted with high grade clean-out type faucet, dome-shaped cover, cover lifting device and coffee ring bag. Baffle plate and inlet fitting shall be integral. Urn(s) to have ½-in. cold water inlet fitting placed in back as near top as possible. To have indicator bar spaced in multiples of 5 gal., said indicator bar and gauge glass protector to be one and the same. All connections of steam pipe, etc., will be made under another contract.

General Notes—

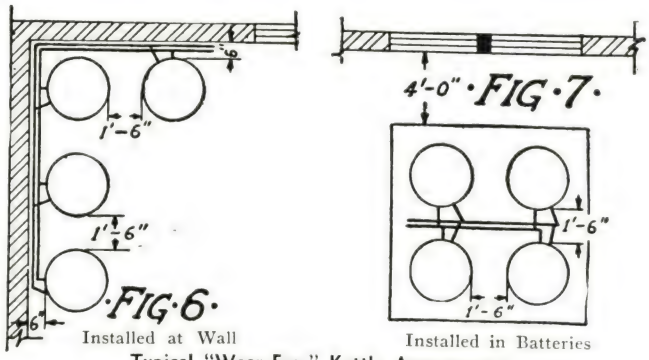
Kitchen Location—Space and design permitting, kitchen should be a one-story wing with windows on opposite sides and monitor roof to provide maximum ventilation. Avoid basement kitchens. In hotels, group the dining rooms with service pantries around kitchen. General hospitals require a different arrangement—general diet is cooked in main kitchen and distributed to ward dining rooms by dumbwaiters or trucks on elevators.

Kitchen Construction—Experts recommend quarry tile, enameled brick, glazed or matt tile or concrete for floor finish in the order named; for walls, a wainscot 6 ft. high of enameled brick or tile.

Kitchen Arrangement—Jacketed kettles are best arranged in batteries away from walls and directly under monitor skylight or hood to carry off vapors. Minimum space given in Figs. 6 and 7 is for cleaning purposes. Less space will not affect efficiency of apparatus. Vapor exhaust pipes are not recommended, but when used they should be of Monel metal.

Steam Mains—2-in. for 20 kettles or less, when kettles are near boiler and steam main properly insulated; 3-in. when pipes have many turns or valves, are not insulated or kettles are a great distance from boiler.

Aisle Space—Should be ample to insure efficient serving. Where trucks are used, minimum aisle width is 4 ft.



Typical "Wear-Ever" Kettle Arrangement

Kettle Sizes—Depend on number of persons served and time allowed for it. The following figures will serve as a guide for the number, type and size required.

Hotels

100 rooms	One 40-gal. Type 3, complete with hinged cover
200 rooms	One 50-gal. Type 3, complete with hinged cover One 25-gal. Type 3, complete with hinged cover One 10-gal. Type 3, solid bottom, no cover
500 rooms	One 75-gal. Type 3, complete with hinged cover Three 60-gal. Type 3, complete with hinged cover One 20-gal. Type 3, solid bottom, no cover
800 rooms	Two 100-gal. Type 3, complete with hinged cover Two 75-gal. Type 3, complete with hinged cover One 60-gal. Type 3, complete with hinged cover One 25-gal. Type 3, solid bottom, no cover One 40-gal. tilting kettle
1000 rooms	Four 100-gal. Type 3, complete with hinged cover Three 80-gal. Type 3, complete with hinged cover One 60-gal. Type 3, complete with hinged cover One 25-gal. Type 3, complete with plain cover One 25-gal. Type 3, solid bottom, no cover One 60-gal. tilting kettle

Hospitals

50 beds	One 25-gal. Type 1, complete with hinged cover
150 beds	One 25-gal. Type 1, complete with hinged cover One 40-gal. Type 1, complete with hinged cover One 30-gal. urn (encased or Liberty)
250 beds	Two 60-gal. Type 1, complete with hinged cover One 50-gal. urn (encased or Liberty) One 10-gal. Type 1, solid bottom, no cover

Installation Notes—Equip steam inlet of each fixture with safety valve and globe type shut valve. Equip steam outlet pipe of each fixture with automatic steam trap and globe type shut valve. Where steam pressure exceeds 40 lb. per sq. in., a reducing valve must be installed in main line. Concealing supply and return pipes is not recommended. Suitable covering of pipes up to fixtures is advised.

References

Following is a partial list of hotels and hospitals in which "Wear-Ever" Kettles are installed, giving building, location and architect:

Hotels

St. Francis, San Francisco, Cal., Bliss & Faville
Los Angeles Biltmore, Los Angeles, Cal., Schultz & Weaver, New York, N. Y.
Ambassador, Los Angeles, Cal., Myron Hunt
Raddison, Minneapolis, Minn., Long, Lamoreaux & Long
Miami, Dayton, Ohio, H. L. Stevens Co., Chicago, Ill.
Hollenden, Cleveland, Ohio, Watson Co.
Washington (D. C.), Carrere & Hastings, New York, N. Y.
Monticello, Norfolk, Va., Peebles & Ferguson
Sylvania, Philadelphia, Pa., Leroy B. Rothschild
New Yorker, New York, N. Y.
Robert Treat, Newark, N. J., Guilbert & Betelle
Kimball, Springfield, Mass., S. M. Green Co.
Edgewater Beach, Chicago, Ill., Fugard & Knapp
Grand Canyon Hotel, Yellowstone Park, R. C. Reamer, Seattle, Wash.

Hospitals

St. Mary's, Rochester, Minn., C. H. Johnston, St. Paul, Minn.
Lakeside, Cleveland, Ohio, Coolidge & Shattuck, Boston, Mass.
Christ, Cincinnati, Ohio, Teitig & Lee
Brooklyn, Brooklyn, N. Y., Lord & Hewlett, New York, N. Y.
Cook Co., Chicago, Ill., Paul Gerhardt
Barnes, St. Louis, Mo., Trueblood & Graf

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ELECTRICAL HEATING, WARMING, DRYING and STERILIZING EQUIPMENT and APPLIANCES, including: Plate Warmers; Combination Plate Warmers and Towel Dryers; Clothes Dryers; Electric Organ Loft Heater; Electric Radiators, with and without Thermostatic Control; Instrument Sterilizers.

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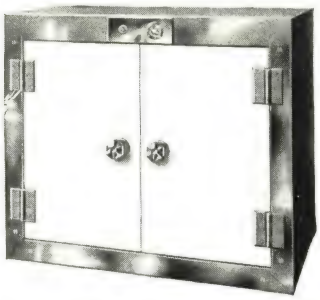
Since 1901 Prometheus Electric products have enjoyed a reputation for quality and long service.

Prometheus appliances are extensively used in residences, hotels and clubs of the highest class, including the Astor, Cosden, Patterson, Deering, Ford, Frick, Harriman, Rockefeller, Schiff, Speyer and Vanderbilt residences, the Brook Club, Hotel Sherry-Netherland and the Waldorf-Astoria. Notwithstanding their high quality, their moderate prices make them available for residences and apartments of moderate cost.

Architects who specify Prometheus specialties include Eberson & Eberson, Delano & Aldrich, Schultze & Weaver, Walker & Gillette, and Charles A. Platt, of New York; Meade & Hamilton of Cleveland; and Hoffman-Henon Co. of Philadelphia.

Prometheus Plate Warmer

Used in the butler's pantry, kitchen, or hospital ward for warming dishes and food. Prevents breakage of china and preserves the original delicious flavor of the food. Operates by a mere turn of the three-heat electric switch—no fire, smoke, steam or odor. Approved by the National Board of Fire Underwriters.



Construction — Substantial welded angle iron frame with double walls, thoroughly lagged. Shelves built on heavy iron rod, and supported on angle iron brackets. All interior fittings are removable. Can be had with vitreous enamel doors in white or color, also with monel metal top which can be used as a hot plate. All fittings are chrome plated.

Thermostatic Cut-off and Heating Element—By a patented arrangement, the heating units are contained in shallow flues, attached to the walls of the interior, so that water or gravy which may be spilled can not cause a short circuit. Heating elements never become red-hot. Can also be had with a patented thermostatic cut-off.

Although plate warmers are usually built to architect's specifications, we also make the following stock sizes:

Type	Outside dimensions			Current consumed, watts	Price
	Wide	High	Deep		
800	18″	18″	18″	400	$ 45.00
801	18″	18″	18″	400	51.00
802	25″	24″	18″	600	125.00
804	36″	30″	20″	800	150.00

Outside finished in Russia iron. Doors finished in porcelain enamel. All types except No. 800 have chrome plated trimmings. When ordering plate warmers to be built to specifications, kindly give the following information:

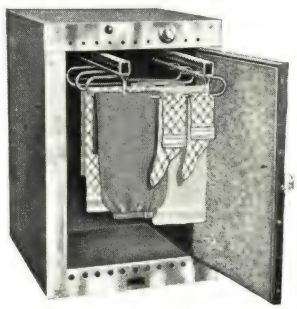
Trim Extension—This is the distance the chrome plated trim should extend beyond the body of the plate warmer in order to cover up the crevice between the wall and the plate warmer if the plate warmer is of the built-in type. Otherwise the trim will be flush with the body.

Position of Leads—Leads may be brought out at any specified point.

Voltage—Give voltage of the line on which the plate warmer is to operate.

Blue prints upon request.

Clothes and Towel Dryer

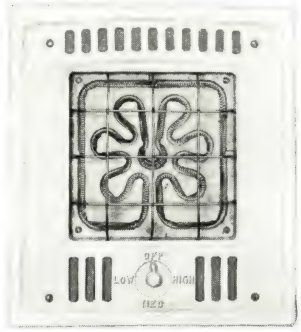


Usually built to order to fit space available. There are two stock sizes: No. 810, 2 towel racks, 20 in. wide, 30 in. high, and 22 in. deep, $125.00. No. 812, 4 towel rack, 36 in. wide, 30 in. high, and 22 in. deep, $150.00.

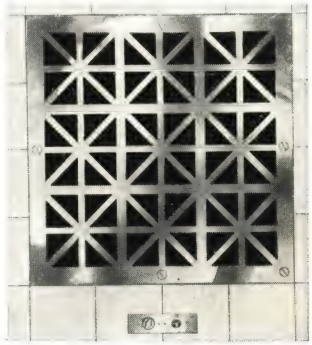
Flush Type Heater

The new Type 370 heater has a heavy cast iron face plate, covered with vitreous porcelain enamel. Variety of colors. The three-heat switch is built into the heater. The heating element is protected with a monel metal guard.

The Type 350 heater has a highly polished monel metal grill. The heating element is of the convection type, insuring an even distribution of heat.



Type 370 and 371

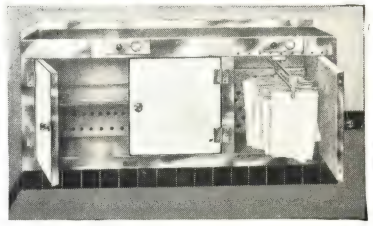


Type 350 and 351

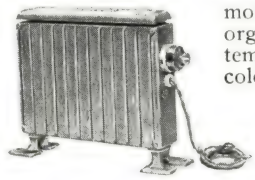
Type No.	Watts	Register		Body			Price
		Height	Width	Height	Width	Depth	
370	1500	16½″	15″	15½″	12″	4″	$27.50
371	2000	16½″	15″	15½″	12″	4″	30.00
350	800	15″	15″	13½″	13½″	3½″	25.00
351	1500	15″	15″	13½″	13½″	3½″	30.00

Combination Plate Warmers and Towel Dryers

For kitchens and serving pantries in residences and clubs. They are built in two sections. One has shelves and serves as a plate warming cabinet, while the other, fitted with racks, serves for drying towels. Built to specifications.



Prometheus Thermostatically Controlled Electric Organ Loft Heater



A specially designed Prometheus thermostatically controlled heater for pipe-organ room heating. Maintaining an even temperature, it protects organs against cold and deterioration from dampness.

Three sizes: No. 331, 1000 watts and No. 332, 2000 watts, both 16 in. long. 14½ in. high, 4 in. deep, No. 335, 5000 watts, size 18 in. long, 24 in. high 6½ in. deep.

Prometheus Electric Radiators



These heaters are for permanent heating service. They are of the convection type—similar to a steam or hot water radiator. They are attractive in appearance; provide an abundance of clean, uniform heat. Made in sizes up to 3000 watts.

Sterilizers

For dentists, physicians and hospitals.

Electric Food Conveyors and Trucks

For economical distribution of food from diet kitchen to wards. Write for special catalogue.

Therapeutic Lamps

A fully illustrated catalogue showing a complete line of infra red and arc lamps.

Write for a complete catalogue of above products.

BRAMHALL, DEANE COMPANY

Kitchen and Cafeteria Equipment

51-53 East 21st Street
NEW YORK, N. Y.

Products

RANGES and KITCHEN EQUIPMENT for private residences, hotels, hospitals, institutions, restaurants, cafeterias, tearooms, etc., in Allegheny metal, Monel metal, chromium plate, and polished steel.

Also manufacturers of Cooking Utensils, Cafeteria Counters, Serving Fixtures, Labor Saving Devices, and Sterilizing Apparatus.

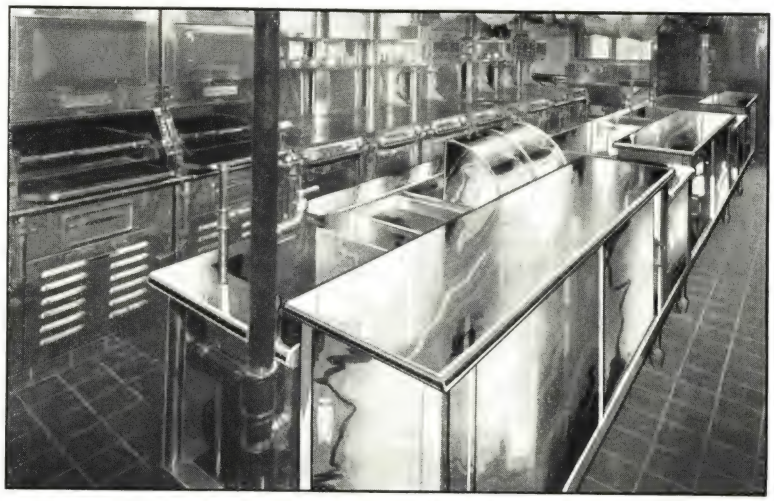
We are sales agents for practically every article of equipment used in the preparation of food. This includes Bake Ovens, Potato Parers, Mixing Machines, Bread Slicers, and a vast number of other appliances. In addition, we are equipped to furnish and install Refrigerators and Refrigerating Machines, Dishwashing Machines, and many other items of Kitchen Equipment.

Service to the Architect and Owner

Kitchen efficiency engineering is recognized today as a necessity. Not only must equipment meet the most exacting requirements, but it is essential that the architect and owner be advised as to space requirements and arrangement of fixtures to assure the best results in economy of operation and service.

Members of our experienced staff will gladly confer with architects and owners and submit drawings showing, in addition to equipment, each connection requirement. This service is offered without charge and every effort is made to serve the architect and owner to the mutual advantage of both.

We are prepared to furnish complete equipment for preparing and serving food, in any quantity and to meet every requirement.



Kitchen of the New Home of the Union League Club, New York, N. Y.
An unusual installation in that Allegheny metal is used throughout, but our facilities enable us to supply similar equipment in Monel metal or polished steel
MORRIS & O'CONNOR, Architects HEGEMAN-HARRIS CO., Builders

Quality

For more than seventy years we have maintained a standard of construction—quality has never been sacrificed for price. BRAMHALL, DEANE COMPANY equipment is the best in design, quality, and weight of material that can be built.

Specifications

Specifications are submitted to accompany drawings, describing fixtures in detail.

In specifying BRAMHALL, DEANE COMPANY, the architect is assured that the size, type, and arrangement of the fixtures will be suitable in every way to care for the requirements, and the apparatus built by a factory that has specialized in these lines for more than seventy years.

Designing Service

It frequently happens that standard equipment does not fit perfectly the needs of the architect or owner. To cope with such situations we maintain an Engineering Department whose function is to design equipment suited to the needs. An example of this service is the special kitchen table designed for one of the finest residences of the Middle West. This table has an electric plate warmer in one end and an electric refrigerator in the other, with a 2-inch Knoxville marble top over all.

A study of the architect's plans and the owner's requirements will enable our Engineering Department to make suggestions.

Estimates

Estimates prepared to cover specifications. If equipment has already been planned and specifications written, we will submit an estimate. To do this we must have a list of the equipment desired.

French Ranges and Equipment for Homes

We manufacture a line of French Ranges of suitable size for residences of the better class. Built to give years of daily service and embodying every modern improvement, our ranges are designed to meet all conditions and may be equipped to use any fuel, including hard or soft coal, manufactured or natural gas, Pyrofax, Philgas or other similar fuels, fuel oil, and electricity, either singly or in any combination.

Metals Used

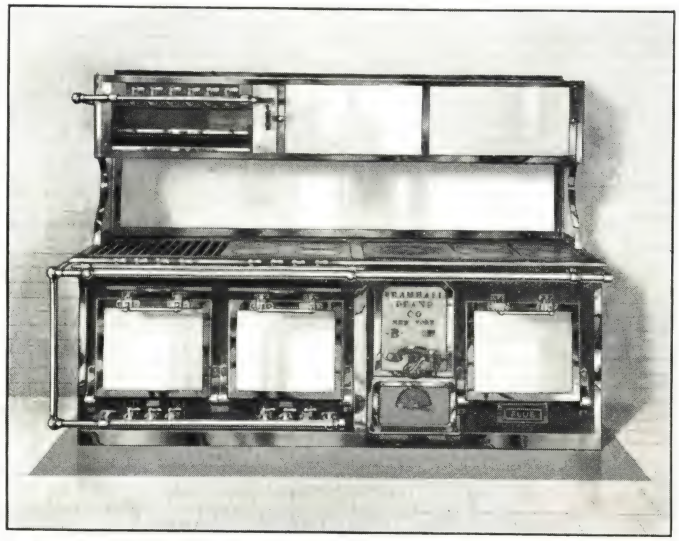
As these ranges are usually designed and built to order, almost any desires that the owner may have can be satisfied. Allegheny metal or Monel metal, sheet steel, either polished or finished in conventional black, or porcelain in white or colors may be used. Trimmings can be chromium plate or polished steel.

Range Equipment

Warming Shelves—A notable feature of Bramhall Deane French Ranges. Fabricated and trimmed to match the range itself. May be had with or without sliding doors as preferred.

Broilers—Usually set at one end of the warming shelf. An adjustable grid which permits the food to be set the desired distance from the heat is a feature.

Canopies or Hoods—To meet every requirement and with side panels extending down to and including range, if desired. Hoods usually built 12 in. longer than range to permit of a 6-in. overhang at each end and of sufficient depth to extend 12 to 15 in. beyond front; height of hood should be 2 to 2½ ft.



A Specially Designed French Range Built to Use Coal and Philgas in Combination—P. D. Wagoner, Ridgefield, Conn., Owner
J. Robertson Ward, Architect Elliott C. Brown Co., Contractor

Kitchen Equipment

Tables—We can supply cook's tables of polished steel, Monel or Allegheny metal, with or without utensil racks. Also pastry and general kitchen tables of superior design and construction.

Plate Warmers—We manufacture plate and service warmers to order and designed to meet space requirements. These may be heated by electricity or gas.

Installation

When desired, we furnish skilled and competent men to install our equipment, leaving everything ready for the plumbing and wiring contractors.

Standard Ranges

For cases where the requirements are such that one oven for each of two fuels will suffice, we manufacture two standard French Ranges, one using coal and electricity in combination and the other using coal and any one of the gaseous fuels mentioned in the first paragraph on this page. Illustrations and further details will be gladly furnished.

COAL AND ELECTRIC COMBINATION
Service: 110 volts, 2 wire, or 110-220 volts, 3 wire

No.	Length, ft.—in.	Depth, in.	Broiler, in.	Ovens, in.	Wattage, kw.
1402	4—10	33	18	16¼x23½x14½	12
1403	5— 4	33	24	18 x23½x14½	13

COAL AND GAS COMBINATION

No.	Length, ft.—in.	Depth, in.	Broiler, in.	Ovens, in.
2092	4—10	33	20	16¼x23½x14½
2093	5— 4	33	24	18 x23½x14½

A Few Representative Installations

Residences

James A. Farrell, Norwalk, Conn.
Paul D. Cravath, Locust Valley, N. Y.
James A. Campbell, Youngstown, Ohio
Zalmon G. Simmons, Kenosha, Wis.
Joseph R. Warner, Essex Falls, N. J.
Charles M. Schwab, Lorreto Road, Pa.
H. V. Mallory, Danbury, Conn.
Francis Kinnicutt, Far Hills, N. J.
Alfred I. du Pont, Wilmington, Del.
Irenee du Pont, Wilmington, Del.

Clubs

Downtown Athletic Club, New York, N. Y.
Crescent Athletic Club, Huntington, N. Y.
Casa del Mar, Long Beach, N. Y.
Union League Club, New York, N. Y.

Hospitals and Institutions

Brooklyn Hospital, Brooklyn, N. Y.
Detention Home for Women, New York, N. Y.
Union Medical College, Peiping, China
St. Francis Hospital, Hartford, Conn.
Rockefeller Institute, New York, N. Y.
Trudeau Sanitarium, Saranac Lake, N. Y.
Kings Park State Hospital, Kings Park, N. Y.
Psychopathic Hospital, New York, N. Y.

Industrial Plants

New York Telephone Co., New York, N. Y. (40 Exchanges)
Julius Kayser & Sons Co., Brooklyn, N. Y.
International Paper Co., Piercefield, N. Y.
Western Electric Co., Kearny, N. J.
Anchor Cap Corp., Long Island City, N. Y.

THE INTERNATIONAL NICKEL COMPANY, INC.

Monel Metal and Nickel and Allied Products

EXECUTIVE OFFICES
67 Wall Street
NEW YORK, N. Y.

MINES AND SMELTER: Copper Cliff, Ont., Canada
ROLLING MILL AND REFINERY: Huntington, W. Va.
REFINERY: Port Colborne, Ont., Canada
FOUNDRY: Bayonne, N. J.

For Our Other Products, see Manufacturers' Index

For Distributers, see our page on Metals

Products

MONEL METAL—available from stocks conveniently located throughout the country and made in all commercial forms required by manufacturers of food service equipment. (See Manufacturers' Index, our section on Metals, for commercial forms and location of warehouses.)

All necessary accessories such as nuts, bolts, screws, rivets, etc., are also available.

INCO MONEL METAL
TRADE-MARK

Monel Metal

Monel Metal is a registered trade-mark applied to a technically-controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Advantages of Monel Metal for Food Service Equipment

(1) Absolutely rustproof.
(2) Resists corrosion by food juices and fruit acids.
(3) Strong as steel; tougher than steel.
(4) Easy to clean; therefore sanitary.
(5) Beautiful appearance; has color of platinum.
(6) Durable—proven by over 20 years of service.
(7) Easily fabricated.

Proven Uses of Monel Metal in Food Service Equipment

Monel Metal is used for all exposed surfaces where appearance, cleanliness, and long life are required in the following types of equipment:

Bake Ovens—Linings, exterior or trim.
Bins (bakers', vegetable, etc.)—All Monel Metal.
Butter Serving Machines—Parts in contact with butter.
Cabinets (kitchen)—All Monel Metal.
Canopies and Hoods—All Monel Metal.
Checkers' Desks—All Monel Metal.
Coolers, Water—Exterior or trim, drains.
Counters (display, cafeteria)—All Monel Metal.
Cutlery Boxes—All Monel Metal.
Dispensers (milk, cream)—Monel Metal exterior or trim, solid nickel lining.
Drainboards—All Monel Metal.
Dish Carriers—All Monel Metal.
Dishwashing Machines—All Monel Metal.
Egg Timers—All Monel Metal.
Fish Chests—All Monel Metal.
Garde Manger—All Monel Metal.
Grills (bacon, etc.)—All Monel or with Monel cooking surfaces.
*Insets (steam tables)—Solid nickel.
*Kettles (steam jacketed)—Solid nickel.
Railings (cafeteria, etc.)—All Monel Metal.
Ranges—Oven linings, fronts, sides, back shelves, flue pipes.
Refrigerators—Linings, facings, trim, shelving.
Shelving—All Monel Metal.
Sinks (vegetable, scullery, dish, etc.)—All Monel Metal.
Slicing Machines—All parts in contact with food.
Steamers (vegetable)—Linings and baskets.
Steam Tables—All Monel or with Monel top and trim.
Tables (bakers', cooks', dish, work, etc.)—Monel Metal top and shelf.
Trucks (food)—All Monel Metal or Monel trimmed.
Urns (coffee, chocolate, hot water)—Liners and exteriors.
Urn Stands—All Monel or with Monel top and trim.
Waffle Irons—Monel exteriors.
Warmers (roll, plate, cup food)—All Monel or with Monel top and trim.

Services

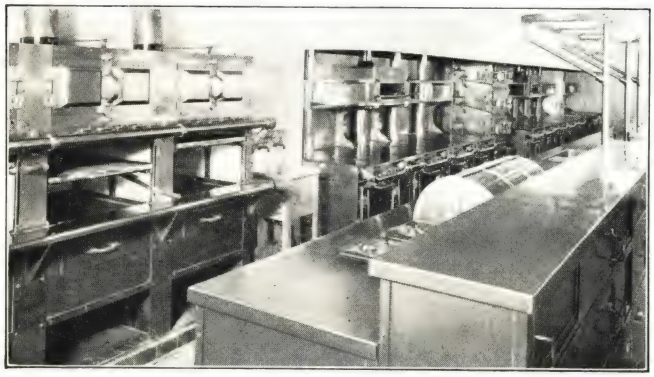
Architects and engineers are invited to make use of the extensive advisory service maintained by this organization. A call to any of our sales offices, listed in our section on Metals, will bring you a Monel Metal specialist. In co-operation with kitchen equipment engineers, Monel Metal specialists can contribute materially in the application of Monel Metal to food service equipment.

Available Publications

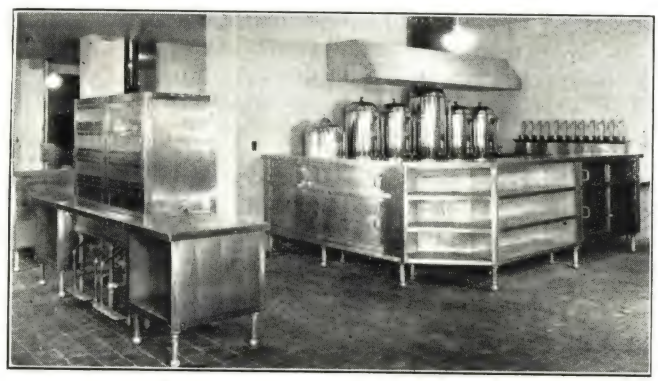
To assist architects and engineers to form a clearer conception of the possibilities for the application of Monel Metal, The INTERNATIONAL NICKEL COMPANY, INC., has prepared a series of reference folders and booklets, available upon request.

"The Selection of Food Service Equipment"—A reference book prepared for the profession. Contains complete information on the design and construction of food service equipment, recommended gauges for various items of equipment and illustrations of correct method of writing specifications for all types of equipment.

*For the actual cooking and storage of foods we recommend solid nickel.



Ranges, Hoods, Ovens and Steamers

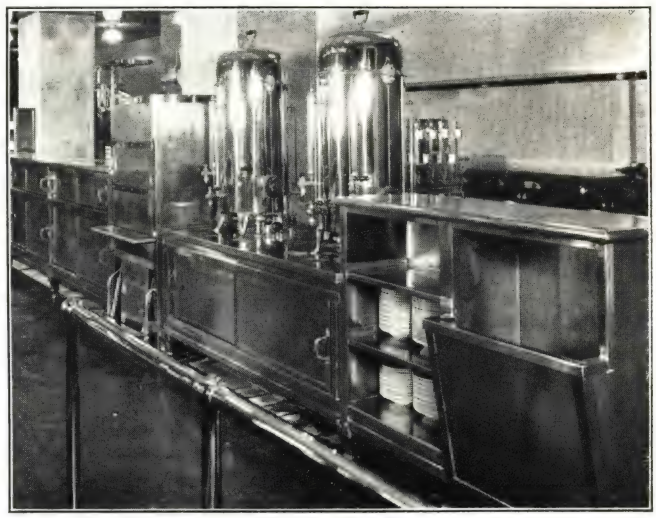


Warmers, Storage Cabinets, Coffee Urns and Stands

Monel Metal Used in Kitchens is Lustrous, Easy to Clean and Well Suited for Exteriors as Well as Linings



Monel Metal Counter Linings Are Not Only Pleasing to Patrons' Eyes but Easy to Keep Clean and Sanitary



In the Modern Coffee-shop, Monel Metal Serving Counters Are Ornamental as Well as Useful Due to Their Platinum-like Beauty

"Food Service Applications"—A series of illustrated folders describing in pictorial form the applications of Monel Metal to outstanding architectural developments.

(1) Sherry-Netherlands.
(2) Girard College.
(3) Medical Center of New York.
(4) S.S. Malolo.
(5) The Stevens Hotel.

"Monel Metal"—"Official Bulletin of Approved Products" by the Investigating Committee of Architects and Engineers.

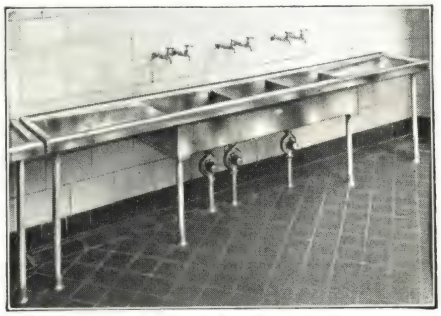
"Monel Metal in Modern Architecture"—A booklet illustrating various architectural uses to which Monel Metal may be put.

"The Merchandise Mart Restaurants"—An illustrated folder of the kitchen and service equipment in the restaurants in Chicago's Merchandising Mart.

"Traveling in Luxury on a World Famous Train,"—A description with photographs of the kitchen equipment of the Twentieth Century Limited.

"Relation of Beverage Coffee to Metals"—Dealing with the use of Monel Metal in coffee urns, this booklet is an analysis of the effect of metals on the taste of coffee.

"Modern Kitchens"—A handbook of the uses of Monel Metal in all types of food service equipment and dealing with the specification of quality equipment. Included in the book are advertisements of manufacturers of all types of equipment.



Sinks of Monel Metal Are Easy to Keep Clean, Are More Sanitary and Last Indefinitely

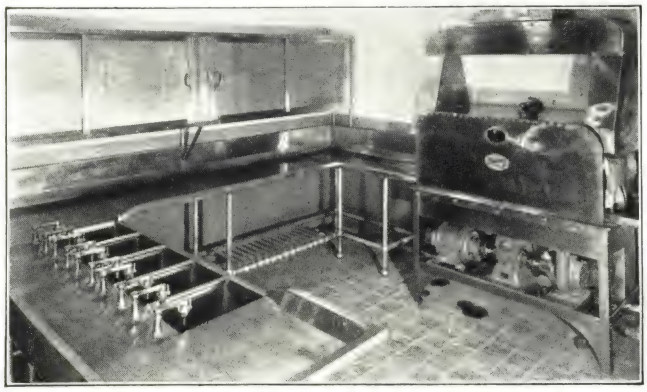
"Modern Domestic Service Equipment" A.I.A.—Booklet for architects describing uses of Monel Metal for household equipment, with specification data.

"Modern Fountains"—A booklet on Monel Metal soda fountains.

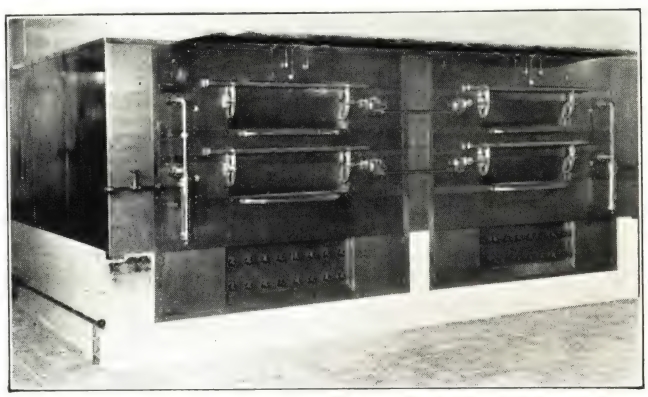
Long Service Life of Monel Metal Equipment

Illustrative of the long-service-life of Monel Metal food service equipment are the following prominent installations, a few of the many that are still serving their owners faithfully after years of severe service.

Name	Year Installed
Hotel Statler, Cleveland, Ohio	1912
Hotel Gibson, Cincinnati, Ohio	1913
Claypool Hotel, Indianapolis, Ind.	1914
Angel Guardian Orphanage, Chicago, Ill.	1915
Hotel Statler, Detroit, Mich.	1915
Hotel Blackhawk, Davenport, Iowa	1915
Canadian Pacific Railway Terminal Restaurant, Vancouver, B. C.	1915
Hotel Statler, St. Louis, Mo.	1917
Henry Ford Hospital, Detroit, Mich.	1917
Hotel Biltmore, New York, N. Y.	1917
Hotel Sisson, Chicago, Ill. (name now changed)	1918
Hotel Pennsylvania, New York, N. Y.	1918
Municipal Contagious Disease Hospital, Chicago, Ill.	1918
The Greenbrier, White Sulphur Springs, W. Va.	1920
Chicago Beach Hotel, Chicago, Ill.	1920
Sheridan Plaza, Chicago, Ill.	1921
Wade Park Manor, Cleveland, Ohio	1921
Prudential Life Insurance Company, Newark, N. J.	1922



Monel Metal Provides a Resistance to Corrosion Which Is an Important Feature in Dishwashers, Dish Tables, Sinks and Storage Cabinets



Monel Metal in Bake Shops Is Used for Work Tables, Storage Bins, etc., as Well as for Bake Oven Facings and Linings

COLT'S PATENT FIRE ARMS MANUFACTURING CO.

Manufacturers of Dish, Silver and Glass Cleaning Machines

HARTFORD, CONN.

NEW YORK, N. Y., 20 Vesey Street
CHICAGO, Ill., 626 W. Jackson Boulevard
PASADENA, CAL., 72 Annandale Road
CLEVELAND, OHIO, 2924 E. 132nd Street
ST. LOUIS, MO., 6152 Waterman Avenue
ST. PAUL, MINN., 416 Roy Street
DALLAS, TEX., Milam Hotel

Colt Autosan Dishwashers

Nine models are included in the Colt Autosan line, ranging from the three-tank link conveyor model C-3, down to the single rack model R-1—three link conveyor models, two rotary conveyor models and four rack models.

Construction—Colt Autosan models are well known for their sturdy construction and the quality of their components.

Exclusive features insure cleaner tableware in less time and at less cost.

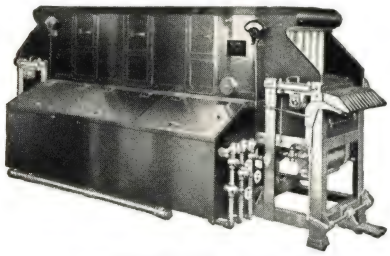
COLT AUTOSAN

DISH AND SILVER CLEANING MACHINES

Washing Principle—Powerful, direct sprays, both above and below, thoroughly cleanse all tableware without danger of breaking or chipping. All spray tubes are stationary, with no parts to become worn or out of order.

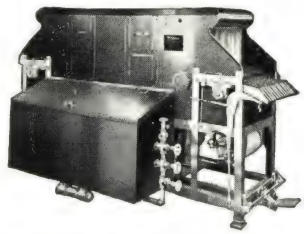
Guarantee—Colt Autosans are manufactured and guaranteed by one of America's oldest, largest and most reputable manufacturers. They are a typical Colt product.

Architect's Portfolio—Write for copy of the complete Autosan Architects' Portfolio. Complete information, drawings and specifications for all models.



Model "C-3" Conveyor Type

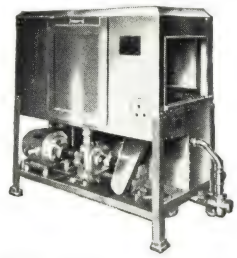
For heavy duty. The largest Autosan made. It has maximum capacity, speed and efficiency. For big hotels, clubs, restaurants and hospitals it (1) washes, (2) rewashes, (3) rinses and (4) sterilizes all tableware quickly, safely and economically for 2000 persons per meal and upward



Model "C-22" Conveyor Type

For large volume work. Mechanically like Model "C-3," embodying the same labor saving features, but with *two* tanks instead of three, hence occupying less floor space and with somewhat less capacity. 1200 to 2000 persons per meal, cafeteria service.

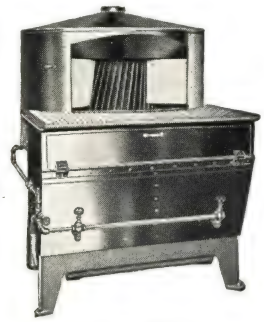
Model "C-2"—Identical to Model "C-22," except with conveyor 17 in. wide instead of 22 in. 1000 to 1500 persons



Model "RA-1" Automatic Rack Type

The machine for kitchens with much work and little space. Racks of tableware are carried on roller chain conveyor through a battery of washing and rinsing cataracts—on to the receiving table, insuring fast, dependable turnover from soiled to clean dishes with minimum care and attention

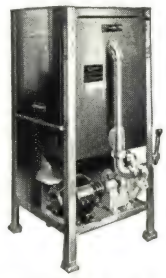
Model "RM-1," Manual Rack Type—Same as Model "RA-1" without roller chain conveyor. Racks of tableware are manually put through machine on special rollers



Model "B" Rotary

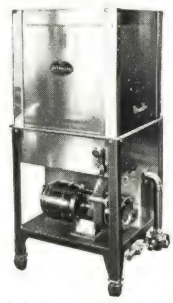
A compact, simple, sturdy dishwasher that is ideal for hotels, clubs, restaurants and hospitals of average size. Operates on the rotary conveyor principle which gives large capacity with extreme economy of floor space and remarkable ease of operation and saving of labor. Standard machines equipped for heating by steam. Gas attachment furnished at same price or combination steam and gas at slight additional cost

Model "A-2"—Similar in design to Model "B," but smaller. Capacity, 600 persons.



Model "S-1" Rack Type

A rack-type Autosan of unique design and with many practical features for ultimate efficiency. Ideal for small restaurants and hospitals. Interlocking fixed sprays secure maximum cleanliness in washing and rinsing tableware. Standard machine equipped for heating by steam. Gas attachment furnished at same price, or combination steam and gas at slight additional price



Model "R-1" Rack Type

The newest and smallest Colt Autosan Rack Type machine—designed to wash tableware for as many as 500 persons per meal. Small space requirements, direct action sprays, single wash and rinse operating lever, easily removed scrap trays, rugged construction. Gas burner with pilot and steam injector standard equipment

See Colt Autosan Architects' Portfolio for Full Information.

COLT AUTOSAN DISHWASHERS

Model	"C-3"	"C-22"	"C-2"	"B"	"A-2"	"RA-1"	"RM-1"	"S-1"	"R-1"
Capacity—Persons per meal (cafeteria service)	3500	2000	1500	1000	600	1100	1100	500	500
Floor dimensions:									
Length, in.	120	87	87			56½	56½	28½	27
Depth, in.				58	46				
Width, in.	50	50	40	48	34	28½	28½	28½	27
Height, in.	59	59	59	64	66	59	59	64	60½
Motor, hp.	3	2	2	2	1	½	2	1	¾
Connections:									
Steam and water, in.	¾	¾	½	½	½	½	½	½	½
Sewer, in.	2	2	2	2	2	2	2	2	2
Shipping weight, net, lb.	2950	2096	1950	1490	815	1020	850	650	525

FEARLESS DISHWASHER CO., INC.

Manufacturers of Efficient Spray and Immersion Type Dishwashing Machines

ROCHESTER, N. Y.

BRANCHES IN NEW YORK, CHICAGO, ST. LOUIS AND DALLAS

Products and Services

SPRAY and IMMERSION TYPE DISHWASHING MACHINES.

FEARLESS DISHWASHER SYSTEM
"Mechanically Right in Every Detail"

Fearless Dishwashing Machines embody the simplest designs modern engineering can devise and are available in capacities ranging from 2,000 to 15,000 pieces per hour.

As satisfactory results depend in no small measure upon the use of the right machine, we place at your disposal a staff of experienced men who will be glad to consider your problem from every angle and to co-operate in the selection of a type that can be relied upon to handle the job quickly and efficiently. This consultation service involves no obligation.

FEARLESS SUPER-SPRAY DISHWASHERS

Model 4

Capacity: 4,000 pieces per hour. *Tank:* Galvanized iron or monel metal. *Motor:* ½ hp. connected direct to ball bearing centrifugal pump. *Dish Racks:* Hard maple with mitered reinforced corners. Three dish baskets, one cup basket and one silver basket furnished with each machine. *Heating Equipment:* Gas burners and steam injector. Electric, kerosene or gasoline burners furnished at extra cost. *Dimensions:* Width, 25½ ins., length, 26 ins., height, 57 ins. *Approximate Shipping Weight:* 650 lbs. crated.

Model 5

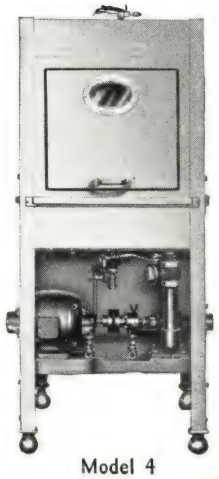
Capacity: 5,000 pieces per hour. *Tank:* Galvanized iron, copper or monel metal. *Motor:* 1 hp. *Dish Racks and Heating Equipment:* Same as Model 4. *Dimensions:* Width, 27½ ins., length, 35 ins., height, 60 ins. *Approximate Shipping Weight:* 790 lbs. crated.

Model 7 (Automatic Conveyor)

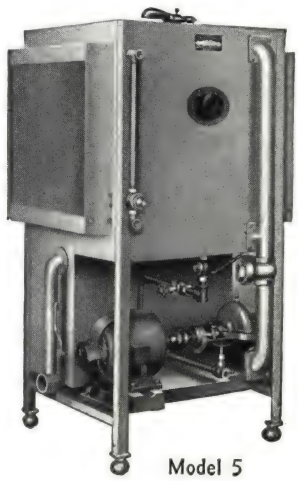
Capacity: 4,000 pieces per hour. *Tank:* Galvanized iron or monel metal. *Motor:* 1½ hp. connected direct to ball bearing centrifugal pump. *Dish Racks:* Eight racks furnished with each machine. *Heating Equipment:* Gas burners and steam jets. Other types furnished at extra cost. *Dimensions:* Length, 42 ins., width, 27½ ins., height, 60 ins. *Approximate Shipping Weight:* 1050 lbs. crated.

Model 15 (Automatic Conveyor)

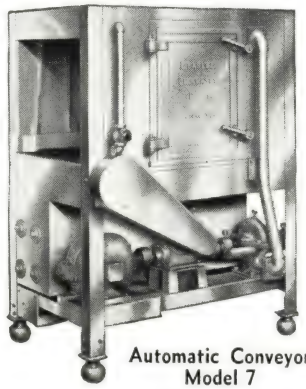
Capacity: 15,000 pieces per hour. *Tank:* Galvanized iron or monel metal. *Motor:* 3 hp. connected direct to ball bearing centrifugal pump. *Dish Racks:* Ten racks furnished with each machine. *Heating Equipment:* Gas burners and steam jets. Other types furnished at extra cost. *Dimensions:* Length, 66 ins., width, 27¾ ins., height, 60 ins. *Approximate Shipping Weight:* 1800 lbs. crated.



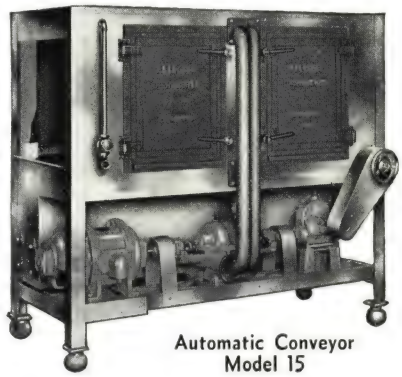
Model 4



Model 5



Automatic Conveyor Model 7



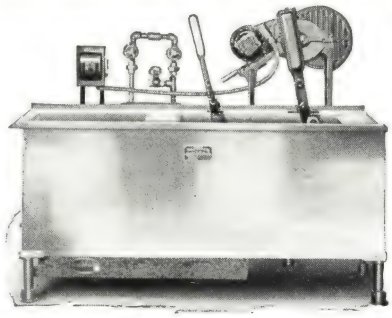
Automatic Conveyor Model 15

FEARLESS IMMERSION TYPE DISHWASHERS

Two-tank variable speed machines. Tanks are of galvanized iron, copper plate or monel metal. Dishes are placed in a submerged basket which is oscillated through the water on a suspended cradle, thus every dish receives full force of water and suds at every angle and is absolutely cleansed.

Heating equipment consists of gas burners, steam coils and steam jets. Kerosene or gasoline burners can be provided at additional cost.

Three dish baskets, one silver basket and one cup basket, as well as a basket rest, are furnished with each machine.



Electric Model "BV"

Made for manual or electric operation. Where power operation is desired, the machine is equipped with a ⅙ hp. motor, rated 1750 r.p.m. which is reduced to a machine speed of 35 reciprocations per minute. The motor is housed in frame to reduce heating. Operating cost is extremely low.

Lever furnished with machine for quickly converting it to hand power should electric current fail.

Made in three capacities: 2,000, 4,000 and 5,000 pieces per hour.

Further details on request.

THE CENTURY MACHINE COMPANY

Kitchen and Bake Shop Equipment

4410 Marburg Avenue, OAKLEY, CINCINNATI, OHIO

Products

CENTURY MIXERS and CENTURY BAKE SHOP OUTFITS, including Flour Storage Bins, Elevators, Sifters, Scale Hoppers, Tempering Tanks, Dough Mixers (slow and high speed), Dividers, Rounders, Proofers, Moulders, Cake or Kitchen Machines, Cookie Droppers and a full line of Ovens.

Century Giant Mixers

Will mix bread, cake and pastry doughs, whip eggs and cream, crush fruits, mash potatoes, make purees, etc.

Model "U" with Jacketed Bowl—Heats or cools batches while mixing.

All Century Giant Mixers, except Model BM-12, operate at four speeds. One single lever controls all speed changes without passing through intermediate speeds or disengaging gears. It is impossible to strip gears on a Century Giant Mixer.

A full line of attachments for grinding, slicing, grating, etc., can be furnished. All machine parts are built extra heavy, assuring years of satisfactory service.

Century Bake Shop Outfits

Consist of flour storage bins, elevators and sifters, automatic flour weighing hopper, automatic tempering tank and dough mixer, every unit driven by individual motor if preferred. Construction is all-steel throughout, self-contained or automatic, can be supported from the floor or from the ceiling.

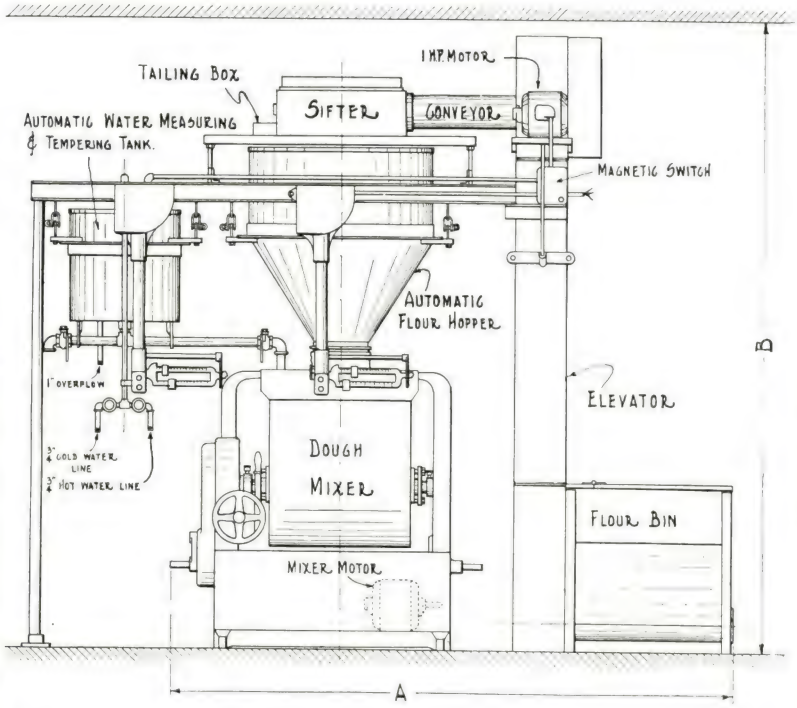
We shall be more than glad to furnish additional details and offer the services of our engineers to help with your problems.

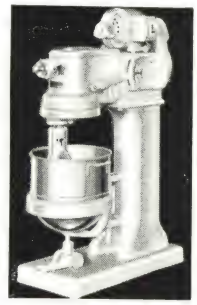
DIMENSION DIAGRAM—CENTURY MIXING OUTFITS FOR SLOW AND HIGH SPEED MIXERS

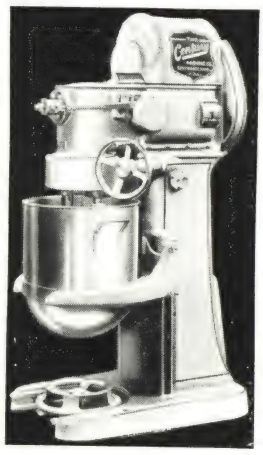
At right are given various suggested dough combinations	1-bbl. dough mixer 3-bbl. flour storage 2-bbl. hopper 35-gal. water tank	1½-bbl. dough mixer 3-bbl. storage bin 2-bbl. hopper 35-gal. water tank	2-bbl. dough mixer 3-bbl. storage bin 2-bbl. hopper 50-gal. water tank	3-bbl. dough mixer 5-bbl. flour bin 3-bbl. hopper 50-gal. water tank	4-bbl. dough mixer 5-bbl. flour bin 4-bbl. hopper 65-gal. water tank
Floor space—width and dimension A:					
Slow speed	4 ft. 9 in. x 9 ft. 10 in.	4 ft. 9 in. x 10 ft. 1 in.	4 ft. 9 in. x 10 ft. 1 in.	4 ft. 9 in. x 12 ft. 10 in.	4 ft. 9 in. x 13 ft.
High speed	4 ft. 8 in. x 10 ft. 9 in.	4 ft. 8 in. x 10 ft. 11 in.	4 ft. 8 in. x 14 ft. 1 in.	4 ft. 8 in. x 14 ft. 8 in.	
Ceiling height, dimension B:					
Slow speed	10 ft. 8 in.	11 ft. 1 in.	11 ft. 1 in.	12 ft. 5 in.	13 ft. 1 in.
High speed	11 ft. 5 in.	11 ft. 10 in.	12 ft. 10 in.	13 ft. 11 in.	
Deadweight of equipment under load:					
Slow speed	6000 lb.	6500 lb.	6700 lb.	9700 lb.	11000 lb.
High speed	7600 lb.	8650 lb.	12300 lb.	16600 lb.	
Horsepower:					
Slow speed	2	3	5	7½	10
High speed	7½	10	20	25	
Dough per batch:					
Slow speed	320 lb.	480 lb.	640 lb.	900 lb.	1220 lb.
High speed	360 lb.	550 lb.	800 lb.	1000 lb.	











CAN BE SUPPORTED FROM FLOOR (AS ILLUSTRATED), OR FROM CEILING.

THE HOBART MANUFACTURING CO.

Makers of Electric Food-preparing and Dishwashing Machines for Commercial and Institutional Kitchens and Bakeries

TROY, OHIO

NEW YORK OFFICE, 40 East 22nd Street CHICAGO OFFICE, 308 West Randolph Street

SALES AND SERVICE OFFICES IN ALL PRINCIPAL CITIES

Products

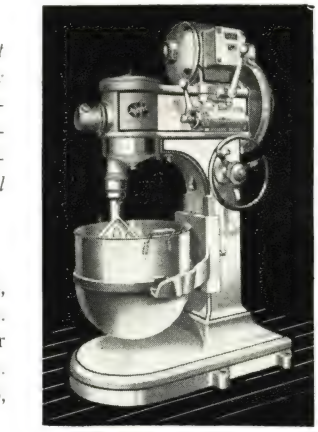
THE HOBART MANUFACTURING CO. builds a complete line of ELECTRIC FOOD MIXERS, GLASS and DISHWASHING MACHINES, POTATO PEELERS, SLICING MACHINES, FOOD CUTTERS, MEAT and FOOD CHOPPERS and COFFEE and SPICE MILLS, for Commercial and Institutional Kitchens and Bakeries.

To Hobartize Is to Standardize

Hobart Machines are made of the *highest quality materials,* by skilled craftsmen. They are built entirely by Hobart—even to the motors, which are fully guaranteed. With complete Hobart Equipment in kitchens and bakeries much confusion is avoided by having *all guarantees and service come from one place.*

Hobart Mixers

Hobart Mixers are built in 3, 5, 10, 15, 20, 30, 40, 60, 80 and 116-quart bowl capacities. There is a model to fit any size kitchen or bakery. They mix, beat, whip, blend, mash. With attachments they chop, grind, slice, crumb, sieve, strain, etc.



Hobart Super Mixer Model M-80

Capacity of bowl—80 qts. 116 quarts with bowl extension rim

Hobart Potato Peelers

Hobart Potato Peelers are built in three sizes ranging in capacities from 15 to 45 lbs. peeled in 90 seconds with negligible peel loss. They are quiet, speedy and watertight. They may also be used for sweet potatoes, carrots, parsnips, turnips, horseradish, etc.

Hobart Food Cutters

Hobart Food Cutters, built in three sizes, represent a great advance in speed, thoroughness, safety, ease of cleaning and economy of space. They cut meats, vegetables, firm fruits, coconut, citron, nuts, boiled eggs, beets—practically anything in the food line in a few seconds' time.

Hobart Slicing Machines

The Hobart Electric Slicing Machine combines the latest features in *one machine.* Speedy, convenient to operate, easy to clean, quiet and safe. It is ideal for all boneless meats, hot or cold, cooked or uncooked, bread, cheese, vegetables, fruits, etc.

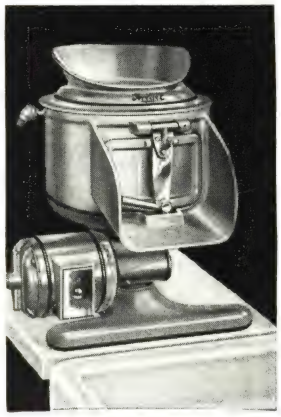
Hobart-built Crescent Dishwashing Machines

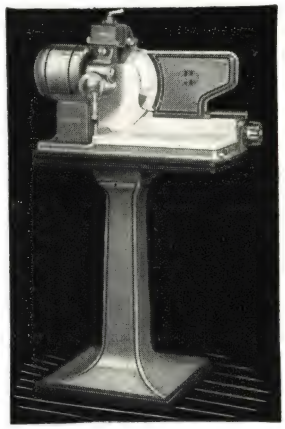
Crescent Dish and Glass Washers are built in 8 models with prices and capacities to suit any requirements from the small soda fountain to the large banquet hall. They wash all tableware *clean* with a high degree of sterilization in the shortest possible time.

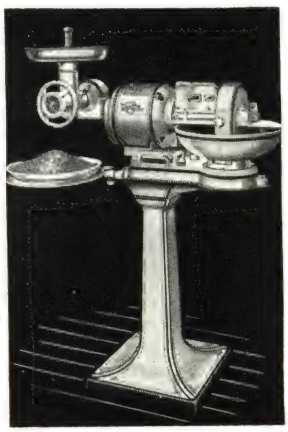
They contain such exclusive features as revolving wash arms and the patented dual-drive principle.

Service Organization

Hobart maintains a nation-wide corps of factory-trained service men such as few other manufacturers of electric kitchen machines can offer. No long, trying and money-losing delays. The Hobart Engineering Department is always ready to cooperate with architects. The Architect's Data Book, A.I.A. File No. 31H2, which contains weights, dimensions, capacities and technical details of Hobart Machines, is gladly furnished on request.

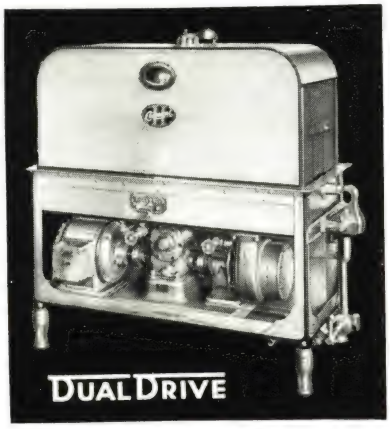






Upper left:
Hobart Model 6015 Bench Type Potato Peeler
Also furnished for floor use

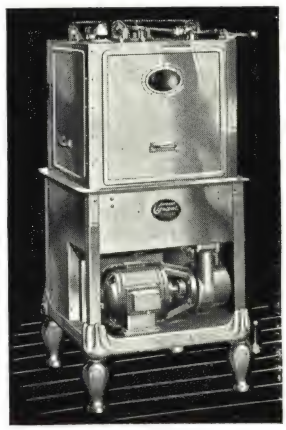
Lower left:
Hobart Model T 215-GAP Food Cutter on Floor Pedestal
Also furnished for bench or table



Upper right:
Hobart Slicing Machine on Floor Pedestal
Also furnished for bench or table

Center:
Hobart-Crescent Model CM Dishwasher with Dual-drive

Lower right:
Hobart-Crescent Model AM-2 Glass and Dishwasher



READ MACHINERY COMPANY, INC.

Manufacturers of Bakery Machinery

YORK, PA.

SALES AGENCIES IN ALL PRINCIPAL CITIES

Products

Complete EQUIPMENT for BAKERIES; MIXING MACHINES for hotels, restaurants, hospitals, institutions, chemical plants, etc.

Service Department

The READ MACHINERY COMPANY, INC., specializes in modern bakery equipment. An extensive service department is maintained and is available at all times to architects. Our engineers will gladly co-operate with and assist architects when planning bakeries, kitchens for hotels, hospitals, restaurants and institutions without cost, and will furnish drawings and specifications.

Layouts, data sheets, general catalogues, photographs, standard specifications and preliminary drawings are supplied on request and are part of the service offered by this Company.

Readco Vertical Mixers

For use in bakeries, also pastry and kitchen departments.

The mixer is made in five models. Entire operation of machine controlled by one lever, accessible from three sides, which starts and stops motion of beaters and gives variable speeds.

Beaters are rapidly attached or detached by spring clip.

Bowls are mechanically raised and are easily removable.

All parts accessible and easily cleaned. Supplied with motor or belt drive.

All models are of heavy construction, simple to operate, silent running and practically foolproof. Maintenance cost is low. Wide range of work—used for every kind of mixing, beating, whipping and creaming operation.

An auxiliary drive socket is placed on the left side of Types "G," "D," "H" and Master Mixer at no additional cost for the operation of attachments, such as—meat grinder, coffee mill, vegetable slicer, bread crumber, nut grater, ice crusher, etc.

CAPACITY, DIMENSIONS AND WEIGHT, VERTICAL MIXERS

Type	Max. cap., qt.	Motor, h.p.	Floor space, in.	Height, in.	Weight, lb.
G	30	½	24 x 34	63	900
G	60	¾	24 x 37	63	900
D	80	1	24 x 44	69	1,400
H	100	2 & 3	27½ x 44	69½	1,850
Master	140	3 & 5	34 x 43½	66	2,435

Readco "Mixonette" (General Use)

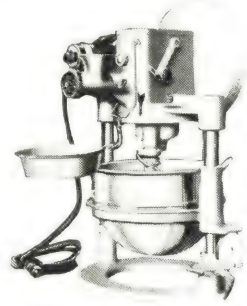
The "Mixonette" has been designed to perform the various kitchen duties in hotels, restaurants, hospitals, institutions, cafeterias, clubs, soda fountains, and also for mixing work in bakeries and candy factories.

Used for mixing, beating, whipping, grating, slicing, straining, mashing, grinding, etc.

Has all the favorite and exclusive Read features—the frame is of rigid construction with all parts accurately machined; selective type of transmission two speeds; gears run in grease; oilless bushings used throughout; one lever controls the speeds and starts and stops the motion of the beater. A driving socket is provided at head of machine, used for operating special attachments.

Standard equipment supplied—12-qt. bowl, wire whip and batter beater. 5-qt. equipment furnished at slight additional cost.

The driving socket can be used for operating meat grinder, coffee mill, vegetable slicer, bread crumber, nut grater, and other attachments which can be furnished when ordered.



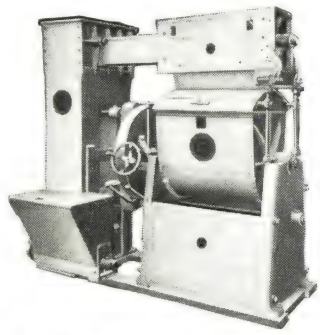
Readco "Mixonette"

"MIXONETTE" CAPACITY, DIMENSIONS AND WEIGHT

Capacity, qt.	Standard motor, h.p.	Base size, in.	Height, in.	Weight, lb.
5 and 12	⅙	19x14½	28	175

Readco No. 5 Automatic Sifting and Mixing Outfit

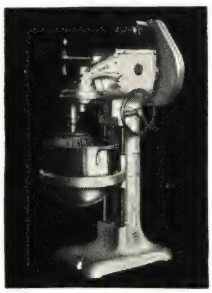
Outfit consists of a flour dump bin, elevator, conveyor, cone sifter and single-arm mixer. *(The size of the mixer determines the size of the outfit.)* It is a self-contained unit and is shipped completely assembled. Flour is automatically carried from the dump bin to the cone sifter where it is thoroughly cleaned and aerated and then deposited into the mixer. Doughs are rapidly and thoroughly mixed in the single-arm dough mixer.



Readco No. 5 Automatic Sifting and Mixing Outfit

CAPACITY, WEIGHT AND DIMENSIONS, READCO NO. 5 OUTFIT

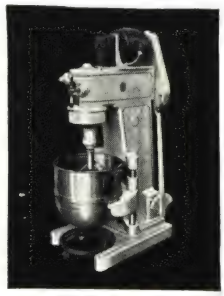
Size, lb. of flour	Capacity, liquid, gal.	Weight, lb.	Over-all height, in.	Floor space, in.
200	58	2,800	82	92½ x 46
300	82	3,600	88	96 x 49
400	110	3,900	90	99 x 52



Model G



Model D



Model H



Master Mixer

FOLGER ADAM

Prison Cell Constructor—Penal Engineer
Manufacturer of Prison Locks, Locking Devices, Prison Equipment
JOLIET, ILL.

Products

Combination Key and Keyless Locking Devices; Selective non-opening Locking Devices; Selective and Operating Keyless Locking Devices; Dead and Snap Locks for both Swinging and Sliding Doors; Lever Handle Dead and Snap Locks for Tubular Steel Doors; Ball Bearing Prison Hinges; Headless Prison "Security Screws"; Cremone Prison Bolts; Specialized Engineering Service for Prison Steel Work.

Experience

For the past thirty years we have been engaged in designing steel work and locking devices for prisons, reformatories and jails.

We offer, without obligation, to architects, engineers, and prison officials, the experience gathered in connection with the equipment of the following list of large penal institutions in the United States and Canada:

Principal Installations

Wisconsin State Prison (Northwest Wing)	Waupun, Wis.
Minnesota State Prison	Stillwater, Minn.
United States Federal Penitentiary (East Wing)	Leavenworth, Kan.
United States Military Prison	Ft. Leavenworth, Kan.
Minneapolis City Workhouse	Minneapolis, Minn.
Montreal District Jail	Bordeaux, Que.
Ontario Provincial Reformatory	Guelph, Ont.
Washington State Reformatory	Monroe, Wash.
Wisconsin State Prison (Southwest Wing)	Waupun, Wis.
Missouri State Penitentiary (East Wing)	Jefferson City, Mo.
Milwaukee House of Correction	Milwaukee, Wis.
Missouri State Penitentiary (West Wing)	Jefferson City, Mo.
Toronto Industrial Farm (Cottage No. 2)	Toronto, Ont.
Alberta Provincial Prison (Wing No. 1)	Ft. Saskatchewan, Alta.
United States Federal Penitentiary (West Wing)	Atlanta, Ga.
United States Federal Penitentiary (South Wing)	Atlanta, Ga.
Illinois State Penitentiary (Circular Cell House)	Joliet, Ill.
Minnesota State Reformatory	St. Cloud, Minn.
United States Federal Penitentiary (North Wing)	Atlanta, Ga.
Wisconsin State Reformatory	Green Bay, Wis.
Illinois State Penitentiary (Cell House No. 2)	Joliet, Ill.
Illinois State Penitentiary (Cell House No. 3)	Joliet, Ill.
South Dakota State Penitentiary (East Wing)	Sioux Falls, S. D.
South Dakota State Penitentiary (West Wing)	Sioux Falls, S. D.
Saskatchewan Provincial Prison (East Wing)	Prince Albert, Sask.
Saskatchewan Provincial Prison (West Wing)	Prince Albert, Sask.
Michigan State Prison	Jackson, Mich.
Illinois State Penitentiary	Chester, Ill.
Indiana State Reformatory	Pendleton, Ind.
Wisconsin State Prison	Waupun, Wis.
Public Safety Building	St. Paul, Minn.
Eastern State Penitentiary	Gratersford, Pa.
Illinois State Reformatory	Pontiac, Ill.
Women's Detention Prison	New York, N. Y.
Illinois State Penitentiary	Stateville, Ill.
Illinois State Penitentiary	Menard, Ill.
Alberta Provincial Prison (Wing No. 2)	Ft. Saskatchewan, Alta.
Montreal District Jail	Bordeaux, Que.



ALLEN-DREW COMPANY

DIVISION OF BABCOCK-DAVIS CORPORATION

474 Dorchester Avenue
BOSTON, MASS.

For Our Other Pages, see Manufacturers' Index

MOTOR OPERATED VEHICLE GATES FOR JAILS

Gates

Electrically operated gates are a necessity in jails. Sometimes it is desirable to operate only one set of gates to keep out intruders and to admit those having proper credentials. This is often the case also in industrial plants and on private estates.

In some cases where valuable property is easily removed or in detention cases, it is necessary to have two sets of gates, one directly behind the other to form an enclosed cage. Here it is possible to thoroughly investigate the person or vehicle entering or leaving by operating one set of gates at a time.

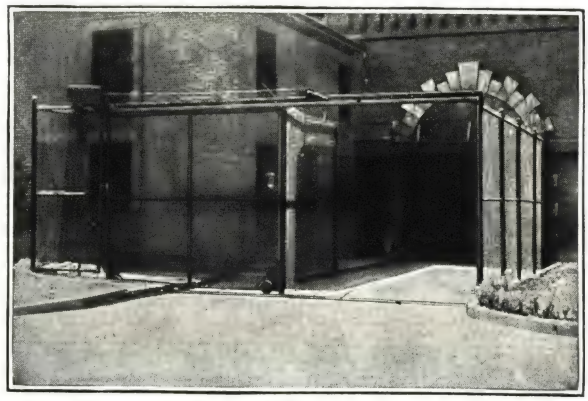
We have installed a number of our motor units for the operation of gates of jails in different parts of the country.

Motor Operated Cell Doors and Gates

By the use of our electrical mechanical equipment, the cell doors or gates may be automatically opened and closed from a remote point.

By the use of this equipment, it is impossible for the mechanical parts to jamb or become inoperative. Their flexibility and reliability make them very desirable.

We would be very pleased to submit complete layouts for this equipment upon receipt of drawings showing the building construction.

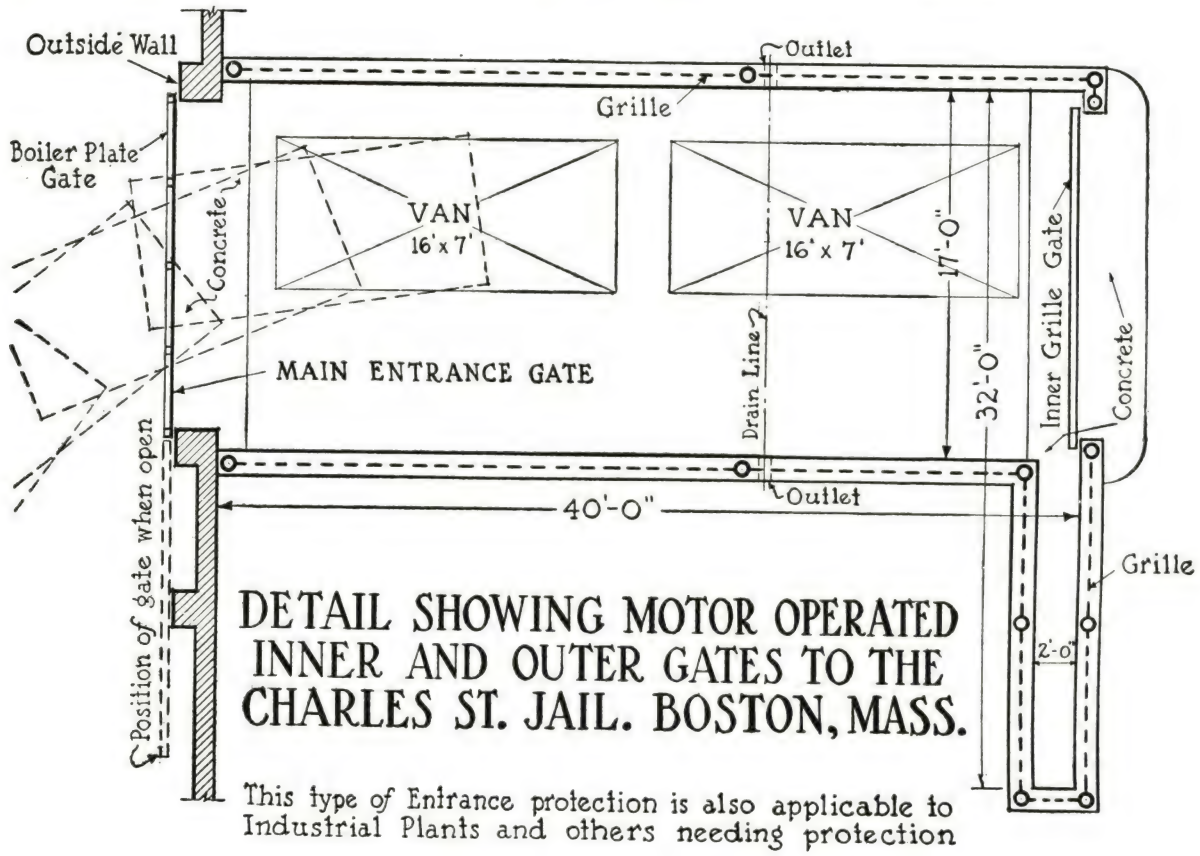


Two Electrically Operated Sliding Gates at Suffolk County Jail, Massachusetts

Control

These gates are operated by remote control. They also have limit switches and brakes similar to those for garage doors. The operating mechanism is overhead, and protected from the weather by hoods, etc.

The gates are supported on rollers running on industrial track which is also protected from the weather by hoods.



DETAIL SHOWING MOTOR OPERATED INNER AND OUTER GATES TO THE CHARLES ST. JAIL. BOSTON, MASS.

This type of Entrance protection is also applicable to Industrial Plants and others needing protection

THE FRIES AND SON STEEL CONSTRUCTION AND ENGINEERING CO., INC.

Expert Jail and Prison Builders

TELEPHONE
Covington 1635

Second and Madison Avenues
COVINGTON, KY.

Products

Builders of CELLS for Jails, Prisons, Police Stations and Lockups, equipped with Automatic Sliding Door and Hand Pull, and Hydraulic Locking Devices; Prison Plumbing Fixtures; Round, Hexagon, Rib and Flat Interlocking Bar Grating for window guards, corridor gratings.

Experience

THE FRIES AND SON STEEL CONSTRUCTION AND ENGINEERING CO., INC., are backed by an organization made up of men whose experience ranges from twenty to fifty years, and who have built some of the largest jails and prisons in the United States.

Tool Resisting Steel

We use nine-ply tool resisting steel for all grated work made according to standard specification, in place of regular five-ply steel referred to in specification as tool resisting, consisting of alternate layers of low carbon and high carbon steel, all layers thoroughly welded and the high carbon steel layers hardened, to resist action of cutting tools.

Where absolute security is desired, we advise using our *"Fries Special"* Heat and Tool Resisting Steel for all exterior sides of cell blocks, also for the window gratings.

Cell Door Locking Device

Our manually operated fully selective, keyless locking device is used in connection with sliding doors and is designed on lines of durability and simplicity as well as neatness. The device has no springs, adjusting nuts or collars that might come loose and cause trouble. Our device permits operator to open or close each door individually, or close or open all doors *collectively*, although some doors may be in open position while others are in closed position, or open or close any combination of doors desired.

Our locking device is entirely and securely encased by steel plate rendering it *tamperproof*.

Automatic Corridor Lock

Our corridor doors are provided with a simple locking bar, operated from within the lever box. The corridor door locks automatically on lightly closing same, and is deadlocked. This lock is tamperproof.

Special Equipment

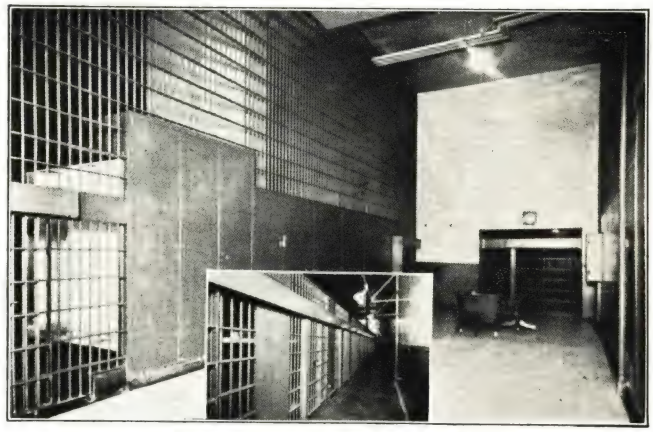
We furnish everything necessary for the completed jail or prison installation, such as, one-piece, sanitary, combination lavatory and toilet niche seat; electric light boxes; latest improved jail plumbing fixtures; speaking panels; plate and glass partitions; steel entrance doors; bunks; padded cells; steel stairs and window guards.

Engineering Department

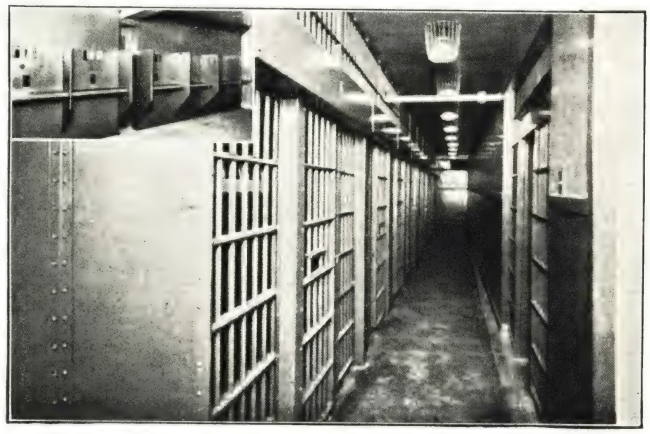
Our Engineering Department will gladly assist architects, engineers and officials who are contemplating any jail or prison construction. We will furnish up-to-date layouts, detail drawings, specifications and estimates, for jail equipment, without charge.



Police Headquarters Building, St. Louis, Mo.



Center of Men's Cells, Showing Turnkey's Station
Inset—Section of East Wing of Men's Cells



Men's Isolation Cells
Inset—Visitors' Side of Conversation Booth

MANLY JAIL WORKS

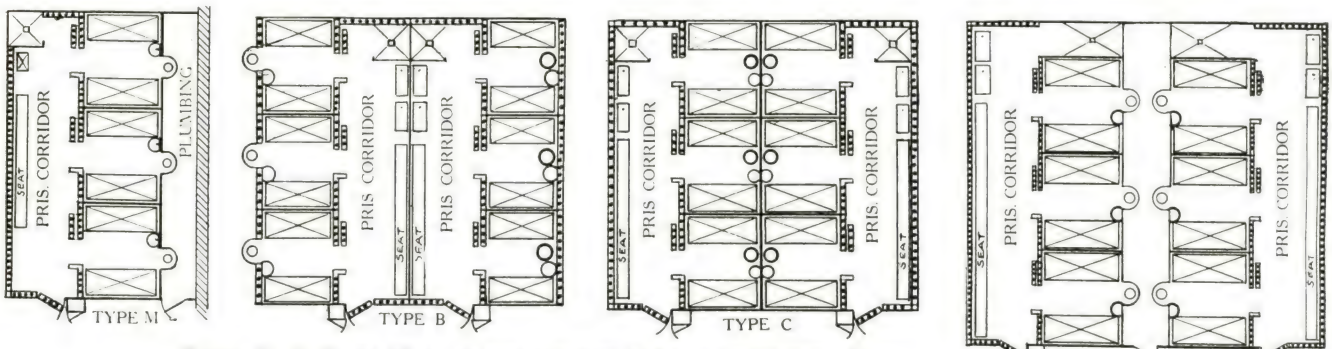
DALTON, GA.

Products and Service

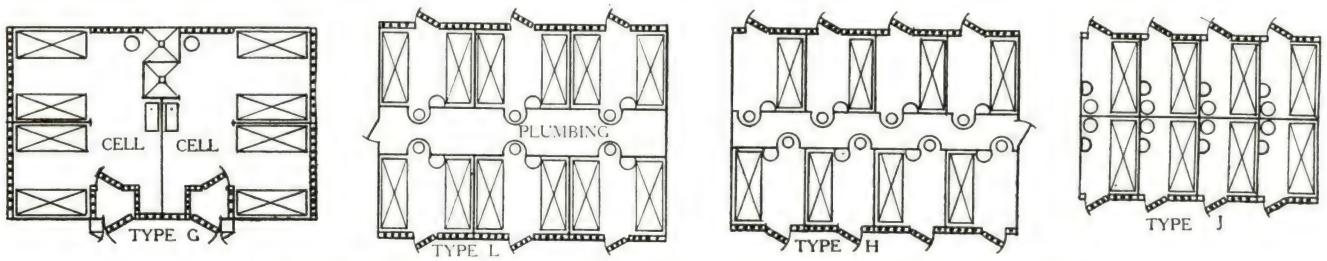
Complete modern CELL EQUIPMENT for County and City Jails, both in toolproof and Bessemer steel; IRON DOORS, WINDOW GUARDS, WALL LININGS and general JAIL BUILDING ACCESSORIES.

It is our policy to confine our operations, as far as practicable, to the Southeastern States within six or eight hundred miles of our plant, and to render an especially prompt and efficient service within that territory.

Blue prints, ¼ in. scale, and details on application.



TYPES M, B, C, D, G, T, W, FOR COUNTY JAILS—OF TOOLPROOF STEEL
TYPES L, H, J, FOR CITY POLICE STATIONS—OF BESSEMER STEEL

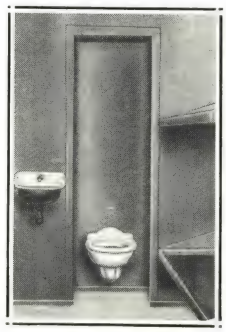


Selected Typical Cell Floor Plans 1/16-in. Scale for County and City Jails

Day Room Plans on request



Toilet Niche
Enameled Seat, Push Button Flush Valve and Lavatory



Wall Hung Toilet

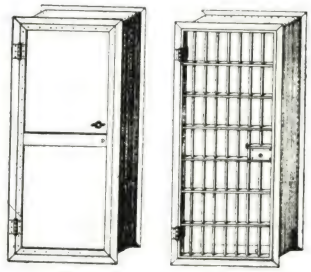
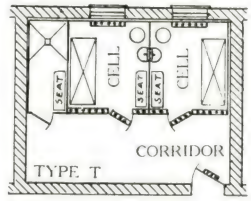
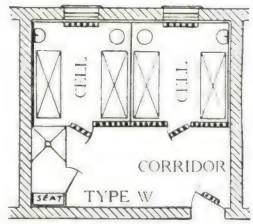


Plate and Grated Doors





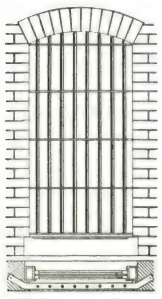
Female or Minor Cells, T-W

Condensed Specifications

Dimensions, etc.—County jail cells for 4 prisoners 7x8 ft. x 7 or 8 ft. high (8 ft. preferable). Prisoners corridor 6 ft. Shower enclosures 3 ft. square. All exterior wall and ceiling plates ¼-in. toolproof. All exterior gratings toolproof steel, not less than 20 lb. to sq. ft. Inside plate partitions $\frac{3}{16}$ in. Bessemer steel. Inside gratings and doors 10 lb. to sq. ft. Bessemer steel. Cells in H and J for city jails 6x7 ft. and 5x7 ft., 2 prisoners to cell; Type L cells, 7x8 ft. 4 prisoners; plate work $\frac{3}{16}$ in.; grating and doors same as specified below for window guards, all Bessemer steel.

Cell Door Locking Device—Cell doors 2x6 ft. hung on ball or roller bearings, to be easily opened, closed and locked entirely from lever box on front of cage, and to be operated in either direction without affecting any other door in series. Main cage door same construction as grating, securely hinged and locked with automatic jump lock and heavy slide bars operated and locked inside lever box.

Toolproof Steel—Bars and plates specified as "toolproof" to be laminated 5-ply steel, composed of alternate layers of high carbon crucible or manganese steel, thoroughly welded to layers of low carbon steel; the crucible layers being highly tempered and hardened so as to resist the action of saws, files and drills, and to be roll straightened after tempering.



Window Guard

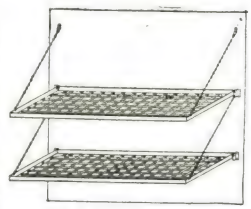
Utility Corridor—4 ft. wide as in D or 3 ft. wide if staggered, as in H.

Toilet Niche—22x16 in. x 4 ft. 6 in.; seat 17 in. above floor, circular back, toilet hopper underneath. Square niche 22 x 16 x 6 ft., cove base.

Bunks—2 ft. 6 in. x 6 ft. 6 in.; 2-in. angle frame; slats 1¼ in. x No. 16 interwoven and riveted 3-in. sq. mesh, or No. 16 solid plate perforated and riveted.

Floors—No steel floors. Vertical bars and gratings bedded in 2½ in. of concrete, cement finish. Reinforcing under felony cells, ½ in. high carbon bars 5 in. apart both ways.

Guards Corridor—Cells 3 ft. 6 in. from walls to allow for radiators and guards walkway. 5 ft. on front end.



Folding Bunks

Window Guards—Verticals ⅞ in. round, 4 in. on centers, shouldered and mortised. Horizontals 2¼ x ⅜ in., 12 to 16 in. apart; ends of horizontals bent back for building in. Bessemer steel, or toolproof if prisoners have access.

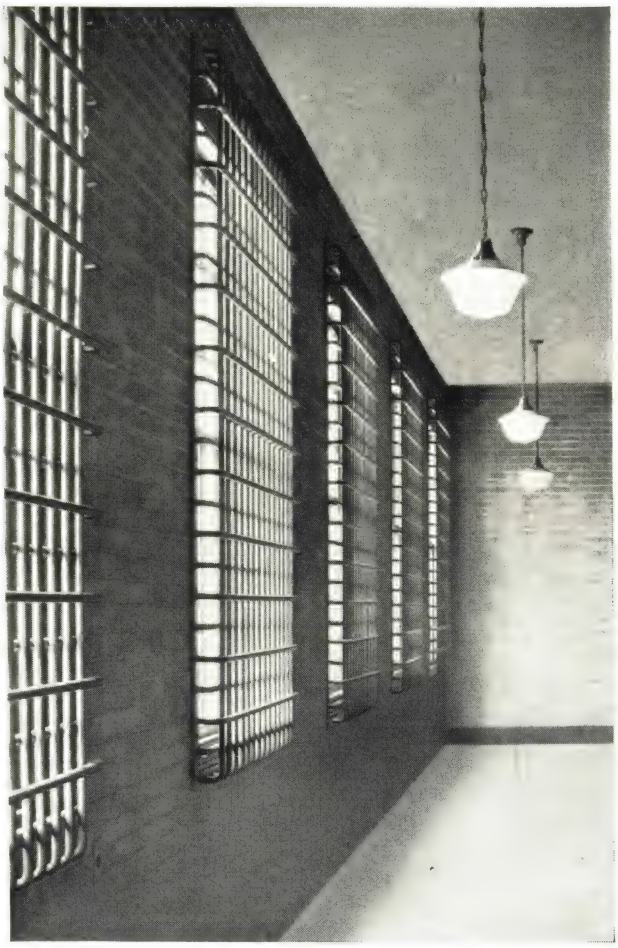
Iron Doors—$\frac{3}{16}$-in. plate, stiffened with 2-in. angle and paneled. Grated doors ⅞-in. round verticals, 4 in. on centers. Horizontals 2¼ x ⅜ in. mortised, 16 in. apart. Heavy forged hinges; 5 tumbler flat jail dead locks. 2½-in. angle frame, No. 11 steel jambs; ¼-in. diamond threshold plate. All Bessemer steel.

Hospital and Female Cells—$\frac{3}{16}$-in. plates, grating and doors same as for window guards. Usually against outside walls. Bessemer steel.

OLIVER WHYTE COMPANY

Jail and Prison Cells and Fittings

MEDFORD (BOSTON), MASS.

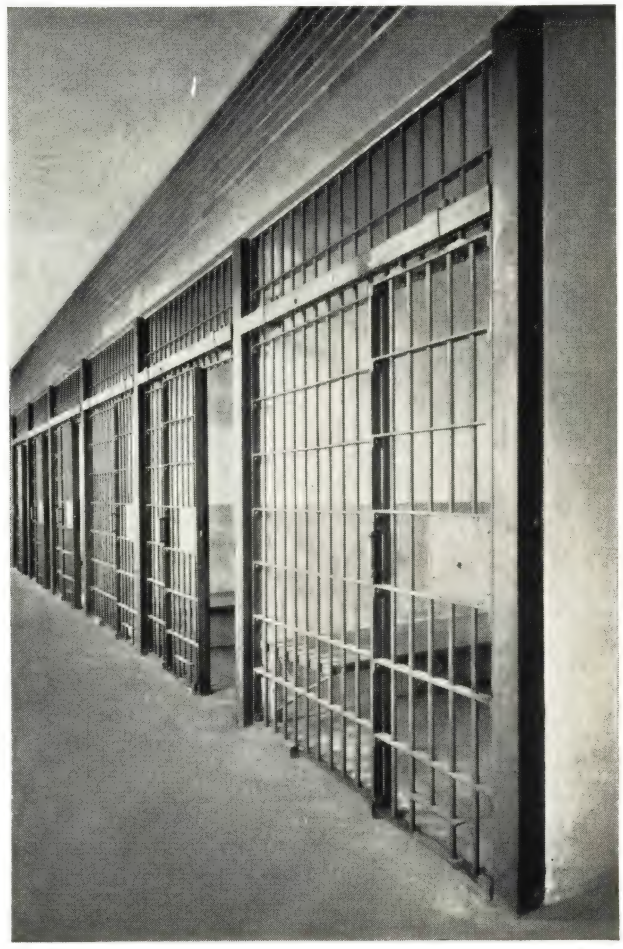


Products

Cells, Window Grilles and Doors of toolproof, heat-resisting, or bessemer steel, including Oliver Whyte Company Multiple-Unit Noise-Checking Cell, and general Jail Equipment.

Experience

Producers of special and standardized prison work for 60 years.



Service

We are prepared to supply architects with prompt information as to details of construction and floor space requirements for a modern installation.

Without obligation we will make sketches and recommendations for maximum utilization of available floor space if amount of same has been already determined.

PAULY JAIL BUILDING COMPANY

INCORPORATED

Designers and Manufacturers of Jail Equipment Since 1856

MAIN OFFICE AND FACTORY
2215 Dekalb Street
ST. LOUIS, MO.

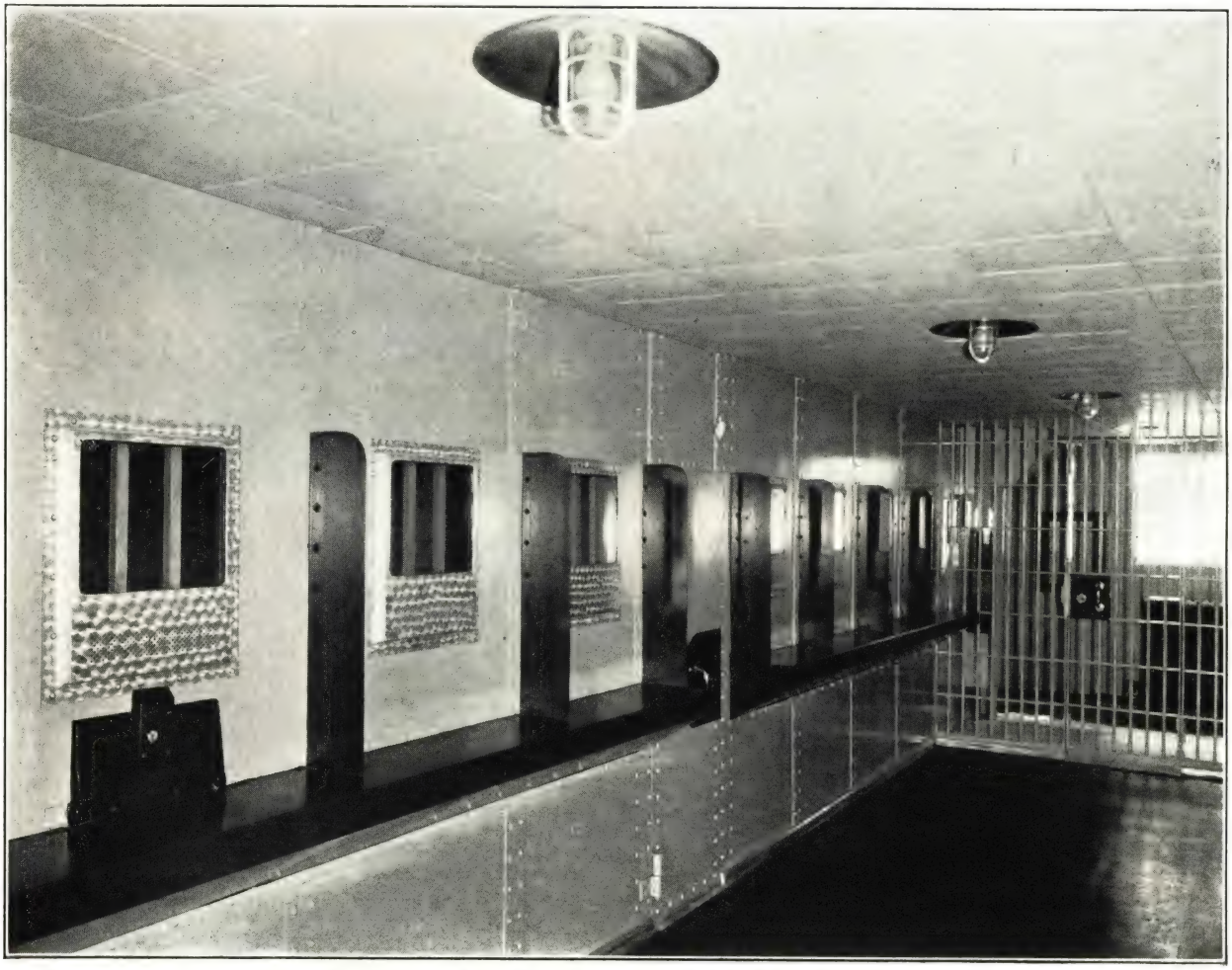
EASTERN OFFICE: Empire State Building, NEW YORK, N. Y.

75 YEARS OF RESPONSIBLE SERVICE

For seventy-five years Pauly has been rendering responsible, experienced co-operation to architects in the detention building field. During those years, practically every new improvement in detention equipment has been pioneered by Pauly.

The architect, entrusted with the planning of detention buildings, shoulders a tremendous responsibility—staking his reputation against the cunning and prowess of the inmates.

Beginning with the preliminary sketches, we offer him a *helpful, experienced service* that is invaluable for while a detention building is often an out-of-the-ordinary undertaking to him, to us it is a matter of everyday routine. We offer a *responsible* service, backed by a 75-year successful record, the helpful counsel of a Service Department with trained representatives located throughout the country at convenient points, and an Engineering and Design Service at the Main Office ready at all times to prepare sketches and working plans to best serve your purpose.



Visitors' Consultation Room, Wyandotte County Courthouse, Kansas City, Kan.
WIGHT & WIGHT, Architects

SOUTHERN PRISON COMPANY

MAIN OFFICE AND WORKS
SAN ANTONIO, TEXAS
P. O. Drawer 1115

BRANCH OFFICES
COLUMBUS, OHIO
KANSAS CITY, MISSOURI
BIRMINGHAM, ALABAMA

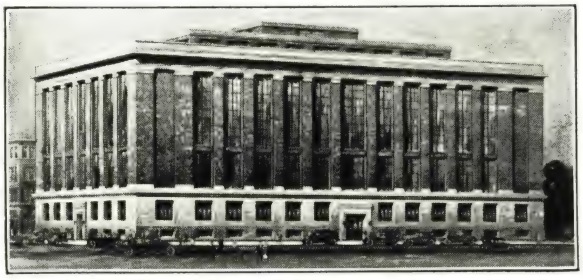
Products

Manufacturers and builders of JAILS and PRISONS, Steel Cells, Sliding Door Selective Locking Systems, Modern Plumbing, and Accessories for State, county and municipal purposes, police stations, lockups and hold-overs.

Also Miscellaneous Equipment, Steel Grating, Cell Room Lining, Doors, Window Guards, Bunks, Hammocks, etc.

Experience

For about forty years the management of this company has been actively engaged in designing layouts; building and equipping jails and prisons, giving special attention to the proper classification of prisoners; perfection of interlocking tool and heat resisting steel cells; selective type, sliding door locking systems; and ventilated niche back, odorless sanitary plumbing fixtures—the most vital features in jail and prison construction.



Wayne County Jail, Detroit, Mich.
AARON H. GOULD & SON, Architects



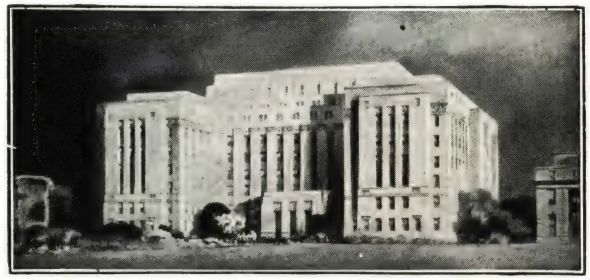
Racine County Courthouse and Jail, Racine, Wis.
HOLABIRD & ROOT, Architects, Chicago, Ill.

Service

Representatives in various parts of the country experienced in this special line will call in person on architects, engineers and interested officials and submit free of charge and without obligation, designs, layouts and estimates with samples and models complete, when desired. Communicate with us.



Criminal Courts and Jail Building, New Orleans, La.
DIBOLL & OWEN, Architects



Jefferson County Courthouse and Jail, Birmingham, Ala.
HOLABIRD & ROOT and HARRY B. WHEELOCK, Architects

Representative Installations

Illustrations show a few of our recent representative installations. Other installations include, among many, the following:

Anamosa, Iowa
Woodstock, Va.
Santa Barbara, Calif.
Rawlins, Wyo.
Lowville, N. Y.
Silver City, N. M.
Provo, Utah
Flint, Mich.
McAlester, Okla.
Phoenix, Ariz.
Raiford, Fla.
Texarkana, Ark.
Rikers Island, N. Y.
Tucson, Ariz.
Kankakee, Ill.
Harrisonburg, La.
Jefferson City, Mo.
Greenwood, Miss.
Fordson, Mich.
Roseburg, Ore.
Lyons, Kan.
Lakeport, Calif.
Morrillton, Ark.
Lexington, Neb.
Fort Worth, Tex.
Austin, Tex.

C 3900

ESTABLISHED 1886

CAPITAL $1,000,000.00

THE STEWART IRON WORKS COMPANY, INCORPORATED

Jail and Prison Builders

711 Stewart Block
CINCINNATI, OHIO

Products

STEEL CELLS for penitentiaries, county jails, city jails, village lock-ups.

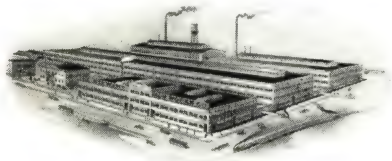
Hinge and Sliding Type Doors; Locking Devices; Gratings in toolproof, heatproof and Bessemer steels; Bunks, Iron Stairways and all modern jail equipment.

Experience

Established in 1886, we have specialized in prison work for nearly fifty years, always keeping abreast of the latest methods and employing experts in every department, from the designing to the finished product.

Facilities

Our plant, covering a large ground area and containing over 350,000 sq. ft. of floor space is equipped with the most modern machinery, jigs and tools of the most approved type for manufacturing prison work of superior construction.



Factory, Covington, Ky.
(Opposite Cincinnati, Ohio)

Our products are approved by architects, city, county and State officials all over the country.

Materials

All steel used in our equipment or construction work is most carefully selected, and is purchased in large tonnage from the best known producers of the various kinds of steel used in the different processes of high grade prison construction.

Service

We do not compete with architects in making plans for prisons; we are always ready to extend to them our complete facilities and experience in designing work when invited to do so. We solicit correspondence from architects, engineers and municipalities and will gladly furnish designs, estimates, specifications and layouts to those interested.

Other Features

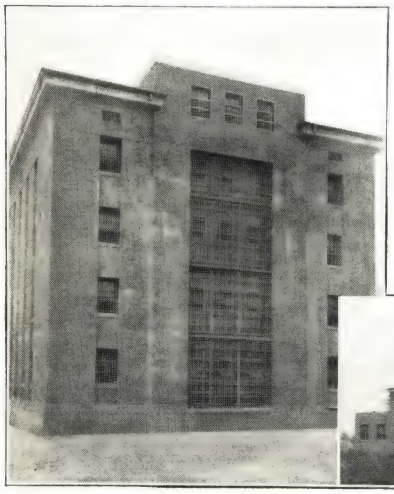
Many new exclusive and important features are embodied in the construction of Stewart-built prison work. Let one of our engineers explain them to you.

Installations

Stewart has made hundreds of prison work installations ranging from federal penitentiaries down to village lock-ups. A few of our installations are listed below.

A Partial List of Stewart Installations

United States Penitentiary, Atlanta, Ga.
United States Penitentiary, Ft. Leavenworth, Kan.
Virginia State Penitentiary, Richmond, Va.
Kentucky State Penitentiary, Eddyville, Ky.
Colorado State Penitentiary, Canon City, Colo.
Onondaga Penitentiary, Syracuse, N. Y.
Kansas State Penitentiary, Hutchinson, Kan.
United States Reformatory, Chillicothe, Ohio
Allen County Jail, Fort Wayne, Ind.
St. Lawrence County Jail, Canton, N. Y.
O'Brien County Jail, Primghar, Iowa
Lyon County Jail, Rock Rapids, Iowa
Swain County Jail, Bryson, N. C.
Jefferson County Jail, Louisville, Ky.
Lawrence County Jail, Bedford, Ind.
Woodford County Jail, Versailles, Ky.
Greenup County Jail, Greenup, Ky.
Knox County Jail, Vincennes, Ind.
Albemarle County Jail, Charlottesville, Va.
Bertie County Jail, Windsor, N. C.
Wise County Jail, Wise, Va.
Russell County Jail, Lebanon, Va.
Tazewell County Jail, Tazewell, Va.
Mobile County Jail, Mobile, Ala.
Richmond County Jail, Richmond, Va.
Hamilton County Jail, Cincinnati, Ohio
Dade County Jail, Miami, Fla.
Lake County Jail, Crown Point, Ind.
Multnomah County Jail, Portland, Ore.
Oklahoma County Jail, Oklahoma City, Okla.

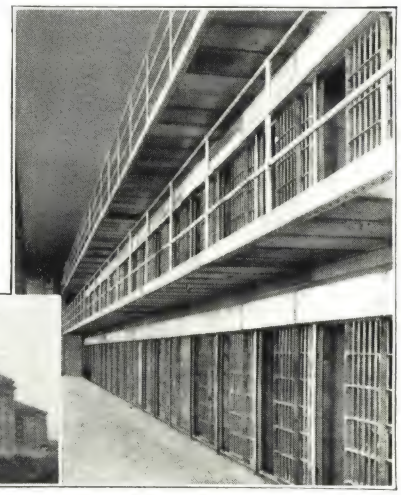


At Left:
Exterior of Cell House Showing Large Window Guard as Manufactured by Us

At Right:
Interior View Showing Steel Cells Manufactured and Installed by Us

Below:
General View of Buildings





United States Industrial Reformatory at Chillicothe, Ohio
RICHARD FOURCHY, A.I.A., Architect

ECONOMY ENGINEERING COMPANY

Manufacturers of Economy Ball Bearing Portable Lifters, Elevators and Storage Racks

2685 West Van Buren Street, CHICAGO, ILL.

NEW YORK, N. Y., 342 Madison Avenue

SALES REPRESENTATIVES LOCATED IN PRINCIPAL CITIES
(Name and address of nearest representative sent on request)

Products

Ball bearing equipped PORTABLE ELEVATING EQUIPMENT, commonly termed "Portable Elevators," "Tiering Machines," "Lifters," "Stackers," etc.; STEEL RACKS for storing barrels, drums, tote-boxes, steel shapes; the RED ROCKER, a stand for barrels and drums of liquid, designed to permit easy withdrawal of contents.

The Company

Since 1901 ECONOMY ENGINEERING COMPANY has specialized on portable elevator construction. Economy was the first to provide all-steel construction, hinges in uprights, steel cable hoist, a positive floor lock, electric motor drive, telescoping frame, dual brakes, ball bearings in hoisting unit, etc. No problem is too large or complicated for our engineering division to meet satisfactorily. Economy machines will be found in service in every field of manufacturing.

Ball Bearing Equipped

Six standard models of Economy Portable Elevator, all ball bearing equipped, for every lifting, stacking and tiering requirement.

Capacities—Standard machines are built in capacities from 500 to 2000 lbs. Special capacities provided up to 8000 lbs.

Power—Either hand power or electric to operate from light socket or power line.

Heights—Built to specified height with special hinge frame or telescoping feature, giving door height clearance while providing elevating range up to ceiling.

Frame—Heavy steel channels, cross braced, riveted and bolted, give maximum strength and rigidity.

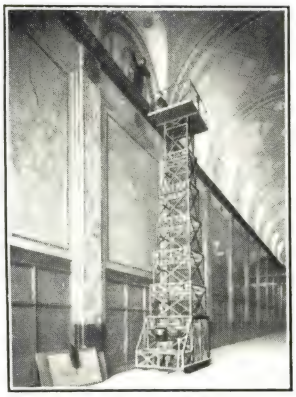
Safety—Significant brake design and great overload capacities provide highest factor of safety.

Steel Racks

Standard steel rack sections for 50-gal. barrels or drums, tote-boxes, steel shapes, etc.

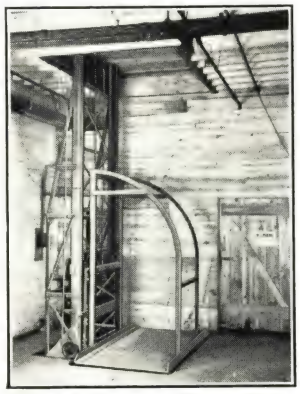
Barrel Stands

Economy "Red Rocker" barrel stands for storing barrels or drums so contents are quickly available. Ideal for engine rooms, garages, textile mills, chemical plants, etc.



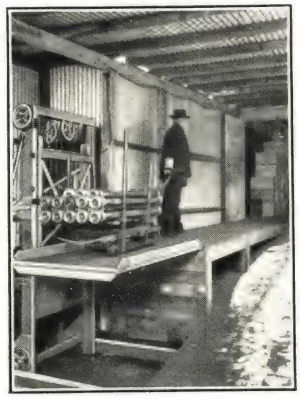
(1) From 6 to 30 Ft. Above the Floor with an Economy Electric Telescoper

Fisher Building at Detroit uses this machine for cleaning and general maintenance work outside as well as inside



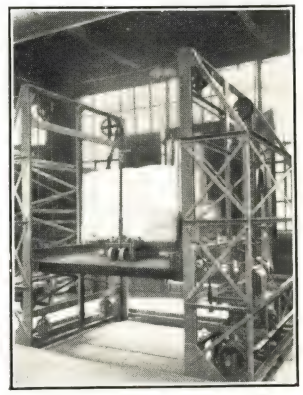
(2) Stationary Type Electric Lifter of 2500 Lb. Capacity

The door opening loop on platform causes trap door overhead to open and close automatically



(3) Eliminating Dangers of the Ramp with an Economy Lifter

Platform is controlled by means of the hand cable device shown at extreme left and stops automatically at both floor levels



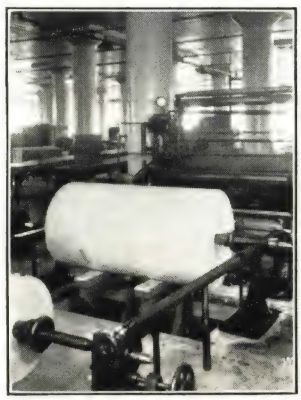
(4) Unloading Freight Cars with 5000-lb. Capacity Economy Four-post Type Electric

This type is entirely self-contained and requires only a shallow pit. Push button control



(5) A Battery of Three Special Stationary Paper Roll Hoists

The three machines shown are used for elevating rolled stock from one floor directly into the presses on the floor above



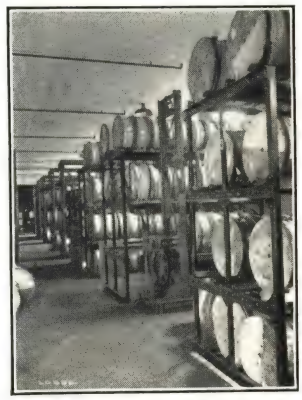
(6) Showing How the Machines at the Left Serve the Presses

The arms of the lifters support the roll, as shown, until the core is inserted—all manual lifting is avoided



(7) Economy Hand Power Lifter and Three-high Barrel Rack

Folding skids attached to base of machine make it easy to roll barrels on to the platform



(8) Economy Reel Racks Served by Hand Power Machine

They give this orderly appearance to the interior of the warehouse of a large eastern electric company

ESTABLISHED 1866

GILLIS & GEOGHEGAN

INCORPORATED

Manufacturers of Telescopic Hoists

542 West Broadway, NEW YORK, N. Y.

TELEPHONE
SPring 7-7800

For Sales Agencies, see Next Page

The responsibility of selecting proper equipment rests with the specification writer. As an aid to the large group of specification writers who have occasion to specify G&G Ash, Garbage and Rubbish Removal Equipment, we publish the four standard conditions and the proper G&G Telescopic Hoist Equipment to do the work. Solutions of the following typical problems were found by using a practical formula which may be obtained upon request. Where there is a special problem involving an unusual combination of conditions, send us full details. Engineering Department can help you.

the G&G ELECTRIC Telescopic Hoist
With Automatic Stop and Gravity Lowering Device

the G&G Telescopic Hoist
with Automatic Gear Shifting Brake Device and Silencer

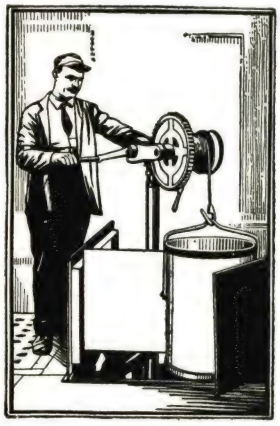
FOUR TYPICAL PROBLEMS OF ASH, GARBAGE AND RUBBISH REMOVAL

PROBLEM No. 1

Small volume of ashes. (about 6 cans daily.)
Short distance of lift. (about 10 feet.)
Hoistway opening against side of building.

SOLUTION

Specify a Model A G&G Telescopic Hoist operated by hand power, or low cost Model E-3 Electric Hoist. Hoisting head revolves on ball bearings and can is deposited on pavement clear of hoisting or spilling. One man can easily perform entire operation. Model A requires pressure of only 12¼ lbs. in raising filled can averaging 175 lbs. at speed of 30 ft. a minute, and lowers empty cans by gravity under control of powerful band brake with brake lining.



Model A

PROBLEM No. 2

Small volume of ashes. (about 6 cans daily.)
Short distance of lift. (about 10 feet.)
Hoistway opening near curb or in driveway.

SOLUTION

Specify a Model B (hand power) G&G Telescopic Hoist or low cost Model D-3 Electric Hoist, both with Overhead Crane. Contents are dumped directly into truck without rehandling cans at grade level. One man can easily perform entire operation. Hoist occupies little space. When not in use no part shows above grade. Model B requires pressure of only 12¼ lbs. in raising filled can averaging 175 lbs. at speed of 30 ft. a minute, and lowers empty cans under control of powerful band brake.



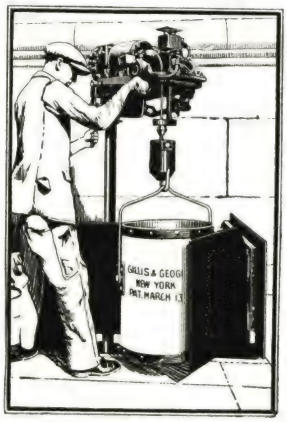
Model B

PROBLEM No. 3

Large volume of ashes. (more than 15 cans daily.)
Deep hoisting area (15 feet or more.)
Hoistway opening against side of building.

SOLUTION

Specify a Model E G&G Telescopic Hoist, electrically operated. This Hoist is built for heavy continuous duty and tests have proven to be astonishingly economical in current consumption. While a large volume of refuse might make it desirable to employ more than one man, Hoist can be practically operated by one man and is therefore a labor saver. Loads up to 500 lb. are raised at a speed of 60 ft. a minute and are lowered by gravity.



Model E

PROBLEM No. 4

Large volume of ashes. (more than 15 cans daily.)
Deep hoisting area (15 feet or more.)
Hoistway opening near curb or in driveway.

SOLUTION

Specify a Model D G&G Telescopic Hoist, electrically operated. This Hoist has the Overhead Crane feature which makes it possible to dump refuse directly into truck without rehandling at grade. The motor is mounted near base of Hoist and two men can easily handle all the work. Loads up to 300 lb. are raised at a speed of 60 ft. a minute. Surprisingly little current is used in operation of this Hoist.



Model D

The Safety and labor-saving features built into these Hoists can be secured only by the installation of complete G&G Equipment (Hoist, Operator's Ladder, Swing Bail Hoisting Cans with Overhead Crane Models B, D and D-3, Fixed Bail Cans with Models A, E and E-3. Checkered Steel or Vault Light Sidewalk Doors, with Spring Guard Gates, Automatic Sidewalk Door Opening and Closing Device, Warning Gong and Can Truck).

Full description, illustrations, scale drawings and specifications on following pages

AGENCIES IN THE UNITED STATES

ALBANY, N. Y., Albany Builders Supply Co., N. Y. C. Ave. and Manning Blvd.
ATLANTA, GA., The Hill R. Huffman Co., P. O. Box 1394
BALTIMORE, MD., Vincent D. Eastwood, Munsey Bldg.
BILLINGS, MONT., Frank W. Richardson, Inc., Hedden Bldg.
BIRMINGHAM, ALA., The C. M. McCrum Co., 2028 Sixth Ave., No.
BOSTON, MASS., Asa C. Deming, 216 Tremont St.
BUFFALO, N. Y., The Jones Iron Works, 136 Efner St.
CHARLOTTE, N. C., Ross Sales Service, 16 So. Poplar St.
CHATTANOOGA, TENN., Stephens Builders Supply Co., 1017 E. 9th St.
CHICAGO, ILL., S. I. Kaufman, 228 No. La Salle St.
CINCINNATI, OHIO, A. W. Frank, 710 Broadway
CLEVELAND, OHIO, The R. L. Queisser Co., 9105 Woodland Ave.
DALLAS, TEX., R. J. Dewees Co., 3015 Grand Ave.
DENVER, COLO., Howard H. Fielding, 1226 California St.
DES MOINES, IOWA, Preston Daniels, Hubbell Bldg.
DETROIT, MICH., Kennedy & Dawson, 2111 Woodward Ave.
FORT WAYNE, IND., C. L. Schust Roofing Co., Taylor and Lake Erie Ry.
HUNTINGTON, W. VA., J. J. Weiler & Sons, 202-220 Elm St.
INDIANAPOLIS, IND., Hoover Brothers, 1008 Majestic Bldg.
KANSAS CITY, MO., Robert O. Smith, 2035 E. 19th St.
KNOXVILLE, TENN., C. M. Allen Co., Inc., 712 So. Gay St.
LOS ANGELES, CAL., Frank R. Peck Company, 1007 So. Grand Ave.
LOUISVILLE, KY., R. B. Tyler Company, 1446 Levering St.
MEMPHIS, TENN., Akers & Company, 248 Madison Ave.
MIAMI, FLA., O. D. Brinson, P. O. Box 974
MILWAUKEE, WIS., Ph. Gross Hardware & Supply Co., 218 Third St.
MINNEAPOLIS, MINN., Morgan-Gerrish Co., 800 La Salle Ave.
NASHVILLE, TENN., E. T. Kirkpatrick & Co., 63 Arcade Bldg.
NEW HAVEN, CONN., Warner-Miller Co., R. R. Ave. and St. John St.
NORFOLK, VA., J. S. Jones, 255 Arcade Bldg.
OMAHA, NEB., F. H. Turney & Co., 1914 Vinton St.
PHILADELPHIA, PA., Culbert-Whitby Co., 2019 Rittenhouse St.
PITTSBURGH, PA., J. R. Pitcairn, 132 7th St.
RICHMOND, VA., J. S. Archer, Davis Bldg.
ROANOKE, VA., Roanoke Engineering Sales Co., 507 Commerce St.
ROCHESTER, N. Y., Building Specialties Co., Inc., 52 Brown's Race
ST. LOUIS, MO., Hunkins-Willis Lime & Cement Co., Louderman Bldg.
SALT LAKE CITY, UTAH, Hawley-Richardson-Williams Co., Dooly Bldg.
SAN FRANCISCO, CAL., Vincent Whitney Co., 365 Market St.
SAVANNAH, GA., Charles M. MacLean & Co., 20 E. Bay St.
SEATTLE, WASH., F. T. Crowe & Co., 216 Walker Bldg.
SHREVEPORT, LA., Welsh Building Specialties Co., 310 Ricou-Brewster Bldg.
SYRACUSE, N. Y., H. L. Waterman, Inc., 1407 Erie Blvd., East
TAMPA, FLA., Stovall & Archer, 1009 Peninsular Telephone Bldg.
TOPEKA, KAN., Capital Iron Works Company, 7th and Holiday Sts.
UTICA, N. Y., American Hard Wall Plaster Co.
WICHITA, KAN., The Lusco Brick & Stone Co., 201 W. Douglas St.
WILKES-BARRE, PA., Robert M. Miller, 400 Coal Exchange Bldg.

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Note: It is recommended that *complete* G&G equipment be installed as a unit; but, if desired, any part or parts thereof can be furnished separately.

Where sidewalk opening is so located that building wall does not afford protection when doors are opened, an additional set of spring guard gates can be installed to completely safeguard hoistway (Figs. 16 and 18).

TELESCOPIC HOISTS

The rugged construction of all G&G Telescopic Hoists assures many years of continuous, dependable service. Each part is designed and built to withstand the rough usage commonly given such apparatus. Many of these Hoists have been in continuous use for 20 to 25 years and more. For instance, in 1889 we installed two Model A Telescopic Hoists in the old Madison Square Garden building, New York. These were constantly in use until this building was demolished in 1925, with a record of 37 years of dependable, efficient service.

Special Models

Special hoists other than our standard models can be designed and built to meet unusual and difficult conditions. See G&G pages 6 and 7.

Uses

G&G telescopic hoists with complete equipment are designed for lifting and lowering loads up to 500 lb. in industrial plants, and for ash, garbage and rubbish removal in office buildings, schools, hospitals, churches, factories, etc. G&G hoist equipment complies with all municipal ordinances. It has the approval of insurance and public building inspectors everywhere and often eliminates violations placed on grade openings. Can be operated in coldest weather, as no parts are susceptible to freezing.



Fig. 1. Model E Hoist (Electric) at Julia Richman High School, New York

Wm. H. Gompert, Municipal Architect

G&G Sidewalk Doors, equipped with Automatic Door Opening and Closing Device. Spring Guard Gate automatically protects the hoistway on all sides

Boiler Room to Grade Level, Electric, Model E Telescopic Hoist

The G&G Model E telescopic heavy duty hoist with complete equipment affords a simple, safe and economical method for hoisting and lowering between cellar and sidewalk or between floors, such loads as ashes, rubbish, bags, bales, barrels, crates, coal, garbage, ice, etc. Fig. 1 shows hoist equipment as installed for ash removal. When not in use no part of hoist shows above sidewalk. A few turns of telescoping handle raises hoisting head to proper position over hoistway (Fig. 6). Operator then ascends to sidewalk level by the iron ladder, and proceeds to raise the cans. Hoisting head revolves on ball bearings; depositing can, without lifting, on sidewalk. *Cans are lowered very rapidly by gravity,* thus saving electric current. Electric control lever has three positions. At one extreme, load is raised by electric power; at the other extreme, load is lowered by gravity; and in center position, load is brought to an instant stop.

Advantages—Hoist raises 500-lb. load electrically *worm driven* at speed of 60 ft. per minute, and lowers rapidly by gravity. Hoist equipment is compact and very easy to erect. We furnish all necessary clamps and bolts, and blue print showing, in detail, how to erect.

G&G sidewalk doors with guard gates make open hoistway absolutely safe for operator and pedestrians.

Construction—The strongest and most durable materials are used. Hoisting head is cast steel. Steel cable is nonrotating. All gears are machine cut. Every hoist is subjected to thorough working test before shipment, and is given factory coat of paint.

Motor—Hoist has a 1½ hp. alternating or direct current motor with magnetic brake, automatic stop and gravity lowering device, automatic upper limit and single speed controller. Current consumed only when hoisting. Motor is dustproof and moisture proof. Gears run in grease in grease-tight housing. Master worm gear is of best grade phosphor bronze.

Factor of Safety—No part has a factor of safety of less than 8, based on the maximum rated capacity shown on name plate.

Prices—Are based on (*a*) the size of sidewalk doors required; (*b*) whether checkered steel or vault light leaves; (*c*) location of doors with regard to building wall, see Figs. 7 and 12; (*d*) distance between boiler room floor and grade level; (*e*) kind of electric current available at building.

How to Specify—See G&G page 8.

Size of Area—We strongly recommend that area opening be made 4x4 ft. for all models. This gives the operator room enough to work. If necessary, a smaller or larger area may be provided, but it is not as practical.

G&G Automatic Sidewalk Door Opening, Closing and Locking Device with Safety Spring Guard Gates

This device is illustrated in connection with Model E hoist, but it may also be used in connection with Models A, B, C, D, D-3 and E-3. Device operates automatically when telescoping handle of hoist is revolved. Sidewalk doors open and close as hoisting head is raised or lowered. A counterweight is provided so that telescoping works smoothly and easily. A weatherproof warning bell is provided to operate while doors are opening and closing. An important feature is the *self-locking doors, whether open or closed.*

The spring guard gates automatically close up the opening, at the sidewalk level, between the wide-opened sidewalk doors. The gates *cannot be swung inward; swing outward only,* to permit passage of ash can, thus protecting pedestrians and the operator.

G&G swing bail cans and G&G fixed bail cans enable operator to hook cans from the grade.

Steel sidewalk doors, entire surface checkered or with vault lights, close flush with sidewalk. Equipped with flush bronze hinges, and wrought steel frame with extra deep gutter (see Fig. 7).

Automatic door opening, closing and locking device and sidewalk doors, with automatic spring guard gates, shipped with hoist to any part of the world. Blue print is furnished showing how to erect.

We subject each hoist, door opening, closing and locking device with spring guard gates, and sidewalk doors to a thorough working test before shipment. For this reason, and also because it makes for ease of installation at the building, *this Company prefers to furnish its own sidewalk doors with each hoist and opening and closing device.* (See Fig. 7.)

Prices—Are based on (*a*) the size of sidewalk doors required; (*b*) whether checkered steel or vault light leaves; (*c*) location of doors with regard to building wall (see Figs. 5 and 12); (*d*) distance between boiler room floor and grade level; (*e*) kind of electric current available at building.

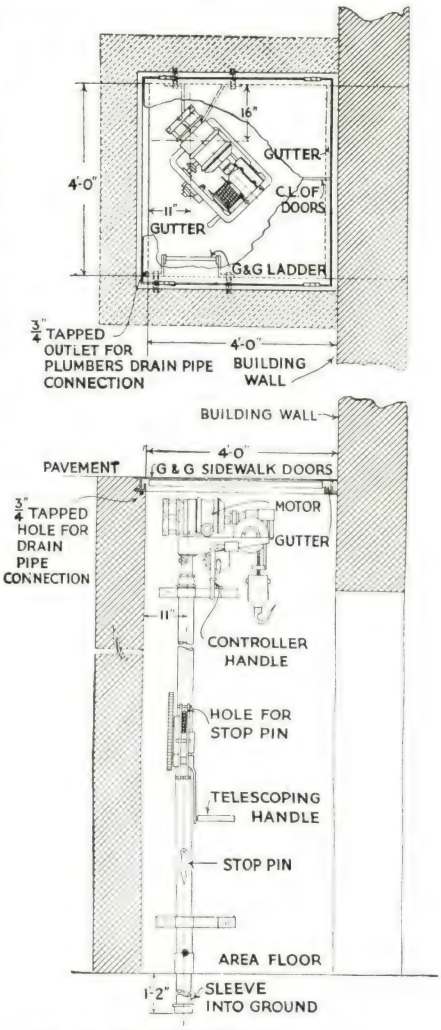


Fig. 5. Model E G&G Telescopic Hoist

Plan and elevation in standard 4x4-ft. area (large enough for all models). Scale, ¼ in. = 1 ft. Copy this on your tracing

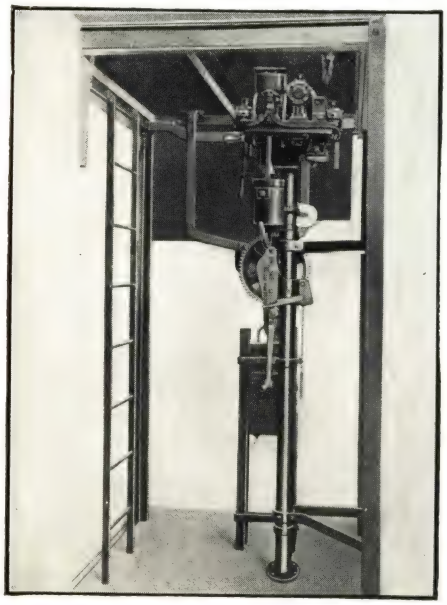


Fig. 2. Model E Hoist (Electric) When Not in Use

Hoist telescopes, and no part shows above street level. Sidewalk doors close down flush with pavement, and lock automatically. When hoisting head is raised, sidewalk doors open and lock into position automatically



Fig. 3. Model E Hoisting Head

Close up view of latest design hoisting head of Model E Hoist showing lever in hoisting position. Operator pulls lever to raise load electrically and pushes lever to lower load by gravity

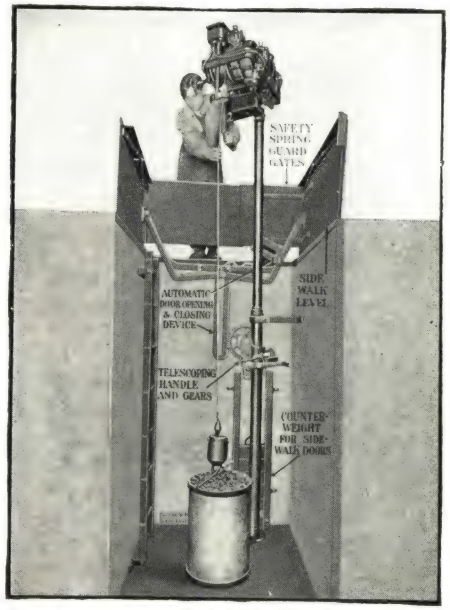
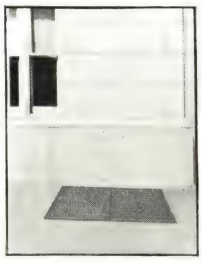
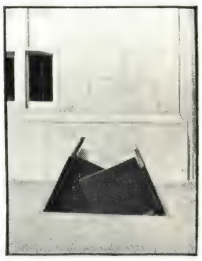


Fig. 4. Model E Hoist (Electric) "Fishing" for Can

After placing fixed bail cans in area, operator ascends ladder and completes removal electrically from grade. The non-rotating cable with weighted hook enables him to raise filled can without leaving sidewalk



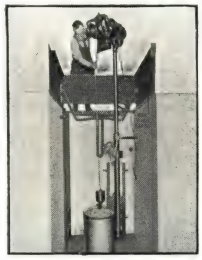
View with Watertight Doors Closed; the Doors and Hinges Are Flush with Sidewalk



As Hoisting Head is Raised, Sidewalk Doors Automatically Open; Alarm Bell Rings



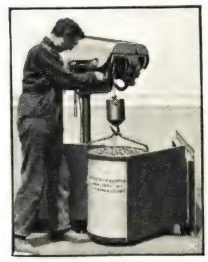
Hooking a G&G Standard Hoisting Can with Swing Bail After Operator Ascends Ladder



Hooking a G&G Standard Hoisting Can with Swing Bail (View from cellar level)



Raising Filled Can Without It Being Necessary for the Operator to Leave the Sidewalk



Swinging Hoisting Head (on ball bearings) to Deposit Can on Sidewalk. Can Pushes Gate Open



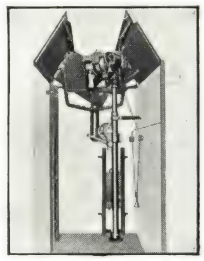
Can Deposited on Sidewalk without Lifting. Gate Automatically Closes



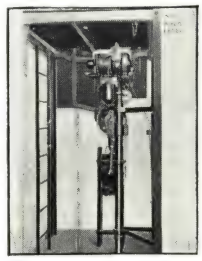
Two Filled Cans Raised without Leaving Sidewalk



Lowering Empty Cans Quickly by Gravity. This Saves Much Current



As Hoisting Head Is Lowered, Doors Automatically Close; Bell Rings



Hoist in Area, Compact, Out of the Way, Doors Locked Automatically



Exterior View of Closed and Automatically Locked Sidewalk Doors

Fig. 6. Operating Model E (Electric) G&G Telescoping Hoist in Connection with G&G Automatic Sidewalk Door Opening, Closing and Locking Device with Safety Spring Guard Gates at 145 West 55th Street, New York

FRED T. LEY & Co., Architects and Engineers

A complete ash removal equipment. Note that one man, unaided, performs entire operation. Watertight sidewalk doors are self-locking whether open or closed and cannot be tampered with at grade level

G&G Flush Watertight Sidewalk Doors

G&G sidewalk doors are much superior to ordinary ones. They are watertight, have a condensation gutter, tapped for plumber's drain pipe connection, assuring a perfectly dry area. Corners are welded.

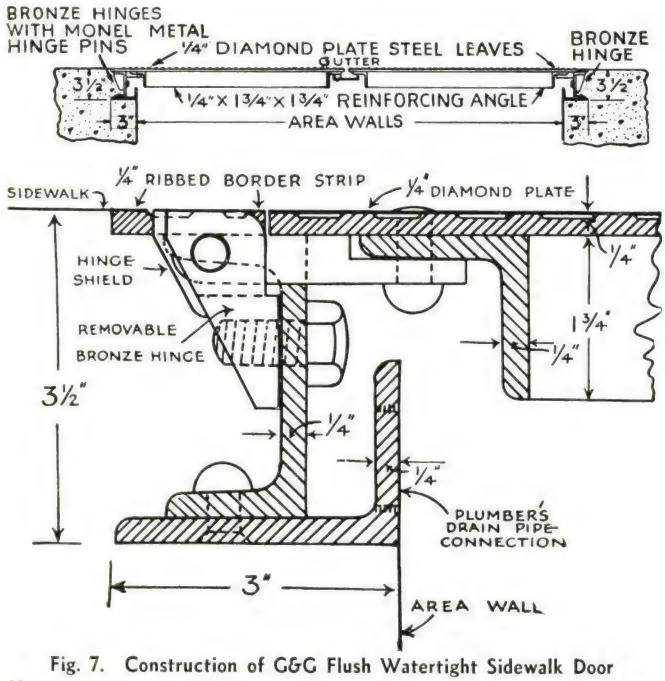


Fig. 7. Construction of G&G Flush Watertight Sidewalk Door

Note special concealed bronze hinges which can be removed without breaking concrete work. Specifications on G&G pages 7 and 8

Extra Heavy Doors

Our standard sidewalk door is designed to sustain a live load of 300 lbs. per sq. ft. If there is any danger of the ash wagon or heavily loaded motor trucks running over the door, we recommend that the architect specify our extra heavy flush watertight sidewalk door. This door is designed to be installed in driveway or alley. Note special flush bronze hinges in Fig. 9.

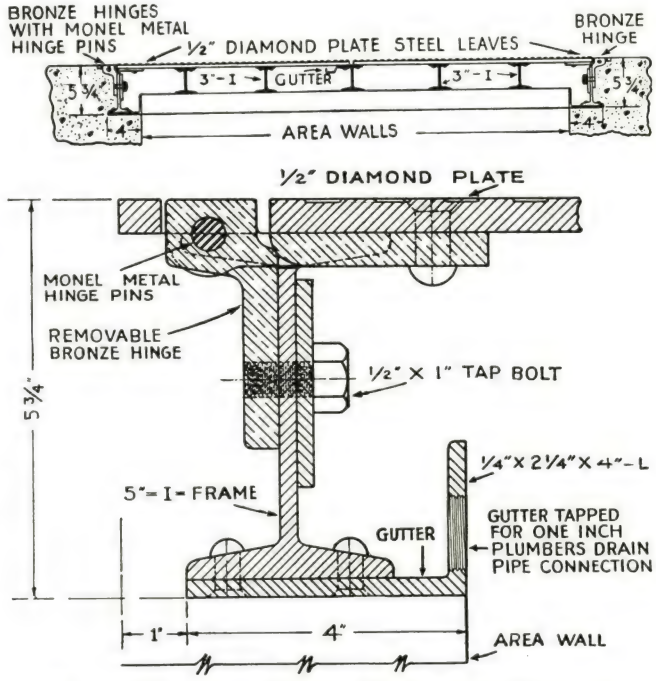


Fig. 8. Extra Heavy G&G Flush Watertight Sidewalk Doors

Note special concealed bronze hinges with monel metal hinge pins, which can be removed without breaking concrete work. Specifications on G&G page 8.

Converting Hand Power Hoists to Electric Power

On alterations, additions to existing structures, etc., where the heating plant is enlarged, the volume of ashes, as well as rubbish and garbage, frequently increases to the point where a hand power hoist, if one is already installed, should be changed over to electric operation. This can readily be done at reasonable cost. We will either make an allowance on the old hoist and install a new hoist, or convert the old hoist to operate electrically in existing area.

When writing, furnish us with G&G Serial Number on name plate.

Boiler Room to Grade Level, Electric, Model E-3 Telescopic Hoist

The G&G Model E-3 Electric Telescopic Hoist with complete equipment is designed for use where a hoist of lighter duty and less capacity than our standard heavy duty Model E is required. There are many instances where volume of refuse to be removed is sufficiently small to be normally handled by hand power equipment. The Model E-3 with automatic sidewalk doors and other desirable equipment costs but little more than a good hand power hoist completely equipped, yet offers all the convenience of electric operation.

The Model E-3 is similar in many respects to our standard heavy duty Model E. It will raise and lower maximum load of 300 lbs., at a speed of 65 ft. per minute. It is durably constructed and will render excellent service under operating conditions for which it is intended.

The motor is of 1½ hp., totally enclosed, with magnetic brake of General Electric Co. manufacture, alternating or direct current, with automatic upper limit and single speed controller.

Write for complete mechanical details and information as to how to specify.

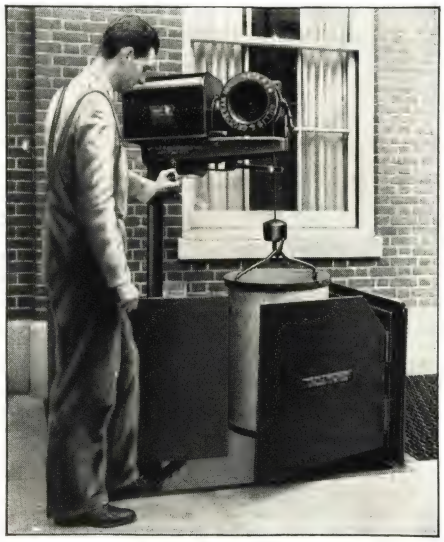


Fig. 9. Model E-3 Hoist (Electric) at Fulton Trust Co., New York
Cross & Cross, Architects
Clyde R. Place, Consulting Engineer

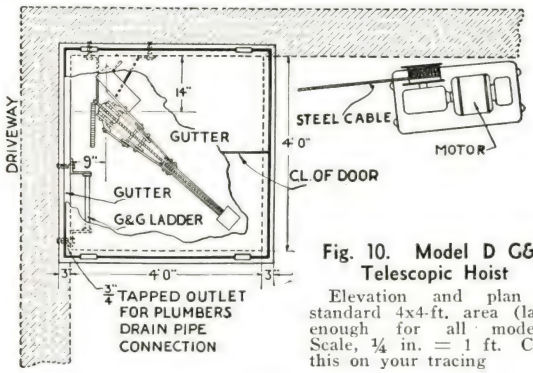
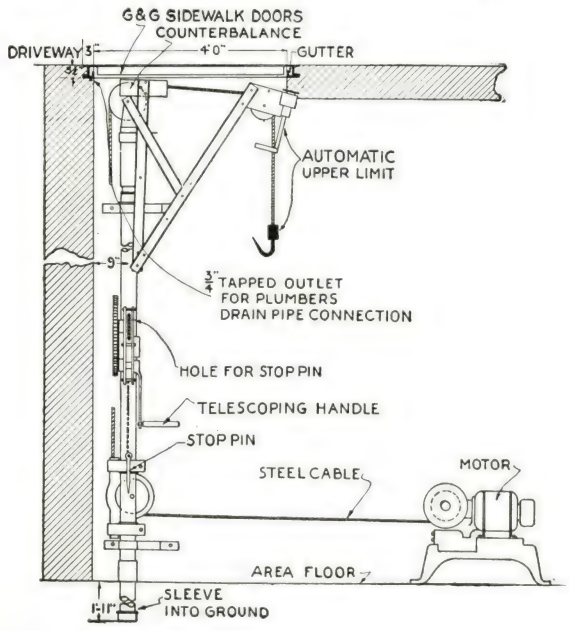


Fig. 10. Model D G&G Telescopic Hoist
Elevation and plan in standard 4x4-ft. area (large enough for all models). Scale, ¼ in. = 1 ft. Copy this on your tracing



Boiler Room to Truck Height, Electric, Model D Telescopic Hoist

Standard heavy duty G&G telescopic overhead crane hoist, Model D, with complete equipment, operates electrically (Fig. 11), and is for use in large buildings where the grade level approach permits trucks to drive up alongside of the hoistway leading to boiler room. When not in use, no part of hoist shows above sidewalk.

Raises maximum loads of 300 lbs. at an actual speed of 60 ft. per minute. The can illustrated in Fig. 11, weighs about 175 lbs. when filled with ashes. This model can also be constructed for maximum working capacity of 500 lbs.

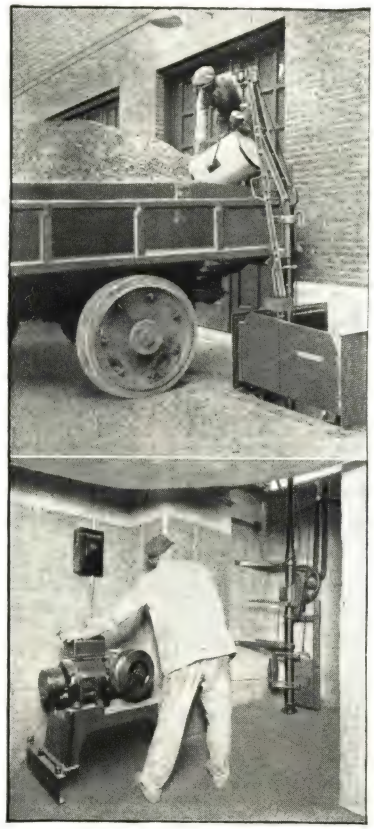


Fig. 11. G&G Model D Overhead Crane Electrically Operated Telescopic Hoist, Installed at R. H. Macy & Co.'s Garage, Long Island City, N. Y.
(One of five G&G Hoists used by them)
Robert D. Kohn, Architect, New York

Motor-Hoist has a 1½ hp. series wound for direct current, squirrel cage for alternating current motor with magnetic service brake, automatic upper limit and single speed controller, giving one hoisting and one lowering speed. Cable is non-rotating. Motor is dustproof and moistureproof. Has Alemite high pressure lubrication with grease cups and special grease gun furnished. Hoist is arranged so operator may raise ash can from cellar into position 6 or 7 ft. above grade and empty can directly into wagon or truck without rehandling at grade level. Because of great saving in time and labor effected by overhead crane types, architects should plan, if possible, for opening in sidewalk to be near curb or driveway, to permit the use of this type of hoist. (See also Model B, Fig. 16.)

Ash Cans—G&G standard 17x24-in. hoisting cans with swing bail may be emptied without unhooking. This cannot be done with ordinary cans.

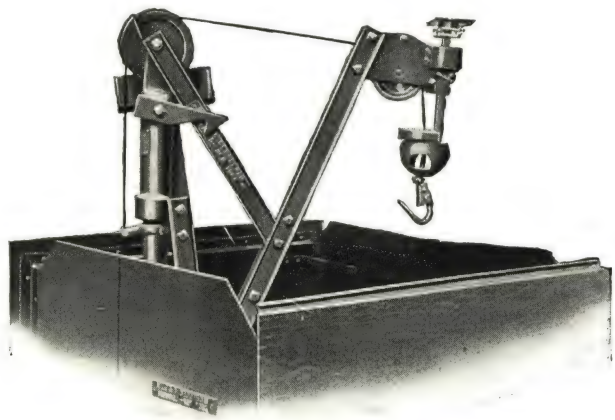


Fig. 12. Close-up View of Model D Overhead Crane—Latest Design
A pull on counterweighted lever raises crane to hoisting position. Note positive automatic upper limit
See Model D description above.

Prices—Are based on (*a*) the size of sidewalk doors required; (*b*) whether checkered steel or vault light leaves; (*c*) location of doors with regard to building wall (see Figs. 11 and 12); (*d*) distance between boiler room floor and grade level; (*e*) kind of electric current available at building.

How to Specify—See G&G page 8.

Boiler Room to Truck Height, Electric Model D-3 Telescopic Hoist

The G&G Model D-3 Electric Hoist with Overhead Crane (see Fig. 13) is designed for use where a hoist of lighter duty and capacity than our standard heavy duty Model D is required. Where the volumes of ashes, garbage and rubbish to be removed is sufficiently small to be normally handled by hand power equipment, the Model D-3 with automatic doors and other desirable equipment costs but little more.

The Model D-3 is similar in many respects to our standard heavy duty Model D. However, the motor is mounted at the top of standpipe. This hoist, therefore, permits one man to perform the entire work of removing refuse. The overhead crane makes possible the dumping of refuse directly into truck without rehandling at grade level.

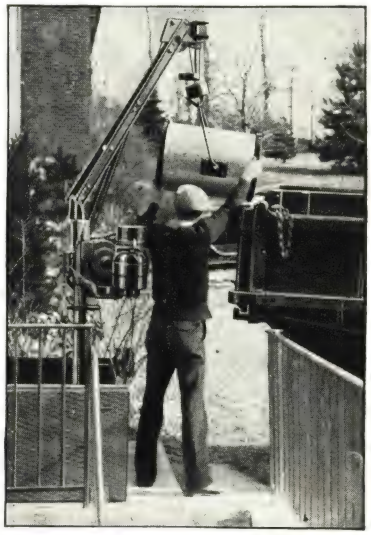


Fig. 13. G&G Model D-3 Overhead Crane Electrically Operated Hoist at Scarsdale High School, Scarsdale, N. Y.
ROSSITER & MULLER, Architects, New York

The Model D-3 will raise and lower maximum load of 300 lbs. at a speed of 65 ft. per minute. It is durably constructed and will render excellent service under operating conditions for which it is intended.

The motor is 1½ hp., totally enclosed with magnetic brake of General Electric Company manufacture, alternating or direct current, with automatic upper limit and single speed controller.

Write for complete mechanical details and also information as to how to specify.

Tests That Prove Operating Economy of G&G Electric Hoists

In order to substantiate claims that G&G electric hoists use only a negligible amount of current in their operation, a number of tests have been made for GILLIS & GEOHEGAN by engineers of the Sprague Electric Works of the General Electric Company. The results of these tests show conclusively that in every instance the G&G electric hoist consumes so little current that it offers the most economical means available for removing ashes electrically.

A Model D Hoist at Mergenthaler Linotype Co., Brooklyn, N. Y., raised 26 filled cans and lowered them empty for 1¢ current consumption. Distance from grade to boiler room is 12 ft. Raising time between cellar and top of truck averaged 14.6 seconds. Lowering time averaged 13.8 seconds. 78 cans were raised and lowered in 1 kw-h. Current costs operator 3¢ per kw-h.

A Model E (spur drive) Hoist at Hotel Grand, New York, N. Y., raised 21 filled cans and lowered them empty for 1¢ current consumption. Distance from grade to boiler room is 21 ft. 10 in. Raising time averaged 11⅜ seconds. Lowering time averaged 17¾ seconds. 108 cans raised and lowered in 1 kw-h. Current costs operator 5¢ per kw-h. This same hoist, after being in use three years, raised 3500 cans of ashes in one continuous operation (accumulation after a heavy snowstorm) without slightest mechanical failure.

At Hotel Navarre, New York City, a Model E (spur drive) Hoist raised total of 45 filled cans and lowered them empty for 1¢ current cost. Distance from grade to boiler room 9 ft. Raising time averaged 6.6 seconds. Lowering time averaged 6.9 seconds; 227 cans raised and lowered in 1 kw-h. Current costs operator 5¢ per kw-h.

15.5 Net Tons Handled for $0.348—At the main Brooklyn, N. Y., building of the New York Telephone Company, a Model E (worm drive) Hoist raised a total of 85 filled cans and lowered empty for 1¢ current consumption. Distance from grade to boiler room is 16 ft. 8 in.; the average raising time was 12.33 seconds, and average lowering time was at the rate of about 200 ft. a minute by gravity. 296 cans were raised and lowered in 1 kw-h. The Bell Telephone System operates 209 G&G hoists in its buildings throughout the country.

Variation in consumption costs is due to difference in distance of life and current rates, also gravity lowering device on worm drive Model E. Complete details of foregoing and other tests gladly furnished on request.

Exclusive Features of G&G Hoists

The automatic silencer; the automatic steady pin; hoisting head so arranged that it is impossible for the operator to accidentally detach the hoisting head from the standpipe; ball bearings with plates under the hoisting head; hoisting and telescoping handles provided with sliding grips; special woven brake band lining; gears keyed into position; all gears machine cut, pinion gears cut from bar steel; hoisting head, hoisting handle, telescoping handle, silencer, ash can grapple, gear shifting and brake lever of cast steel; ratchet pawl and hoisting hook of drop forged steel, a special steel non-rotating cable.

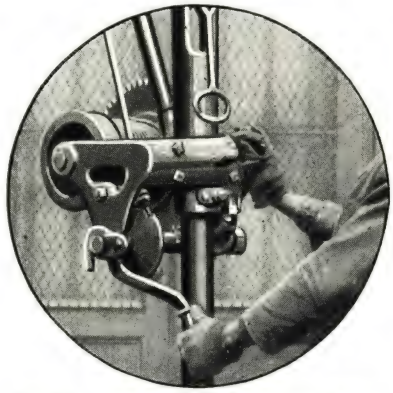


Fig. 14. Automatic Gear Shifting Brake Device in Operation, Model B Hoist

A single movement of the brake lever automatically shifts gears and applies brake so that load is lowered by gravity. Hoisting handle does not revolve.

Applies to both Model A and Model B. G&G hand power Telescopic Hoists have certain exclusive and patented features, description of which will be found below

Boiler Room to Truck Height, Hand Power Model B Telescopic Hoist

Illustration (Fig. 14) shows how this hoist is arranged so that operator, standing at grade level, may raise ash can from cellar to position 6 or 7 ft. above grade, and empty can directly into wagon or truck without rehandling at grade level. Because of the great saving in time and labor effected by

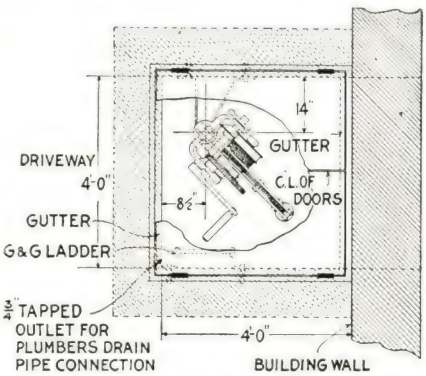
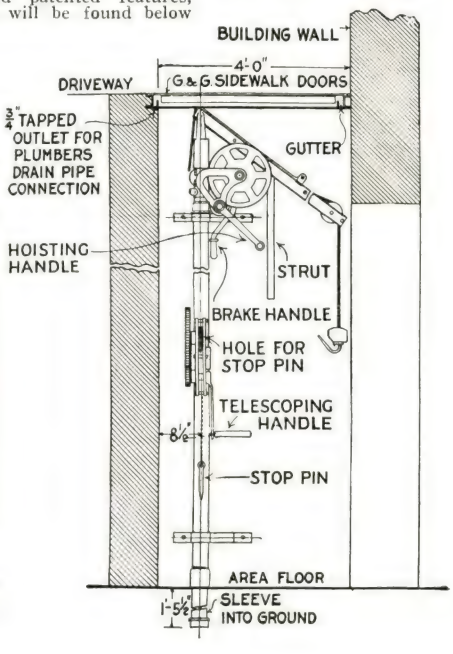


Fig. 15. Model B G&G Telescopic Hoist

Plan and elevation in standard 4x4-ft. area (large enough for all models).

Scale, ¼ in. = 1 ft. Copy this on your tracing



the overhead crane model, architects should plan, if possible, for opening in sidewalk to be near curb or driveway so as to permit the use of this type of hoist. See also Model D, Fig. 11.

Advantages—Hoist is equipped with automatic gear shifting brake device and silencer (Fig. 14), and is so designed that it is practicable for one to perform entire operation when complete equipment, including G&G swing bail cans, is used.

Raises maximum load of 300 lbs. at speed of 30 ft. per minute. This model can also be constructed for maximum working capacity of 500 lbs.

Factor of Safety—No part has a factor of safety of less than 8, based on maximum rated capacity shown on name plate.

Ash Cans—G&G standard 17x24-in. hoisting cans with swing bail empty the ashes into the truck without unhooking. This can not be done with ordinary cans.



Fig. 16. Installation of Model B at Columbus Savings Bank, Columbus, Ohio

FRANK L. PACKARD, ARCHITECT

Model B raises the can high enough so that the ashes may be dumped directly into a truck. When the opening is alongside of the curb, a double set of spring guard gates is used to give protection on all four sides.

See also Fig. 18

Prices—Are based on (*a*) the size of sidewalk doors required; (*b*) whether checkered steel or vault light leaves; (*c*) location of doors with regard to building wall (see Figs. 11 and 16); (*d*) distance between boiler room floor and grade level.

How to Specify—See G&G page 8.

Boiler Room to Grade Level, Hand Power, Model A Telescopic Hoist

G&G telescopic hoist Model A with complete equipment is illustrated at right (Fig. 18).

It is installed in buildings where it is desired to use hand power for raising and lowering loads, and where sidewalk opening is so situated that trucks can not drive alongside.

Advantages—One man, unaided, can operate the hoist. Loads up to 500 lbs. are easily raised at a speed of 30 ft. per minute.

A pressure of only 7 lbs. for each 100 lbs. of load is required on hoisting handle to raise filled cans. Hoist is equipped with automatic gear shifting brake device. For lowering, a powerful band brake is provided. The load is always under perfect control. A single movement of brake lever shifts gears and applies brake, so that *load is lowered with no movement of hoisting handle.* This prevents possible injury to the operator.



Fig. 18. G&G Hand Power Telescopic Hoist, Model A, as Installed for F. W. Woolworth & Co., 12th and F Streets, Washington, D. C.

B. S. TOWNSEND, Architect

When the building wall does not form one protecting side, a double set of spring guard gates is used. (See Fig. 16)

The cable drum is the only part that moves in lowering. The patented "Silencer" makes hoist extremely quiet in operation.

Prices—Are based on (*a*) the size of sidewalk doors required; (*b*) whether checkered steel or vault light leaves; (*c*) location of doors with regard to building wall (see Figs. 11 and 16); (*d*) distance between boiler room floor and grade level.

How to Specify—See G&G page 8.

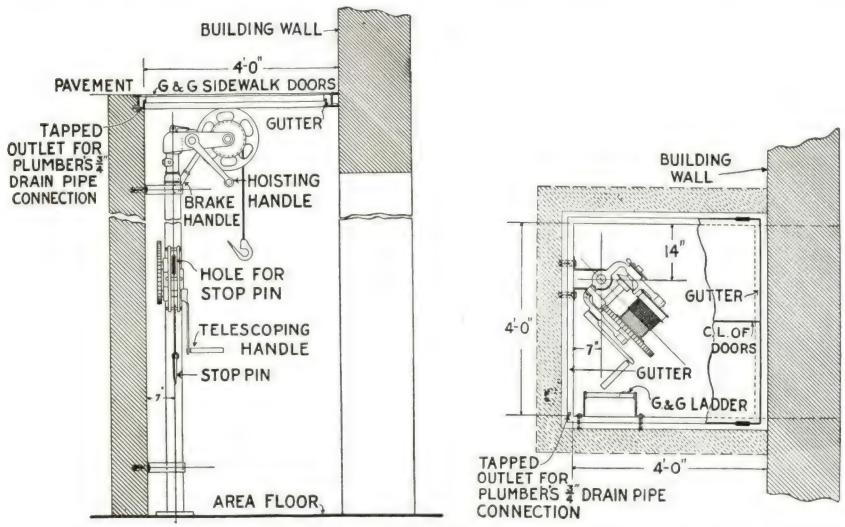


Fig. 17. Model A G&G Telescopic Hoist

Plan and elevation in standard 4x4-ft. area (large enough for all models) Scale, ¼ in. = 1 ft. Copy this on your tracing

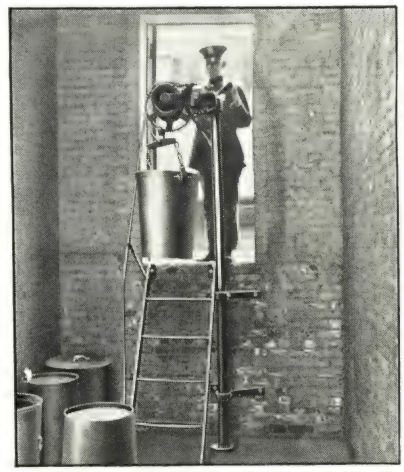


Fig. 19. G&G Model A Non-telescopic Hoist at 91st Precinct Police Station, Brooklyn, N. Y.

Hoist can be installed on inside of building so as to swing cans through a doorway

Special Models for Unusual Conditions

The standard G&G Telescopic Hoists will meet the requirements of the majority of buildings.

On alteration jobs and on some new buildings there are at times unusual and difficult conditions to be overcome. In such cases, we are prepared to work with architect and to design and construct special hoists.

All models can be furnished without telescopic feature, and standpipe can be mounted either in usual position in area or at grade alongside opening.

For buildings previously erected without usual outside area, we recommend Model A Hand Power Non-telescopic Hoist, or Model E Electric Non-telescopic Hoist, to be mounted on inside of building and arranged to swing cans through doorway (see Fig. 23). By using G&G Fixed Bail cans, one man can "fish" for and raise as many as can be placed about base of hoist.

In buildings where a doorway is not available the G&G Basement Window Hoist can be installed so as to swing cans through a window (see Fig. 20).

G&G Telescopic Hoists are also used for handling various loads, such as barrels, bales, boxes, crates, trunks, etc., between floors, and can be furnished in capacities up to 1000 lbs., according to the requirements and type of hoist used.

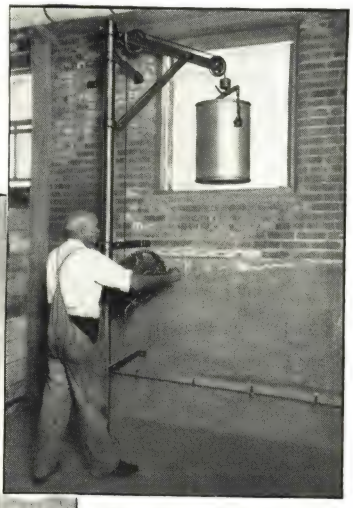


Fig. 20. G&G Basement Window Hoist as Installed in P.S. No. 9, Allwood, N. J.

This model requires one man in the basement and one man at grade level. See Figs. 18 and 21 for one-man Hoists

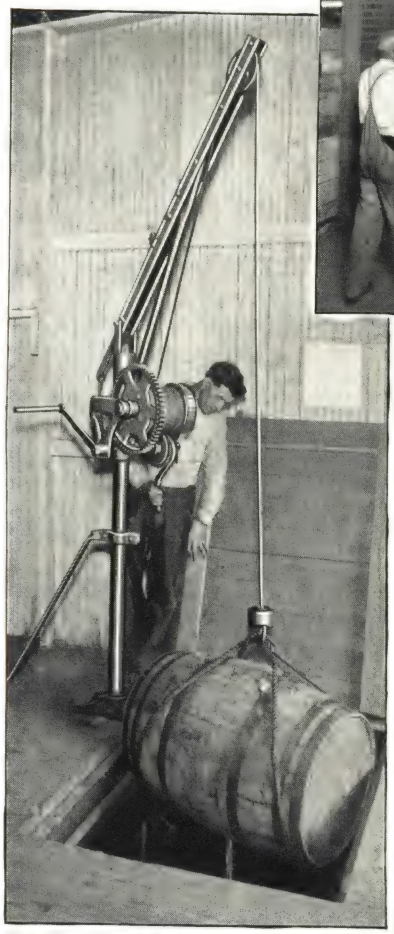


Fig. 21. Model B Non-telescopic Hoist as Installed at Great Western Paper Box Co., St. Louis, Mo.

Barrels, loaded floor trucks, etc., are raised and lowered between floors

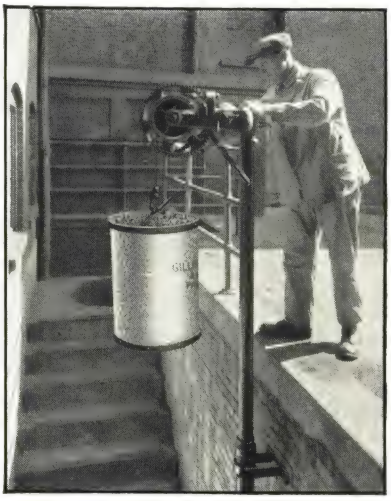


Fig. 22. Model A Non-telescopic Hoist at P.S. No. 15, Jersey City, N. J.

Installed in open area, hoist will withstand weather conditions if gears and cable are kept well greased

Our Engineers will be glad to co-operate with architect in solution of all special hoist problems, and we will furnish, where necessary and desired, special hooks, slings, grapples, etc.

It will facilitate matters, if when writing, you will inform us as to the following: (1) For what purpose would you like to use G&G Hoist? (2) Maximum weight of load? (3) Distance of lift? (4) Number of lifts daily? (5) To be installed inside or outside of building? (6) A sketch of conditions will help us to help you.

G&G Improved Hoisting Cans with Swing Bail or Fixed Bail

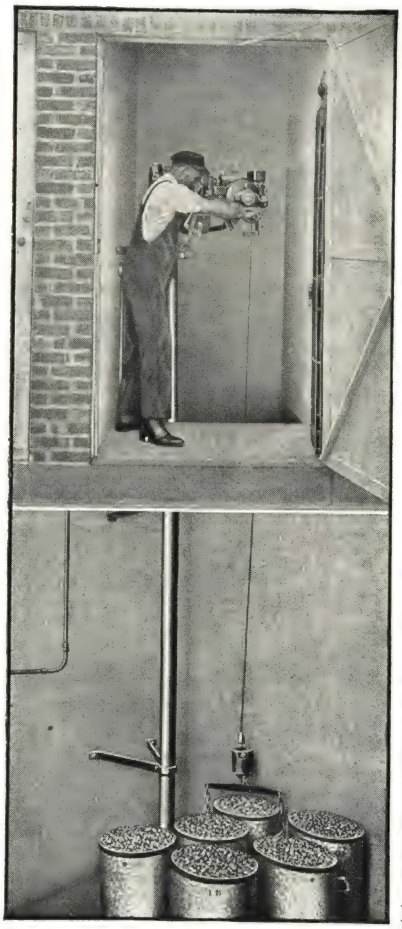


Fig. 23. Model E Non-telescopic Electric Hoist at P.S. No. 70, Borough of Queens, N. Y.

This electric model is used where there is a large quantity of ashes, or where boiler room is unusually deep, or both. Solves the problem where the usual sidewalk doors, if located in an alley, would block traffic

These ash cans are manufactured in GILLIS & GEOGHEGAN'S factory, especially for use with their hoists; are constructed throughout of No. 16 gauge galvanized iron, reinforced at top and bottom with ¼x1¼-in. steel bands. The thickness and weight of the No. 16 gauge iron (very much heavier than the material ordinarily used in making ash cans) makes for great strength and durability.

This company recommends the use of the G&G standard 17x24-in. hoisting can *with swing bail* in all cases with Model B hoist and Model D hoist.

The swing bail can is "balanced"; that is, the can may be easily emptied and will not spill the ashes when being raised. The swing bail is so arranged that it will not drag on the floor when can is being handled in the cellar, and will "stay put" when raised above can.

With Model A and E hoists use our fixed bail cans so that only one man will be required to remove ashes.

The fixed bail can in Fig. 25 is built for gruelling service. Like the swing bail can it will withstand rough treatment and outlast several ordinary ashcans.

Prices—Furnished on request.

Patents Issued

UNITED STATES

April 30, 1912	February 1, 1916	April 24, 1923
May 19, 1914	March 7, 1916	January 6, 1925
June 23, 1914	March 28, 1916	January 6, 1925
June 30, 1914 Reissued October 19, 1915	March 13, 1917	February 3, 1925
	October 8, 1918	February 9, 1925
August 17, 1915	March 9, 1920	February 17, 1925
December 7, 1915	March 9, 1921	October 27, 1925
December 7, 1915	March 9, 1922	November 10, 1925
	September 19, 1922	February 9, 1926

DOMINION OF CANADA

April 19, 1912	May 9, 1916	May 30, 1922
May 14, 1912	July 25, 1916	November 28, 1922
December 9, 1913	September 5, 1916	April 24, 1923
April 7, 1914 Reissued November 14, 1916	October 10, 1916	January 12, 1925
	November 21, 1916	April 14, 1925
	June 1, 1920	April 14, 1925
April 27, 1915	August 31, 1920	June 30, 1925
June 22, 1915	March 9, 1922	July 7, 1925
August 3, 1915	May 30, 1922	March 2, 1926

Other patents pending. Also patented in foreign countries.



Fig. 24

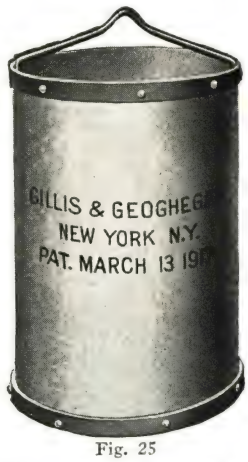


Fig. 25

G&G Standard No. 16 Gauge Galvanized Iron, 17x24-in. Hoisting Cans for Garbage, Ashes and Rubbish

Fig. 24, with *Swing* Bail, Recommended for use with Models B, D and D-3
Fig. 25, with *Fixed* Bail, Recommended for Use with Models A, C, E and E-3

How to Specify Complete G&G Hoist Equipment

Note:—Provide 4x4 ft. area to use standard size equipment. See ¼-in. scaled plan Model E, Fig. 5; Model D, Fig. 10; Model B, Fig. 15; Model A, Fig. 16. For data on how to specify this equipment without using manufacturer's name, see G&G Catalogue filed under A.I.A. Standard Class No. 30i1, or Hoist, G&G Telescopic. Refer also to our formula on filing folder to determine the model best suited to conditions.

Boiler Room to Grade Level, Electric, Model E Heavy Duty Telescopic Hoist

(1) Furnish and install where indicated on plans and in accordance with the manufacturer's drawings and instructions, one G&G Telescopic Hoist (with electric motor) Model E with Automatic Stop and Gravity Lowering Device.

(2) Include the following G&G equipment with the hoist, and set the same in the proper manner, all as shown on the manufacturer's drawings:

*Flush watertight sidewalk doors [checkered steel type] [vault light type] with condensation gutter tapped for plumber's drain pipe connection.
Automatic sidewalk door opening, closing and locking device.
Automatic safety spring guard gates.
Electric warning gong.
12 standard 17x24-in. No. 16-gauge fixed bail ash cans.
Rubber-tired ash can truck.
Heavy iron ladder.

(3) Leave the hoist completely and thoroughly installed, to the satisfaction of the architect.

(4) Above equipment to receive factory coat of paint before shipment and finishing coat of paint after erection.

(5) The necessary wiring and cut-out switch between the switchboard and service lugs on the motor are to be furnished and installed by the electrical contractor at the building.

(6) Before above apparatus is manufactured, this contractor is to submit to the architect for his approval, details and specifications of above equipment together with manufacturer's guarantee for 1 year against defective materials and workmanship.

Boiler Room to Grade Level, Electric, Model E-3 Telescopic Hoist

Same as for Model E, specify "E-3" and omit gravity lowering.

Boiler Room to Grade Level, Electric, Model C Heavy Duty Telescopic Hoist

Same as Model D specification, but specify "Model C."

Boiler Room to Wagon Height, Electric, Model D Heavy Duty Telescopic Hoist

(1) Furnish and install where indicated on plans and in accordance with the manufacturer's drawings and instructions, one G&G Telescope Overhead Crane Hoist Model D with electric motor.

(2) Include the following G&G equipment with the hoist, and set the same in the proper manner, all as shown on the manufacturer's drawings:

*Flush watertight sidewalk doors [checkered steel type] [vault light type] with condensation gutter tapped for plumber's drain pipe connection.
Automatic sidewalk door opening, closing and locking device.
Automatic safety spring guard gates.
Electric warning gong.
12 standard 17x24-in. 16-gauge galvanized swing bail ash cans.
Rubber-tired ash can truck.
Heavy iron ladder.

(3) Leave the hoist completely and thoroughly installed, to the satisfaction of the architect.

(4) Above equipment to receive factory coat of paint before shipment and finishing coat of paint after erection.

(5) The necessary wiring and cut-out switch between the switchboard and service lugs on the motor are to be furnished and installed by the electrical contractor at the building.

(6) Before above apparatus is manufactured, this contractor is to submit to the architect for his approval, details and specifications of above equipment together with manufacturer's guarantee for one year against defective materials and workmanship.

Boiler Room to Truck Height, Electric, Model D-3 Telescopic Hoist

Same as for Model D, specify "D-3" and omit gravity lowering.

Boiler Room to Wagon Height, Hand Power, Model B Telescopic Hoist

(1) Furnish and install where indicated on plans and in accordance with the manufacturer's drawings and instructions, one G&G Telescopic Overhead Crane Hoist Model B with Automatic Gear Shifting Brake Device and Silencer.

(2) Include the following G&G equipment with the hoist, and set the same in the proper manner, all as shown on the manufacturer's drawings:

*Flush watertight sidewalk door [checkered steel type] [vault light type] with condensation gutter tapped for plumber's drain pipe connection.
Automatic sidewalk door opening, closing and locking device.
Automatic safety spring guard gates.
Electric warning gong.
12 standard 17x24-in. galvanized swing bail ash cans.
Rubber-tired ash can truck.
Heavy iron ladder.

(3) Leave the hoist completely and thoroughly installed, to the satisfaction of the architect.

(4) Above equipment to receive factory coat of paint before shipment and finishing coat of paint after erection.

(5) Before above apparatus is manufactured, this contractor is to submit to the architect for his approval, details and specifications of above equipment together with manufacturer's guarantee for one year against defective materials and workmanship.

Boiler Room to Grade Level, Hand Power, Model A Telescopic Hoist

(1) Furnish and install where indicated on plans and in accordance with the manufacturer's drawing and instructions, one G&G Telescopic Hoist Model A with Automatic Gear Shifting Brake Device and Silencer.

(2) Include the following G&G equipment with the hoist, and set the same in the proper manner, all as shown on the manufacturer's drawings:

*Flush watertight sidewalk doors [checkered steel type] [vault light type] with condensation gutter tapped for plumber's drain pipe connection.
Automatic sidewalk door opening, closing and locking device.
Automatic safety spring guard gates.
Electric warning gong.
12 standard 17x24-in. galvanized fixed bail ash cans.
Rubber-tired ash can truck.
Heavy iron ladder.

(3) Leave the hoist completely and thoroughly installed, to the satisfaction of the architect.

(4) Above equipment to receive factory coat of paint before shipment and finishing coat of paint after erection.

(5) Before above apparatus is manufactured, this contractor is to submit to the architect for his approval, details and specifications of above equipment together with manufacturer's guarantee for one year against defective materials and workmanship.

References—G&G Telescopic Hoists

G&G Telescopic Hoists have been specified by prominent architects for more than 40 years, and are in use in all types of buildings throughout the country.

**If there will be any heavy traffic over the sidewalk doors specify "Extra Heavy Flush Watertight Sidewalk Doors," where indicated by this mark.*

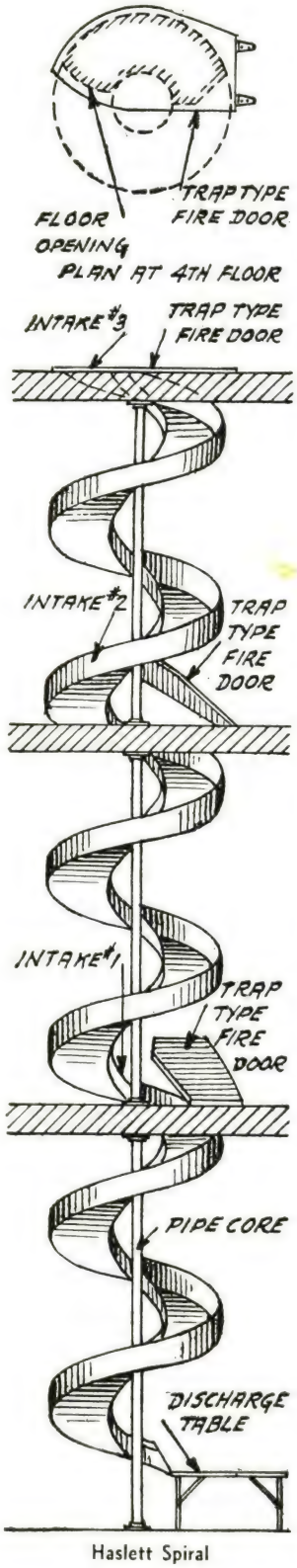
HASLETT CHUTE AND CONVEYOR CO.

GENERAL SALES OFFICE

Real Estate Trust Building, PHILADELPHIA, PA.

FACTORY: OAKS, PA.

For Haslett Fire Escapes, Laundry and Waste Chutes, see Manufacturers' Index



Haslett Spiral

Haslett Type Spiral Chutes

The Haslett type spiral chute has been developed to handle all classes of merchandise, but particularly the unusual class, such as barrels, wire strapped crates or boxes, baskets of glass products, very light or very heavy merchandise weighing up to two thousand pounds.

The structural framing is designed to carry the loads and relieve sheet metal sections from shock and stress. The sheet metal acts only as a guide to merchandise traveling in the trough and the structural frame transmits the load to the center column, which distributes the load to each floor.

The following tabulation lists standard dimensions and package sizes handled in the Haslett type spiral chute. Special sizes, diameters and pitch variations can be evolved by our Engineering Department upon application with full information.

Diam., ft.	Diam., in.	Trough width, in.	Pitch, ft.	Pitch, in.	Maximum package size, in. Length	Width	Height
3	0	12	3	3	15	9	6
4	0	19	4	4	22	14	12
6	0	24	6	6	30	18	16
7	0	30	7	6	36	23	20
9	0	36	9	6	48	28	26
9	10	42	10	6	52	32	28
12	0	48	13	0	60	36	30
15	0	60	16	0	72	46	40

Core Type Open and Housed Spiral Chutes

The core type spiral chute is built to handle the general run of wrapped merchandise, cartons and relatively light wooden boxes. It is especially adapted for handling packages from wrapping or shipping departments intended for parcel post, express or local delivery shipments. These chutes are adapted to multistoried industrial buildings where initial processes originate in the upper floors and work downward.

The housed class of the core type chute is usually provided for department stores and loft buildings where it is desirable that only authorized persons have access to the chute. It is adapted to the closed shaft where the only entrances are the intake and discharge doors set in the walls.

The following tabulation lists standard dimensions and package sizes handled in the core type spiral chute. Special sizes, diameters and pitch variations can be evolved by our Engineering Department upon application with full information.

Diam., ft.	Diam., in.	Trough width, in.	Pitch, ft.	Pitch, in.	Maximum package size, in. Length	Width	Height
2	4½	12	4	0	15	8	6
3	4½	18	5	6	*	*	*
3	10	18	7	0	22	12	9
5	0	24	9	0	30	15	12
6	0	31	11	0	36	20	15
7	0	36	12	6	45	24	16
8	0	42	14	6	50	25	16
10	0	48	18	0	60	32	23

*Anthracite up to 3 in. long (special chute).

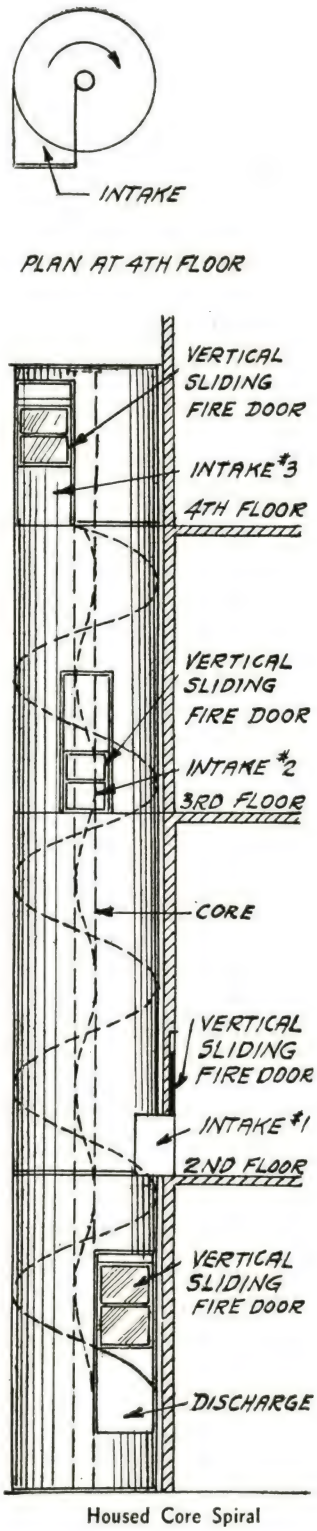
Gravity Roller Conveyor

The gravity roller conveyor is applicable in all types of industry. It can be bought in standard units and set up by the purchaser.

Send for detailed catalogue.

Belts and Vertical Conveyors

Belt conveyors and vertical conveyors fabricated for individual installations. Control and sorting details offer sound automatic service. Send requests for information to General Sales Office.



Housed Core Spiral

SAMUEL OLSON & COMPANY, INC.

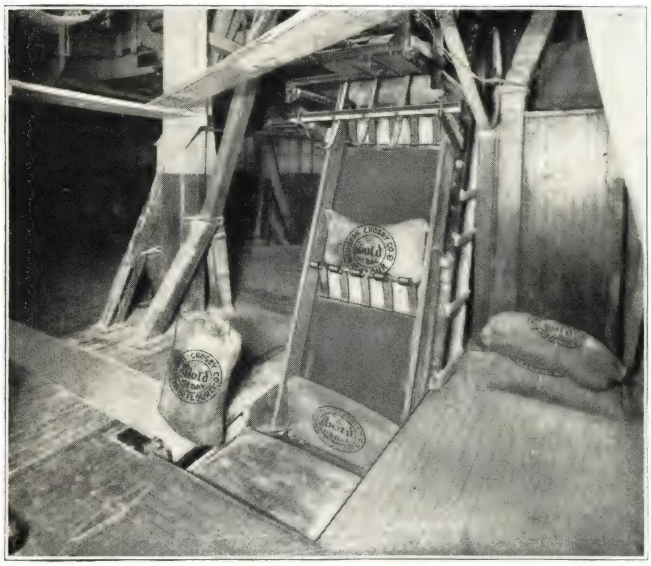
Conveying and Elevating Machinery; Pneumatic Tube Systems; Subveyor Systems

1230 North Kostner Avenue, CHICAGO, ILL.

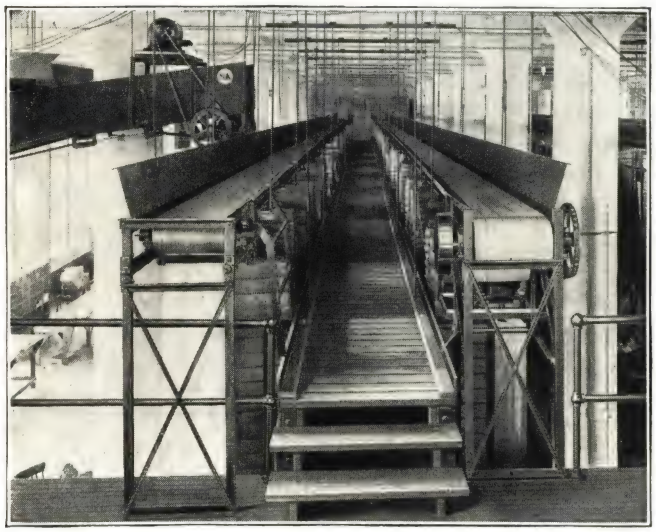
NEW YORK OFFICE, Fifth Avenue Building
SAN FRANCISCO OFFICE, Rialto Building
LOS ANGELES OFFICE, Chamber of Commerce Building
OFFICES IN PRINCIPAL CITIES

Products

CONVEYING and ELEVATING MACHINERY for handling materials of every description: Apron, Belt and Gravity Conveyors, Spiral Chutes, Automatic and Pivoted Tray Elevators, Flour Blending Systems, Bread Proofers and Coolers, Subveyors for dish and food handling, Subveyors for handling standard sized containers and tote boxes in industrial plants; Pneumatic Tube Systems for handling cash, records, correspondence, etc.; Soiled Linen and Refuse Chutes.



General Mills, Inc., Installation
This system loads cars at the rate of seventeen hundred 196-lb. sacks per hour



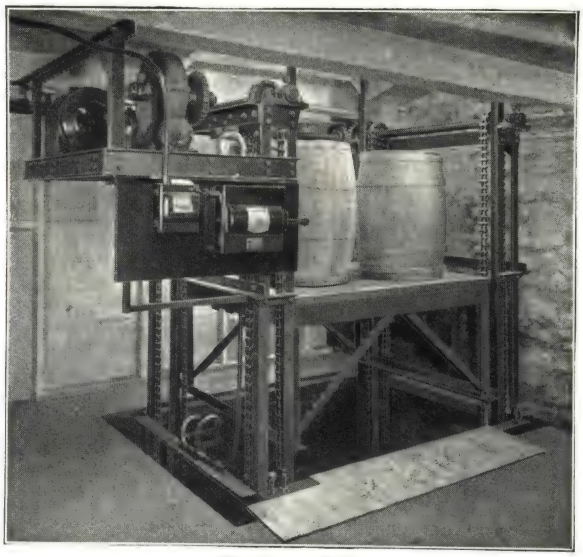
National Bellas Hess Co., Installation
SAMUEL OLSON & Co. completely equipped this plant with an elaborate conveying and elevating system



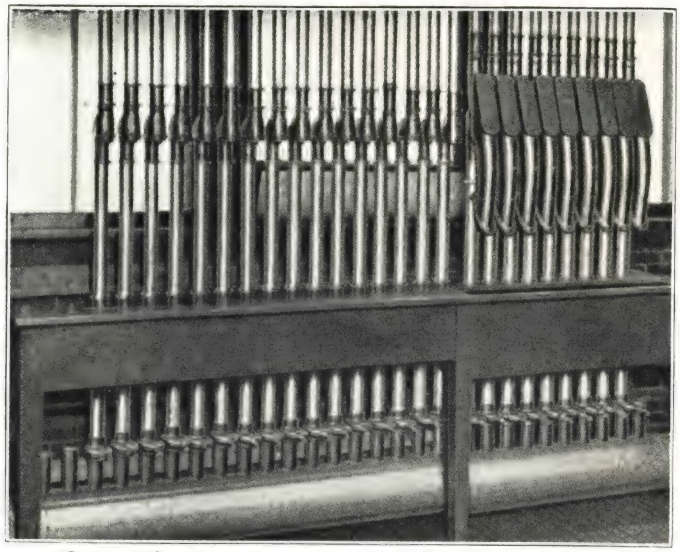
Hydrox Beverage and Ice Cream Co., Installation
The apron conveyor illustrated is but one of seven conveyor units installed in this plant



Patented Automatic Elevator
The dominating feature of this elevator is that it is possible to unload on the elevating side



Platform Lift
A sturdy electrically operated lift. Note construction



Central Station, Pneumatic Tube System, Plankington Packing Co.'s Plant, Milwaukee
Complete line pneumatic tube systems manufactured. Catalogue mailed on request

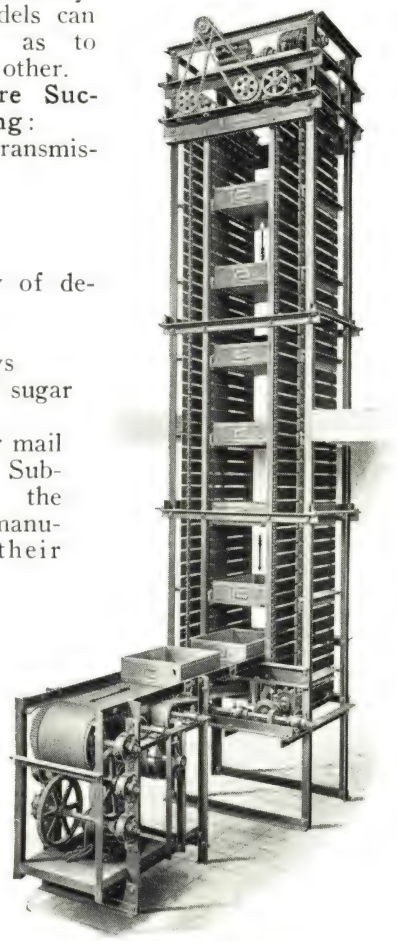
Industrial Applications of Subveyors (Patented)

Subveyors have distinct industrial applications in plants having standard sized containers or products to elevate, lower or carry horizontally. Subveyors discharge automatically from vertical to horizontal on up travel (Model "J"), from horizontal to vertical on down travel (Model "I") and from vertical to horizontal on down travel (Model "A"). Model "F" elevates or lowers continuously. These various models can be combined so as to function with each other.

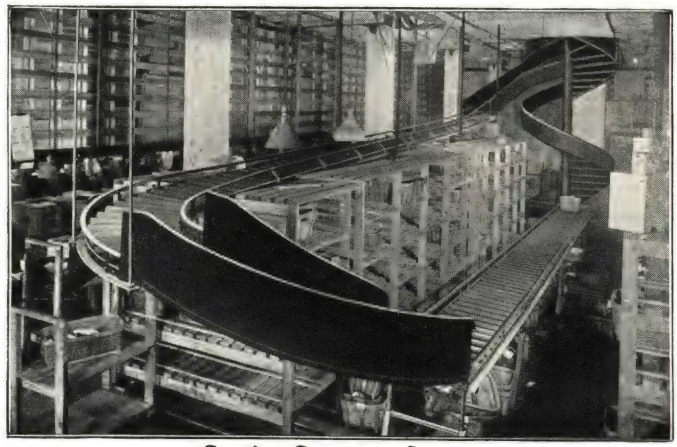
Subveyors are Successfully Handling:

Automobile transmissions
Batteries
Cartons
Tote boxes
Boxes, variety of descriptions
Food on trays
Dishes on trays
Pallets of loaf sugar
Radios

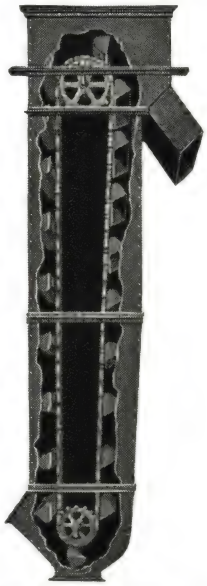
We will gladly mail complete data on Subveyors showing the various models manufactured and their application.



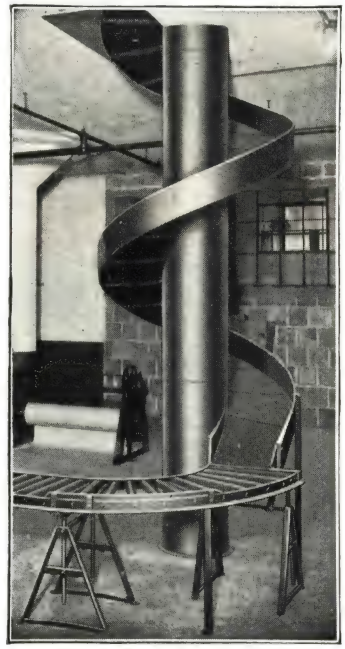
Model "A" Subveyor



Gravity Conveyor System
Part of a conveying system installed in one of the largest wholesale drug houses



Bucket Elevator
A complete line in either steel or wood for handling sand, gravel, cement, coal, ashes, grits, seed, grain, flour, crushed ice, lime, etc.



Spiral Chute
A complete line is manufactured

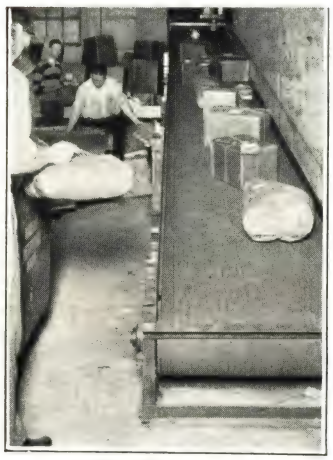
STANDARD CONVEYOR COMPANY

Manufacturers of Conveying Machinery and Equipment

NORTH ST. PAUL, MINN.

BRANCH OFFICES

CHICAGO ILL., A. J. Mandehr, 400 W. Madison Street
CINCINNATI, OHIO, Dudley F. Holbert, 1106 Ingalls Building
CLEVELAND, OHIO, E. E. Boberg, 5005 Euclid Avenue
KANSAS CITY, MO., H. P. Duval, 1321 Union Avenue
NEW YORK, N. Y., R. E. Cummings, Room 1512, 461 8th Avenue
ST. LOUIS, MO., Hugo Fehlenberg, 6769 Etzel Avenue



Belt Conveyor

Especially adapted for handling bundles and cartons in dry goods and department stores

STANDARD CONVEYOR COMPANY

Products

GRAVITY—Roller Conveyors; Wheel Conveyors; Spiral Chutes; Straight Chutes.

POWER—Belt Conveyors; Slat Conveyors; Automatic Inclined and Straight Lift Elevators; Dish Tray Elevators.

PORTABLE—Tiering Machines; Piling Machines; Boat Loading and Unloading Equipment.

PNEUMATIC—Tube Systems.

Also Fire Escapes, Spiral (open and closed); Trolley Conveyors; Selective Automatic Elevators.

Service

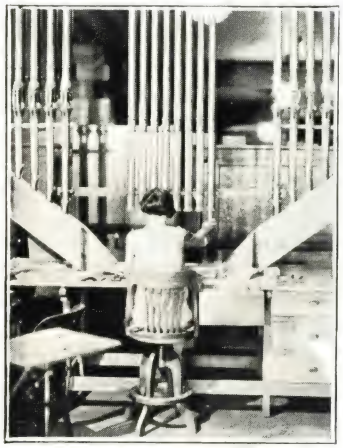
For twenty-five years, the STANDARD CONVEYOR COMPANY has been studying the individual requirements of industries and businesses who recognize the need of cutting the cost of merchandise handling. This organization is therefore prepared to give expert service and advice to architects, engineers, contractors, or prospective users of conveying equipment. Standard Installations are designed by experienced engineers according to the most efficient engineering and construction principles.

Standard Engineers are at your service. We will be pleased to send Catalog "O," or any other information that may be of assistance to you in solving your material handling problems.



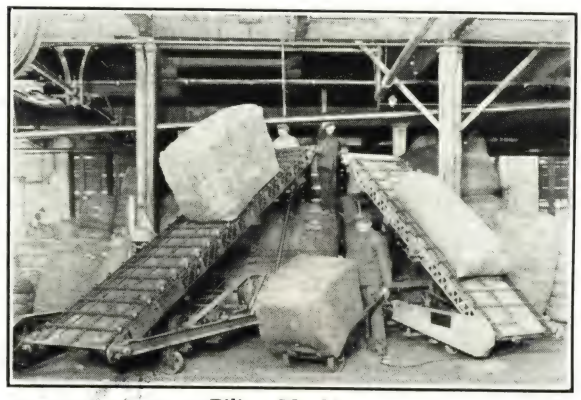
Lowerlift

Machine brings trays up on one side and at the same time lowers them on the other. Loads or unloads from top or bottom, front or side



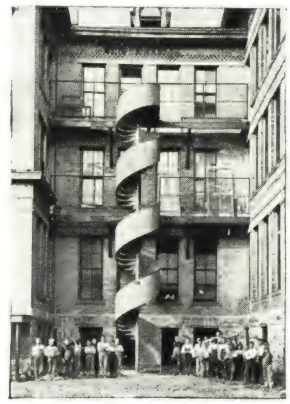
Central Desk of Pneumatic Tube Systems

Dispatches cash, messages, small articles

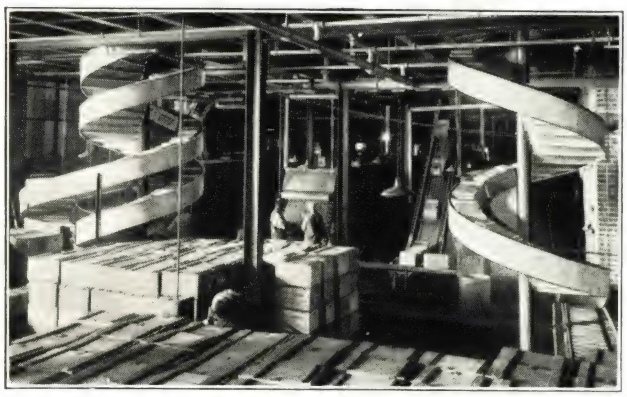


Piling Machines

One machine is built to elevate bales and the other to pile large sacks. Elevating height 10 to 30 ft.



Spiral Fire Escape, Open Type



Combination System

Consisting of spiral chutes, inclined elevator and roller conveyors for handling cases between floors



Gravity Roller Conveyors

Carrying commodities between various machines

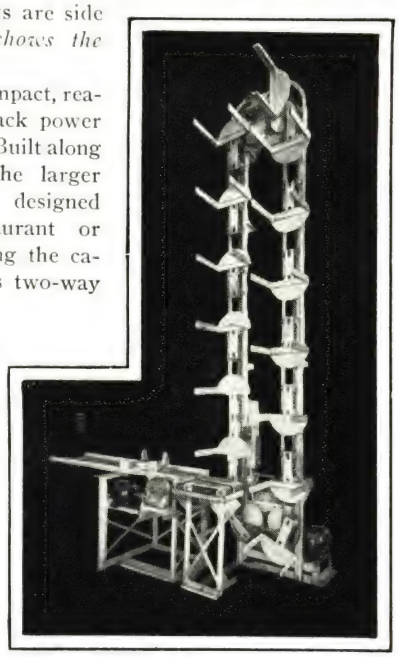
Standard Lowerlift

The Lowerlift is a vertical single-strand tray conveyor designed especially for elevating and lowering trays of dishes or steam pans of food from dining room to kitchen or dish-washing machine or reverse. It is used by cafeterias, restaurants, clubs, hotels, hospitals, etc.

Its use saves space, speeds up service, and reduces confusion and breakage of china. The Lowerlift is a two-way dish tray elevator that requires hardly more space than many one-way machines or dumbwaiters. Floor space required is only 3 ft. 9 ins. by 2 ft. for the two-way machine. Its normal speed is 22 ft. per minute.

Made in Three Models—***No. 100***—This model is for the average large restaurant, dining room, club or cafeteria. It handles trays up and down simultaneously, is compact, and adapted to a variety of convenient installations. Handles any size or type of tray, as well as steam pans of food. May be loaded or unloaded from side or front.

No. 200—Same capacity and construction as No. 100, differing only in the arrangement of the frame and carriers. In this machine, the loading and unloading points are on opposite sides of the machine, while in the No. 100 model loading and unloading points are side by side. *Illustration shows the No. 100 model.*



No. 300—A very compact, reasonably priced single-track power operated tray elevator. Built along the general lines of the larger Lowerlift models, and designed for the smaller restaurant or lunch room not requiring the capacity of the continuous two-way machines.

Standard Pneumatic Tube Systems

Standard Pneumatic Tube Systems provide swift, positive intercommunication between departments. They may be used to handle almost any small articles, such as advertising and news copy, cash, miscellaneous correspondence or messages, deposit books, hospital charts, hotel keys and mail, small tools, and general office correspondence.

The use of pneumatic tubes saves time; ties the various departments of a business closely together; prevents many mistakes and miscarriage of messages. Standard Pneumatic Tubes are being used by a wide variety of industries throughout the country.

Types and Sizes—Tube systems are built in several types to meet the service requirements under various conditions.

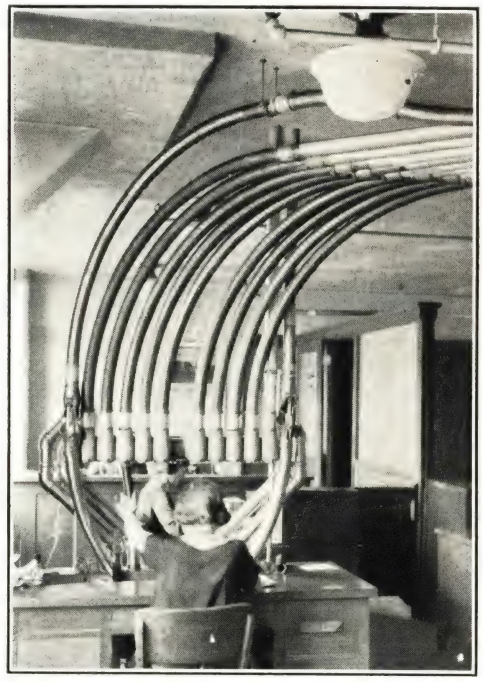
(1) Foot power system. 2¼-in. size only.

(2) Single tube automatic pressure system. Reduced air pressure or direct low pressure.

(3) Vacuum-pressure—with combination vacuum incoming lines serving several stations each, and independent pressure lines to each substation for returning carriers.

(4) Vacuum—independent twin lines, or combination lines.

Made in 2¼, 3 and 4-in. diameters; 3x6-in. and 4x7-in. oval.

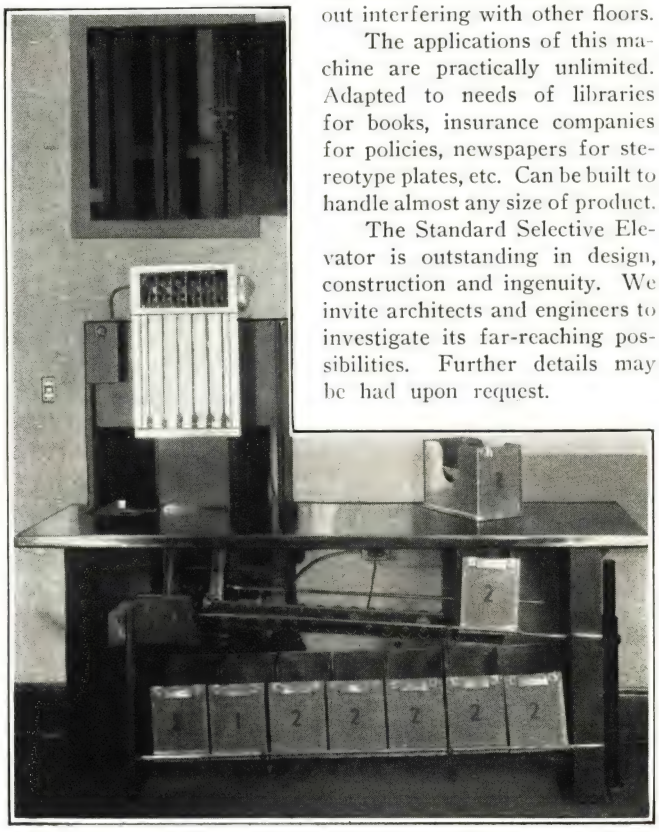


Standard Selective Elevators

Electrically controlled. Loads and discharges at any predetermined point indicated on control board. Any operator on any floor can set indicator without interfering with other floors.

The applications of this machine are practically unlimited. Adapted to needs of libraries for books, insurance companies for policies, newspapers for stereotype plates, etc. Can be built to handle almost any size of product.

The Standard Selective Elevator is outstanding in design, construction and ingenuity. We invite architects and engineers to investigate its far-reaching possibilities. Further details may be had upon request.



THE CANTON FOUNDRY & MACHINE CO.

Manufacturers of Automobile Turntables

CANTON, OHIO

NEW YORK OFFICE: Carnegie Hall, 154 W. 57th Street—Telephone, CIrcle 7-2994

REPRESENTATIVES

BOSTON, MASS., Zenas R. Taylor, Inc., 470 Atlantic Avenue
LOS ANGELES, CAL., J. E. Dwan, 616 South Anderson Street
SAN FRANCISCO, CAL., C. J. Jorgenson Co., 604 Mission Street
CHICAGO, ILL., F. G. Manuel, 1657 Monadnock Building, 53 W. Jackson Boulevard
PHILADELPHIA, PA., Robt. B. Lederle, Witherspoon Building

Products

"UNIVERSAL" AUTOMOBILE TURNTABLES for pleasure cars and trucks.

"CANTON" PITLESS AUTOMOBILE TURNTABLES.

For our page on Builders' Accessories, see Manufacturers' Index.

"Universal" Automobile Turntable

Two styles, with and without washrack extension. Mechanically perfect in construction, and easy to turn. Weight of table and load it supports rests on 2-in. (steel) ball bearings, that revolve in a machined, circular track, 54 in. in diameter, reducing friction to a minimum. Superstructure is of rigid I-beam construction. Top of table made of ¼-in. steel plates. All parts made of iron and steel; simple in design.

"Universals" may be placed on upper floors as well as on ground floors. Castor wheels at periphery of table are used only to prevent table from tilting. Heavy load does not substantially increase friction.

Advantages—Removable steel plates on top; water drain around outer edge of pit; can not tilt, always perfectly poised; easily turned. Quickly and easily erected from knocked down shipment, by one man; only 12 in. in depth.

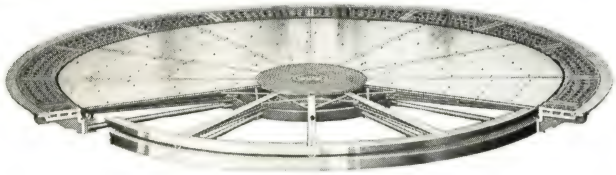
Specifications—Blue print, complete specifications and directions for building pit and erecting table furnished with each order. Any careful mechanic can erect.

Catalogue—Send for Catalogue "C-99" and prices.

TURNTABLES FOR PLEASURE CARS

Wheelbase ....in.	132	144	156
Diameter ....ft.	14	15	16
Supporting capacities....lb.	8000	8000	8000
Shipping weights....lb.	5600	6000	6500

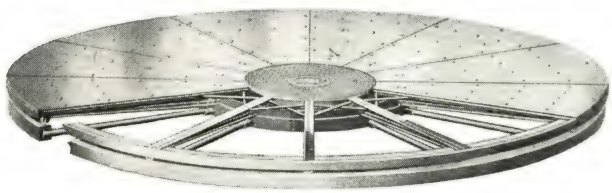
Prices, complete dimensions and specifications of heavy duty turntables, 10-ton capacity, gladly furnished upon request.



Total depth, 12 in.



Top and Sectional View Showing Details of Construction of the "Universal" with Washrack Extension



Total depth, 12 in.

Details of Construction of the "Universal" without Washrack Extension

"Canton" Pitless Automobile Turntable

A circular steel track, 1¼ in. high, surrounds a center plate, to which it is attached and held rigid by 8 radial rods. The track is surmounted by 2 steel runways, each 18 in. wide and 13 ft. long. Each runway has 4 ball bearing wheels as shown in accompanying illustration, and the entire weight of the car is borne by these bearings, reducing friction to the minimum. The wheels support the runways ¾ in. above the track. The runways are held in place by a brace at the middle. A steel king pin, running through this brace and the center plate, forms the pivot of the turntable. The track is 11 ft. in diameter.

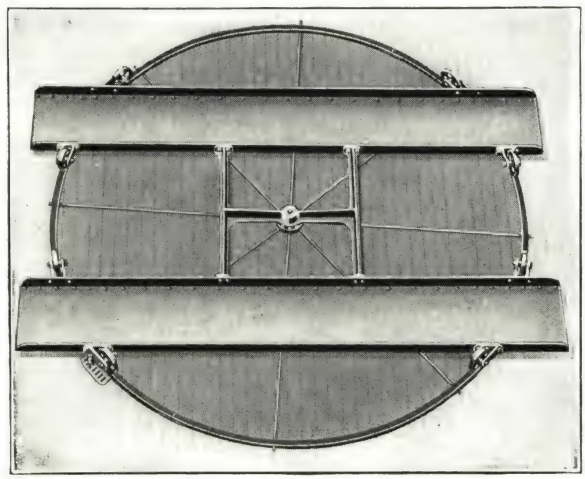
Advantages—An automobile turntable is almost as essential for human comfort as the automobile itself. In fact, the automobile is dangerous and destructive when the driver is under the handicap of facing in one direction, while he drives in another.

The "Canton" Pitless turntable requires no elaborate and expensive preparation for installing. Since it needs no pit, it can be set down anywhere on a solid base and it is ready to turn the car. But it may also be installed with the track and bracing embedded in a concrete floor. This is easily done in a new garage when the concrete is soft. It may also be installed in the same way in an old garage by chipping away channels for the track and brace rods.

Since the working parts are not covered by a solid platform, but merely have two runways to receive the car, a minimum of steel is used, and therefore a minimum of weight and a minimum of expense result.

The "Canton" Pitless turntable may be locked so it will not glide or wobble when the car is being driven off or back on the turntable.

Catalogue—Write for Catalogue G which gives further description, details and prices.



"Canton" Pitless Automobile Turntable

RAMP BUILDINGS CORPORATION

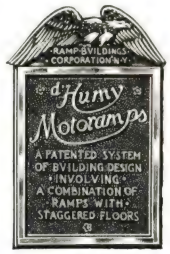
Consulting Garage Engineers

21 East 40th Street, NEW YORK, N. Y.

Service

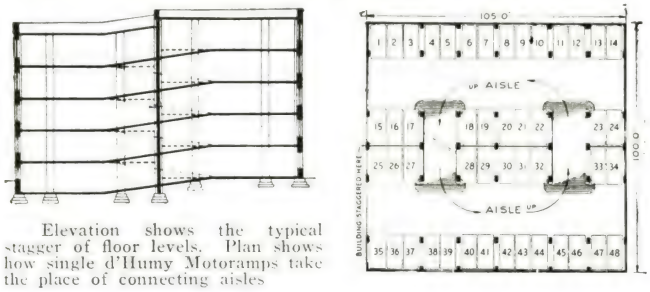
This company works with the architect and places its specialized knowledge at his disposal in the design, laying out, construction and management of any multi-floor garage.

d'Humy Motoramps are short, easy-grade ramps connecting staggered floors, insuring maximum storage space and minimum operating costs in a garage. They eliminate the heavy investment in elevators and their high operating costs, and at the same time take up less space than ordinary ramps, either straight, curved, or spiral. d'Humy Motoramps make garages efficient and insure maximum revenue.



d'Humy Motoramps

The basis of this system of building design is the arranging of a portion of the structure with floor levels intermediate between the floor levels of the rest of the building. The floors of the two sections are joined by short, inclined ramps, each rising one-half story at an easy grade.



Elevation shows the typical stagger of floor levels. Plan shows how single d'Humy Motoramps take the place of connecting aisles

By making the dividing line between units vertically on one facade, the architect has the opportunity of achieving the unusual by emphasizing the staggered floors; on many plots the stagger may be concealed, if desired, so that it does not show in the elevation.

d'Humy Motoramps are adaptable for plots of any dimension greater than 50x100 ft. and are readily adapted to plots of irregular shape.

d'Humy Motoramps have been used in 2-story buildings and in garages as high as 11 stories—and higher buildings are contemplated. For large capacity structures it is advisable to provide separate ramps for ascending and descending travel.

Advantages of d'Humy Motoramps

Complete visibility for the motorist on short length, open side ramps.

100% convenience in driving to or from any storage space—no congestion.

Elimination of necessity of connecting aisles.

Maximum car storage and maximum net income for the owner.

Increased opportunity for sale of merchandise and service.

Simple construction, no depreciation, no mechanical troubles, no after-expense.

How We Serve Architects

Without cost or obligation, our engineers will prepare sketch plans on any garage project to demonstrate the efficiency of d'Humy Motoramps in achieving maximum storage space and insuring maximum income. Alternate layout where possible, will be submitted.

Our staff is available for preliminary consideration of the possibilities of any garage project backed by an experience of ten years in the design, construction, financing and operation of parking garages.

Consultation with us in the early stages of any such discussion involves no obligation and is not charged for.

Following the arrangement of a contract between the owner and this company for the use of d'Humy Motoramps, our complete engineering service is made available at no cost to the architect, including consultation with the architect as to:

(a) Floor layout of car spaces.
(b) Establishment of critical dimensions.
(c) Planning of entrance, control and service facilities.
(d) Selection and design of the most efficient means of vehicular interfloor communication for the particular requirements.
(e) Selection of best and most economical equipment as learned in our experience on hundreds of garages.
(f) Method of construction.
(g) Provision for the indispensable mechanical equipment.
(h) Okaying of final plans.
(i) Any other problems that may arise in the designing or construction of the building.

Cost to Building Owner

For the use of the d'Humy Motoramp System and our complete engineering service, a charge (based on the total number of square feet of garage floor area) is made to the owner of the building. There is no charge to the architect.

Installations

Following is a short list of representative motor ramp garages selected from the list of more than 240 thus far completed:

Bowdoin Square Garage, Boston
Chalfonte-Haddon Hall Garage, Atlantic City
Royal Garage, Montreal
Statler Hotel Garage, Buffalo
Medical Arts Bldg. Garage, Cleveland
Book Tower Garage, Detroit
South Loop Motoramp Garage, Chicago
City Ramp Garage, Spokane
"Four Fifty Sutter" Garage, San Francisco
Clarke's Strand Garage, New Orleans
Cone Street Garage, Atlanta
Ferro Concrete Garage, St. Louis
"1616 Walnut Street" Garage, Philadelphia
Auto Hotel, Denver

Two Booklets Available

The Company will be glad to send to any architect either or both of two booklets:

"The Modern Garage" explains where and why garages are needed, what they will earn, what d'Humy Motoramps are and will do, how we serve architects, and describes the interesting features of some of the many garages on which we have consulted.

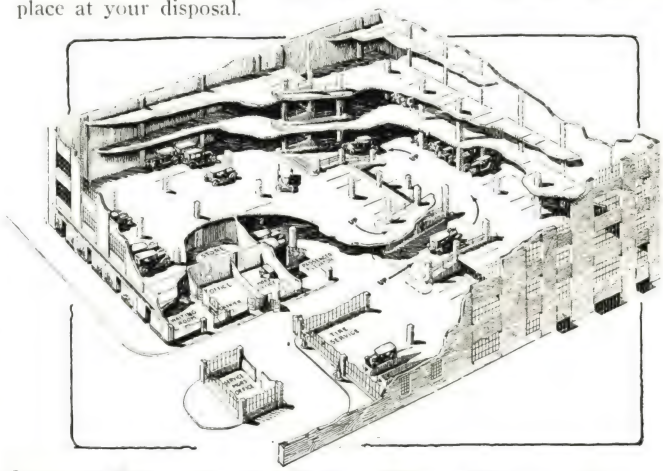
"Garage Design Data"—33 pages of technical data on the design and construction of garages, giving important information obtainable nowhere else under one cover, so far as we know.

The booklets will be sent to any architect on request, under no obligation or cost.

Call on Us Freely

Ramp Buildings Corporation emphasizes its willingness to consult with any architect, at any time, on any problem involving the design, construction, financing, operation or management of any garage. Frequently there is more than one possible layout of a garage for achieving high operating efficiency—we are always glad to have architects submit their garage layouts to us for our suggestions as to possibly improving them.

The engineers of the company have an unsurpassed fund of experience in this kind of work, which they will be glad to place at your disposal.



Cut-away Perspective of a Typical d'Humy Motoramp Garage
Single ramp system—up and down traffic on same ramps

ESTABLISHED 1867

THE LOUDEN MACHINERY COMPANY

Modern Barn Equipment and Ventilating Systems

169 Broadway, FAIRFIELD, IOWA

BRANCH OFFICES

ALBANY, N. Y., 1047-53 Broadway
BOSTON, MASS., 1106 Old South Building
CHICAGO, ILL., 565 W. Washington Boulevard
DETROIT, MICH., 4-126 General Motors Building
NEW YORK, N. Y., 1710 Grand Central Terminal
PHILADELPHIA, PA., 1505 Race Street
PITTSBURGH, PA., 2122 Grant Building
ST. PAUL, MINN., 2282-88 University Avenue
TOLEDO, OHIO, 2294 Albion Street

CANADIAN FACTORY, GUELPH, ONTARIO

Products

Complete EQUIPMENT for COW BARNS, HORSE BARNS and HOG HOUSES, including:

Steel Stanchions	Bull Staff
Steel Stalls	Swinging Cranes
Steel Pens	Cork Brick
Water Bowls	Horse Stable Equipment
Manger Divisions	Hog House Equipment
Manure Carriers	Roof Windows
Feed Carriers	Cupolas
Feed Trucks	Hay Unloading Tools
Manger Drains	Barn Door Hangers
Gutter Drains	Garage Door Hangers

VENTILATING SYSTEMS:

For barns, hog and poultry houses, creameries, cheese factories, etc. Two types—automatic natural draft (gravity) and automatic electric (power) systems.

Service

Louden Field Engineers are at your call for consultation on arrangement, ventilation, or equipment. If desired, they can render immediate service by preparing suggestive plans.

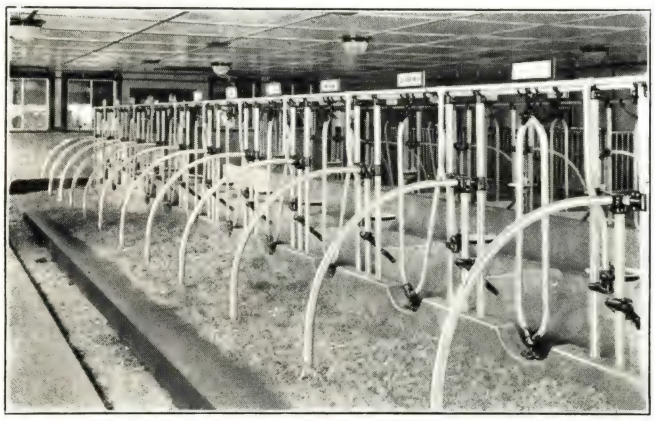
Our Engineering Department will work in conjunction with architects, to any extent, or will assume entire responsibility for the preparation of complete plans and specifications.

Send for 212-page general catalogue, giving detailed specifications and information on Louden equipment.













C3919

LANDSCAPE

◆ ◆ ◆

PAVING, CURBS AND GUTTERS

DAYTON GREENHOUSES AND CONSERVATORIES

Manufactured by
THE DAYTON GREENHOUSE MFG. COMPANY
DAYTON, OHIO

Products

Dayton Conservatories, Solariums, Swimming Pool Enclosures, Commercial Greenhouses, Sectional Greenhouses, and Ventilating and Heating Equipment for greenhouses.

Also Sludge Bed Covers, Boilers and Heating Equipment.

Skilled workmen erect complete projects.

For our page on Window Operators see Manufacturers' Index.



Dayton Conservatory with Palm House in Center and a Wing on Each Side

Details of Construction

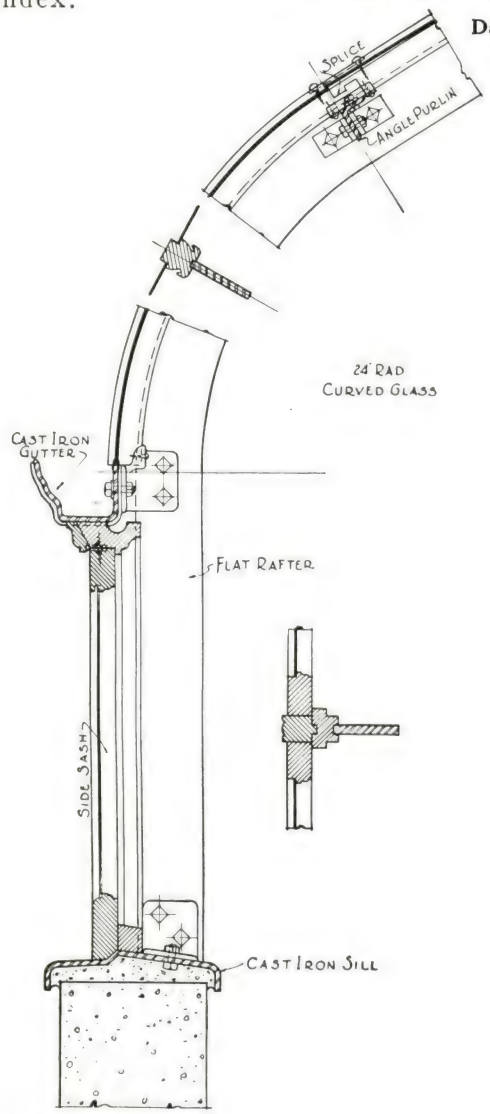
Dayton Conservatories are made in five standard widths, viz.: 11, 15, 18, 21 and 25 ft. Special widths can be furnished if necessary. The length should be governed by our standard sections which are 8 ft. 4¾ in. each, and should if possible be in multiples of this unit. The masonry walls are 8 in. thick at the sill and are usually 30 in. above floor line. The wall is capped with an everlasting cast iron sill neatly designed. All door openings in walls are 39½ in. wide.

All woodwork is milled of clear heart red tidewater cypress smoothly machined. Double strength greenhouse glass is used throughout. Ventilating machines are worm and gear type, designed for smooth and easy action. Complete heating systems furnished to meet individual requirements.

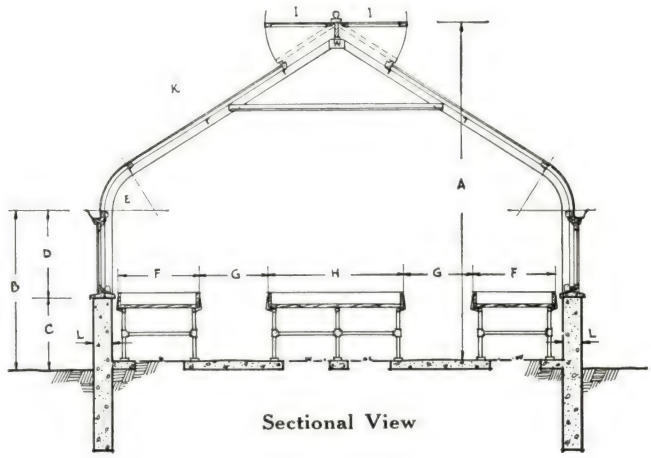
Every Dayton Conservatory when finished is and must be completely satisfactory. Dayton Conservatories are designed by greenhouse specialists of long experience. Every detail is finished with skilled perfection, and only the finest of materials are used. Dayton Conservatories are built to endure.

Engineering Service

Our Service Department will be pleased to co-operate with architects and engineers. We can give every service from designing to erection of the finished structure. Detailed specifications and plans gladly furnished upon request. Write freely to our Service Department.



Details of Sidewall Construction



Sectional View

STANDARD WIDTHS DAYTON CONSERVATORIES

Width	11 ft.	15 ft.	18 ft.	21 ft.	25 ft.
A—Height from grade to ridge, ft.—in.	9—9	11—0	12—0	12—11	14—2
B—Height from grade to gutter, ft.—in.	5—6	5—6	5—6	5—6	5—6
C—Height of concrete walls, ft.—in.	2—8	2—8	2—8	2—8	2—8
D—Height from sill to gutter, ft.—in.	2—10	2—10	2—10	2—10	2—10
E—Radius of curve, ft.—in.	2—0	2—0	2—0	2—0	2—0
F—Width of side bench, ft.—in.	2–3—0	2—6	3—0	2—6	3—0
G—Width of walks, ft.—in.	3—2	2—1	2—1	2—1	2—5
H—Width of center bench, ft.—in.		4—0	5—0	2–4—0	2–5—0
I—Width of roof vents, in.	29	29	29	29	29
K—Roof pitch, degrees	32	32	32	32	32
L—Thickness of walls, in.	8	8	8	8	8

THE FOLEY GREENHOUSE MFG. CO.

GENERAL OFFICES AND FACTORY
7700 Jackson Boulevard, FOREST PARK, ILL.
(A Suburb of Chicago)

Products

GREENHOUSES and CONSERVATORIES of all types for private and commercial use, featuring our reinforced roof bar (see Detail "D"), and equipment for same, including Ventilating and Sash operating devices, Hot Bed Sash, Benches and Plant Tables, Cast Iron and Steel Boilers, Hot Water and Steam Heating Systems.

Also Glass Enclosures for Swimming Pools, Sun Parlors, Vitalariums and Sludge Beds.

Sketches and Estimates

Preliminary sketches, plans and data will be prepared and on award of contract, complete masonry plans, heating plans and details will be furnished.



Brief Specifications for Iron Frame Greenhouse or Conservatory

Suitable cast iron sills to cap masonry walls, complete with splice plates, end stops and corners. (See Alternate Specification and Detail "A" for combination sill and gutter.)

Space steel rafters 8 ft. 3-in. centers and securely attach to sills. Rafters shall extend to ridge where they are joined with suitable iron brackets.

Connect rafters with steel angle purlins with suitable fittings. Purlins shall be drilled to receive bolts which attach reinforced wood bars. (See Detail "E.") Provide collar beams as shown.

Provide ornamental cast iron gutter at each sidewall spring line, complete with down-spouts, etc.

Woodwork—To consist of ridge, ridge cap, ventilating sash, roof bars, rafter caps, gable rafters, sash doors and hoods, carefully and smoothly machined and to be made of clear redwood, and/or gulf red cypress, free from sap, knots and defects. All wood roof bars shall be reinforced their entire length with galvanized steel channels. (See Detail "D.")

Ventilating Apparatus—Provide suitable ventilating machines of self-locking type, complete with arms, hangers and shafting.

Paint—Three coats as follows: woodwork two coats and steel one coat at factory. Second coat on steel when erected. Third coat on wood and steel, inside and outside after glazing. Side boards of benches and heating coils one coat after installation.

Benches and Plant Tables—Galvanized metal frame arranged as shown on plan. Cypress sides and bottoms. All outside corners provided with round corner plates. (Tile bottoms, slate sides if preferred.)

Hardware—Galvanized hinges for vents and doors. Bronze locks for doors. Copper nails for superstructure. Brass screws and galvanized bolts.

Glass and Glazing—Due to our reinforced bar, glass 24 in. wide is generally used. All glass to be double strength. All curved glass shall be bent to proper radius. Bed glass in special greenhouse putty and secure with zinc or copper points.

Heating System—Preferably gravity hot water. (Steam may be used if more advantageous.) Radiation arranged in coils located under benches providing usually a temperature of 55° to 60° at 10° below zero outside temperature. The coils are to be properly valved so as to have flexible control. Mains to be extended to Foley Cast Iron Sectional Boiler. Provide air vents, radiation for potting room and cover boiler with asbestos covering.

Watering System—Connect to owner's water pipe at wall of greenhouse and install watering system using galvanized pipe and fittings. Provide one hose bibb in each walk in each compartment.

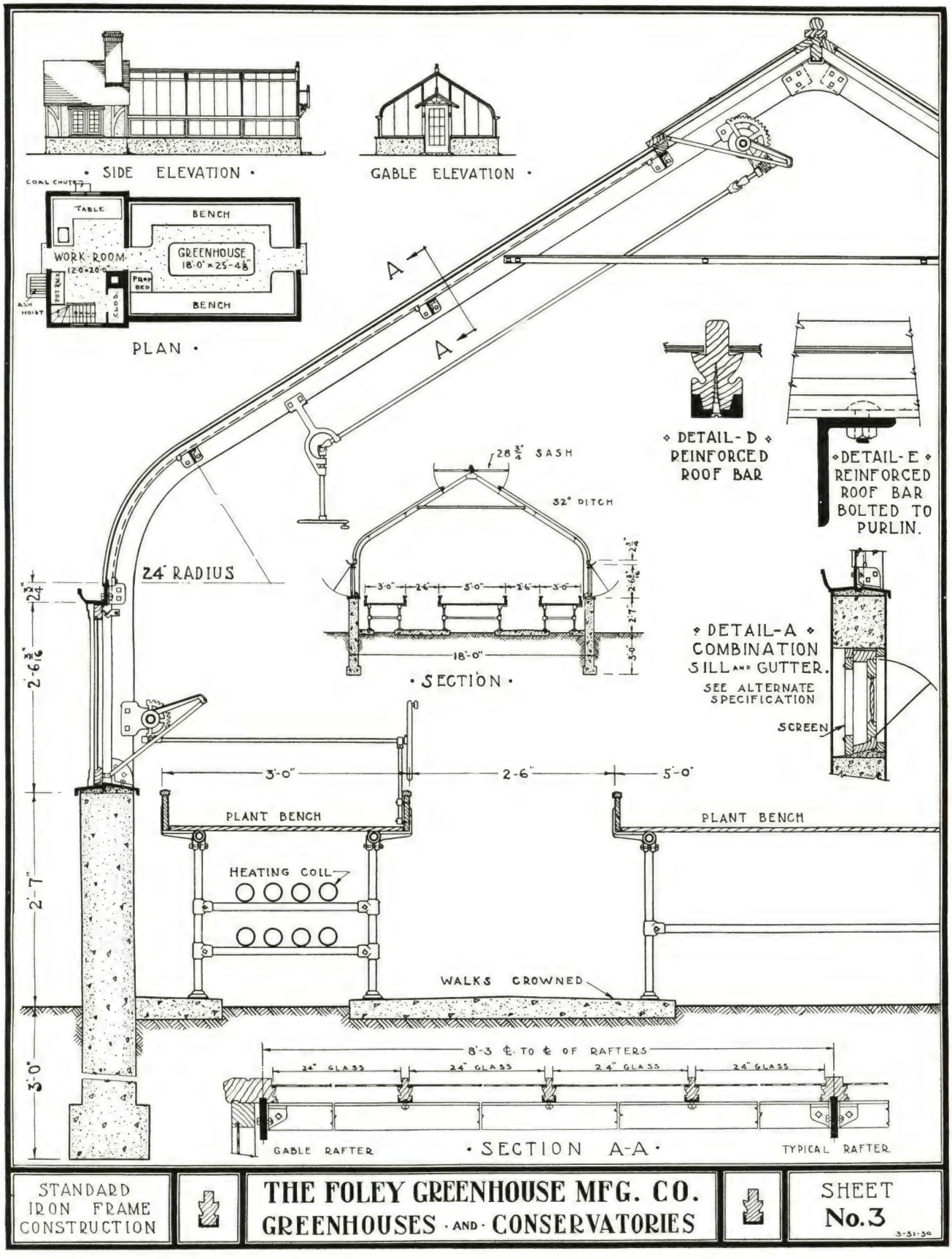
Labor—Furnish labor required to erect greenhouse, install heating and watering system. All to be performed in a thorough and workmanlike manner.

Alternate Sidewall Construction Using Combination Sill and Gutter—Provide cast iron combination sill and gutter to cap masonry wall with wall ventilators for masonry wall complete with copper screens and ventilating apparatus. (See Detail "A.")

A Few Foley Installations

W. H. Crocker, San Francisco, Cal.
G. Gunby Jordan, Columbus, Ga.
Albert D. Lasker, Chicago, Ill.
Stuyvesant Peabody, Chicago, Ill.
Harold M. Florsheim, Highland Park, Ill.
L. B. Kuppenheimer, Hubbard Woods, Ill.
F. W. Woodruff, Joliet, Ill.
Cyrus H. McCormick, Lake Forest, Ill.
Owen Barton Jones, Lake Forest, Ill.
Gen. Roy D. Keehn, Lake Forest, Ill.
Col. Noble B. Judah, Lake Forest, Ill.
Walter S. Brewster, Lake Forest, Ill.
Col. R. R. McCormick, Wheaton, Ill.
Bruce F. Failey, Terre Haute, Ind.
J. W. Bettendorf, Bettendorf, Iowa
W. K. Kellogg, Battle Creek, Mich.
H. Coulby, Cleveland, Ohio
F. E. Drury, Cleveland, Ohio
W. E. Telling, Cleveland, Ohio
E. W. Marland, Ponca City, Okla.
C. E. Schaff, Houston, Tex.
William C. Grunow, Lake Geneva, Wis.
William Wrigley, Jr., Lake Geneva, Wis.
Albert C. Elser, Milwaukee, Wis.
Russell M. Alger, Grosse Pointe, Mich.
Edwin S. Barbour, Grosse Pointe, Mich.
Lawrence D. Buhl, Grosse Pointe, Mich.
Harry M. Jewett, Grosse Pointe, Mich.
French Lick Springs Hotel Co., French Lick, Ind.





STANDARD IRON FRAME CONSTRUCTION	THE FOLEY GREENHOUSE MFG. CO. GREENHOUSES · AND · CONSERVATORIES	SHEET No. 3

3-31-30

ESTABLISHED 1902

KING CONSTRUCTION COMPANY

Manufacturers, Designers and Erectors of Greenhouses and Conservatories

529 Wheatfield Street
NORTH TONAWANDA, N. Y.

SALES OFFICES

BOSTON, MASS. NEW YORK, N. Y. PHILADELPHIA, PA. SCHENECTADY, N. Y. SCRANTON, PA. TOLEDO, OHIO
CHICAGO, ILL., 59 East Van Buren Street, Room 2510

King GREENHOUSES

Products

KING GREENHOUSES and CONSERVATORIES.

Also Sun Parlors, Swimming Pool Enclosures and Roofs; Greenhouse Supplies and Accessories; Glass Sludge Bed Enclosures; King Sash Operators for greenhouses and factories; Boiler and Heating Equipment for greenhouses.

Designs, Workmanship and Materials

Designs are the result of more than a quarter century's experience in greenhouse construction. Workmanship is in a modern daylight factory and is under the supervision of skilled engineers. Materials are of first quality, guaranteed to be free from defects.

Styles of Design and Types of Construction

Greenhouses can be built straight eave with ornamental gutter at eave or sill; curved eave with ornamental gutter at eave or sill; semicurvilinear with ornamental gutter at eave or sill; curvilinear with gutter at the sill; all of which may be sectional iron frame construction.

Dimensions

Sectional iron frame construction should be planned in lengths which are multiples of 8 ft. 5 in.

Standard widths are 11, 18, 21, 25 and 28 ft. The 18 and 25-ft. widths are most popular and most economical for bench and walk space. When plants requiring different temperatures are to be grown, the greenhouse should be divided into compartments—no one of which should be less than 17 ft. in length.





General Specifications

Ironwork—The superstructure consists of cast iron sills capping the masonry walls, flat steel rafters spaced on 8 ft. 5 in. centers, malleable ridge plates, angle iron purlins, malleable fittings, etc., necessary for the complete erection of the framework.

Woodwork—Wood members consist of sash bars, ridge, ridge cap, rafter caps, gable rafters, ventilating sash, doors and door frames, all of which are made of straight-grained, clear, air-dried, heart California redwood. Sash bars are spaced for 16-in. wide glass.

Painting and Glazing—Framework is painted 1 coat before shipment, 1 coat after erection and 1 coat after glass is set, with best quality greenhouse paint made according to our own formula. Grade "A" American window glass bedded in special greenhouse putty and held with zinc glazing points is used for glazing.

Benches and Watering Systems—Benches will be constructed with galvanized iron frames and cypress sides and bottom. Hose valves are placed at convenient points for watering plants.

Heating—A gravity hot water system circulating through 2-in. pipe coils is used. Coils are connected to a King sectional cast iron boiler with ample excess capacity over actual requirements.

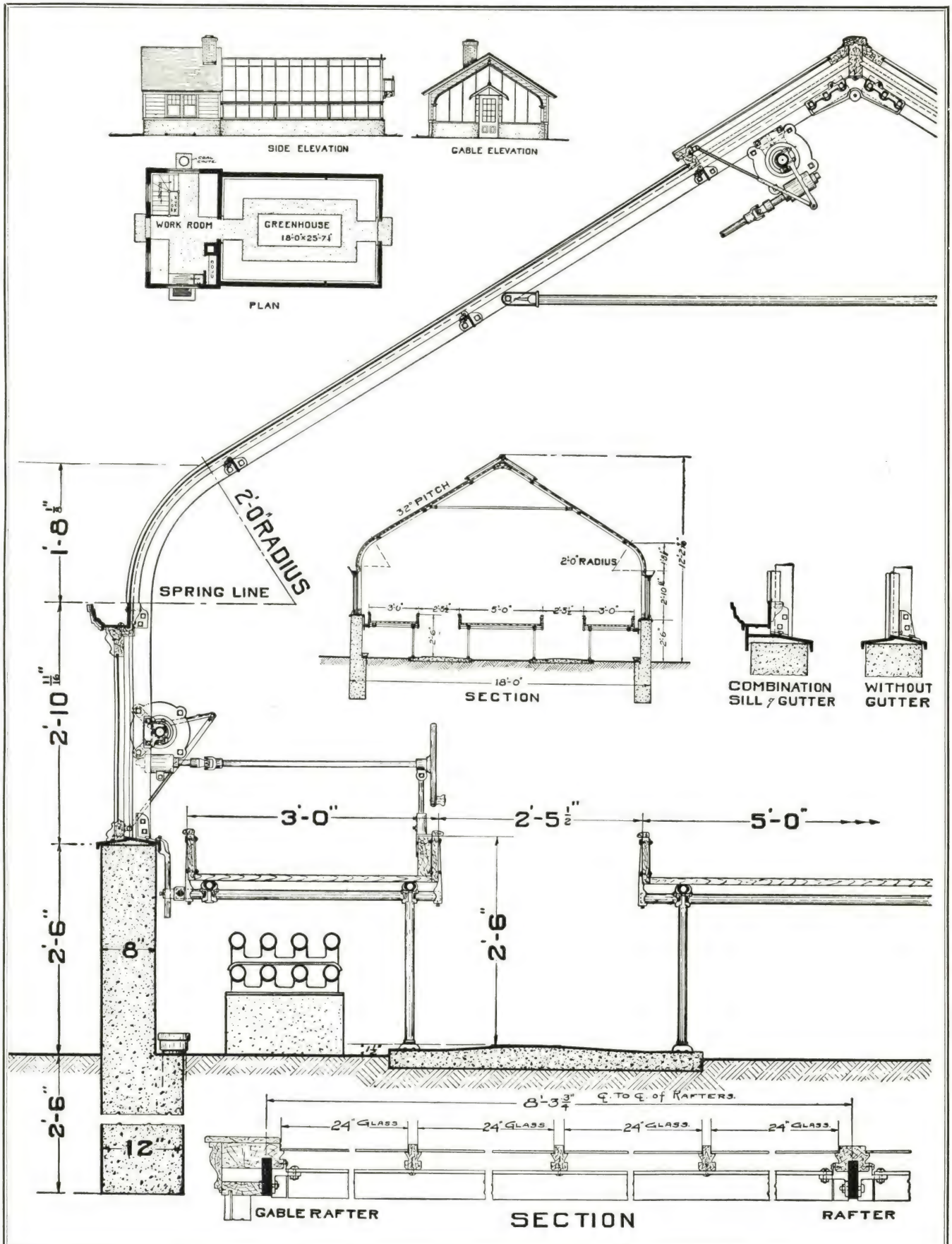
Co-operative Service

The King Engineering Department is maintained to work out the architect's ideas and to assist him with all matters relative to glass construction.

Bulletins, blue prints, specifications and other useful information may be had from any of the above listed offices.

Prominent Installations and References

James E. Williams, Glastonbury, Conn.
Yale University, New Haven, Conn.
Eugene duPont, Greenville, Del.
Mrs. Okle Painter Williams, Jacksonville, Fla.
Wm. Candler, Atlanta, Ga.
R. T. Crane, Jr., Ipswich, Mass.
Walter Hunnewell, Wellesley, Mass.
John S. Newberry, Grosse Pointe, Mich.
Como Park, St. Paul, Minn.
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J. P. Morgan, Great Neck, N. Y.
Barron G. Collier, Pocantico Hills, N. Y.
E. H. Cluett, Troy, N. Y.
New York Botanical Gardens, New York, N. Y.
F. A. Seiberling, Akron, Ohio
A. S. Kreider, Annville, Pa.
J. B. Stetson Estate, Elkins Park, Pa.
University of Pennsylvania, Philadelphia, Pa.
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GREENHOUSE 18 FEET WIDE	KING CONSTRUCTION COMPANY GREENHOUSES *and* CONSERVATORIES	KING IRON FRAME CURVED EAVE CONSTRUCTION

HITCHINGS & COMPANY

ESTABLISHED 1844

Manufacturers and Erectors of Improved Iron Frame Greenhouses and Greenhouse Heating Systems

GENERAL OFFICES AND FACTORY
ELIZABETH, N. J.

BRANCH OFFICES

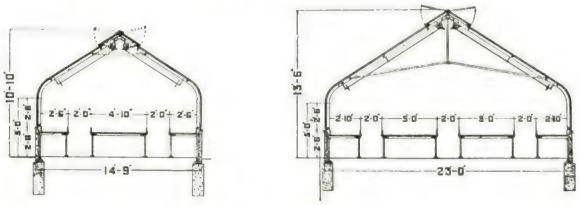
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IMPROVED IRON FRAME CURVED EAVE GREENHOUSES.
SUPER-FRAME STRAIGHT EAVE GREENHOUSES without interior columns.

Also Greenhouse Boilers and Heating Systems, Sash Operating Apparatus, Greenhouse Equipment.
Sludge Bed and Spray House Covers.
Swimming Pools and Swimming Pool Covers.

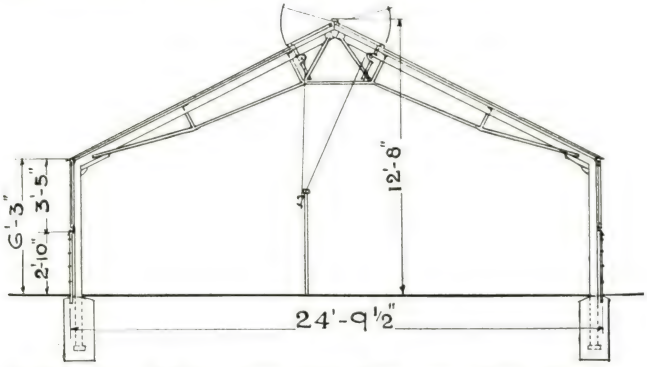
Curved Eave Iron Frame Greenhouses



Typical Section

Gutters and side ventilation optional.
Pier foundations and curtain walls, or continuous foundations and wall optional.
Glass spacing: 24 ins.
Roof pitch: 7½ ins.
Standard widths: 10 ft., 14 ft. 9 in., 18 ft., 23 ft., and 25 ft.
Length of standard bay: 8 ft. 2⅞ ins.

Super-frame Greenhouses Without Columns

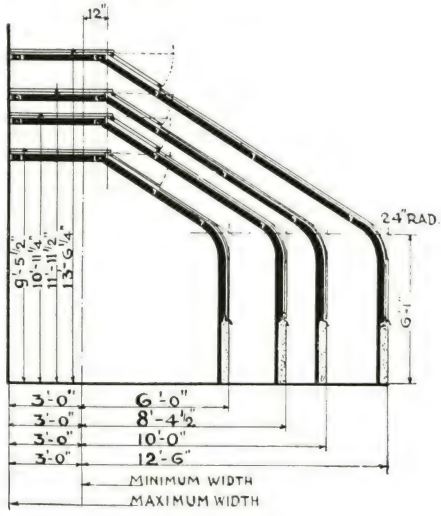


Cross Section of Typical Super-Frame Greenhouse without Columns—In Widths Up to and Including 51 Ft. 6 In.

HITCHINGS
SUPER-FRAME
GREENHOUSE
By Practical Engineers

Available when a straight eave greenhouse is preferred.
Standard widths: 11 ft., 14 ft. 5 ins., 17 ft. 11 ins., 21 ft. 4 ins., 24 ft. 10 ins., 28 ft. 3 ins., 31 ft. 9 ins., 35 ft. 2 ins., and others up to 85 ft.
Eliminates shade-casting structural members and columns. Welding and galvanizing make side construction thoroughly rustproofed. Joints are welded at our factory wherever possible. Height of sides, 6¼ or 7½ ft., optional. Roof pitch: 6 ins. Glass spacing: 20 ins.
Lower initial cost and lower upkeep.

Curved Eave Leantos with Deck



Built like our full span curved eave greenhouses, but with a roof deck that may be varied in width to meet conditions where leanto connects to other building. Deck also gives protection against falling icicles in winter. Its use avoids excessive height, yet it casts no shade over plants.
Standard sizes with minimum to maximum widths are shown on drawing.
Roof pitch: 7½ ins.

Planning and Estimating Service

All Hitchings' offices are equipped to render individual service in the planning and erecting of greenhouses for your clients. They will gladly provide you with all desired information, directly applicable to the particular requirements. *Individual service by our men* makes your planning *individual* and permits quicker and more definite results with every assurance of a pleased client.

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Designers, Manufacturers and Builders of Greenhouses for Four Generations

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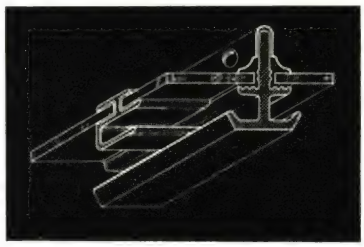
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(1) GREENHOUSES: Three distinct constructions.
(2) CONSERVATORIES: Standard and special constructions.
(3) SOLARIUMS and VITALARIUMS for Sunsoaking.
(4) SWIMMING POOL ENCLOSURES or GLASS-OVERS.
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(9) SUPPLIES and EQUIPMENTS, such as:
(a) Ventilation apparatus—both hand and automatic.
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(c) Plant benches and tables of various types.
(d) Wiring frames.
(e) Hot bed and cold frame sash and frames.
(f) Special greenhouse paint and putty, etc.



Section of New Aluminum Glazing Bar
For further facts about the all-aluminum frame construction, see page 2

The Company Itself

Oldest in the business. One of the largest builders of both private and commercial structures of glass. For over four generations specialists in structures of glass. Only concern having Eastern, Western and Canadian factories. Branch offices manned with trained greenhouse specialists insure prompt personal service. All materials are manufactured and fabricated in our own factories, with but few minor exceptions, such as certain hardware and the glass. Nothing "farmed out." A constant high quality and constant control can thus be maintained on every job. Extensive stock of glass kept on hand. Prompt shipments can at all times be made.

Division of Work

The entire work will be handled by us in one blanket contract, or in part as desired. We furnish without charge masonry plans, showing foundations, walks, trenches, etc. Necessary alterations are indicated when such are to be made to an existing structure.

Some Architects We Have Served

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Pope, John Russell, New York, N. Y.
Rogers, James Gamble, New York, N. Y.
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Trowbridge & Livingston, New York, N. Y.
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Vitale, Ferruccio, New York, N. Y.
Weinrichter, Ralph M., New York, N. Y.

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Vanderlip, F. A., Scarborough, N. Y.
Webster, Edwin S., Chestnut Hill, Mass.
Wellesley College, Wellesley, Mass.
Whitney, Payne, Manhassett, N. Y.
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Woodward, Donald, LeRoy, N. Y.
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Zeigler, William, Noroton, Conn.
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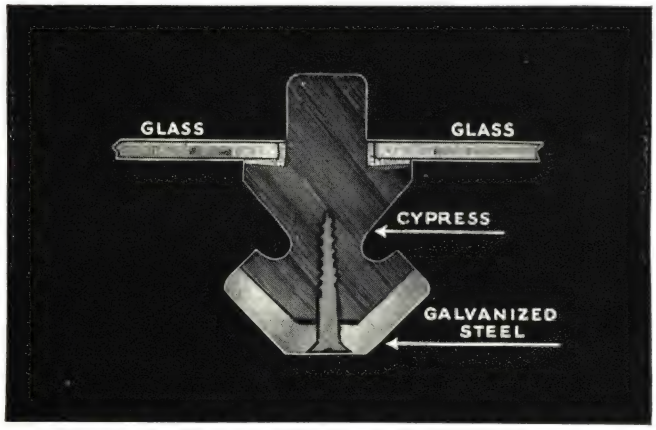
TYPES OF CONSTRUCTION

(1) L & B All-aluminum Frame

The glazing bars and all framing members, so far as practical, are made of aluminum. Lord and Burnham were the first greenhouse builders to use structural aluminum. One of the outstanding subjects is the famous new U. S. Botanic Garden at Washington.

It has served satisfactorily under the exacting conditions required by the engineers for sludge bed glass-overs. The objections to a metal glazing bar have, in this Master Aluminum Construction, been overcome. Its advantages over any steel and cypress construction are its freedom from decay or corrosion and its practically entire freedom from upkeep.

Where the last word in greenhouses, conservatories, etc., is desired, its cost is merited. Full particulars gladly furnished.



Improved V-bar for Greenhouse Conservatory

(2) Improved Master V-bar

For section details see page 6. The finest of the steel frame constructions. Its outstanding feature is the V-shaped galvanized steel roof bar with its cypress glazing core. Unlike other bars of similar shape, condensation moisture is so taken care of, that it cannot get between wood and metal, inviting decay. The cypress core is held firmly in place so that it contacts with the metal equally at every point, by screws through the bottom, instead of on alternate sides. The flat bottom of the Master V-bar forms a basically sound structural seat requiring no fittings to hold the bars to the purlins. Every detail of the construction, in its proportions and painstaking design, reflect the refinements and perfections you seek in a structure developed by a concern of Lord & Burnham's reputation. So light and airy is the structure, that when inside you have all the feeling of being outside.

It is made with either continuous side ventilation or panels in the wall. See page 6 for detail drawings.

(3) Standard Steel Frame Type

For section details, see page 4. This is the old standby construction for all around purposes. The frame is of steel, with all cypress glazing bars. Although somewhat lower in cost than the Improved Master V-bar construction, it will grow just as good flowers and give satisfactory service. It is made with a curved eave, having a gutter at the bottom of the radius. Or with a straight eave with gutter at the eave angle. The curved eave of same height sides has the advantage of giving more headroom on the side benches for tall plants.

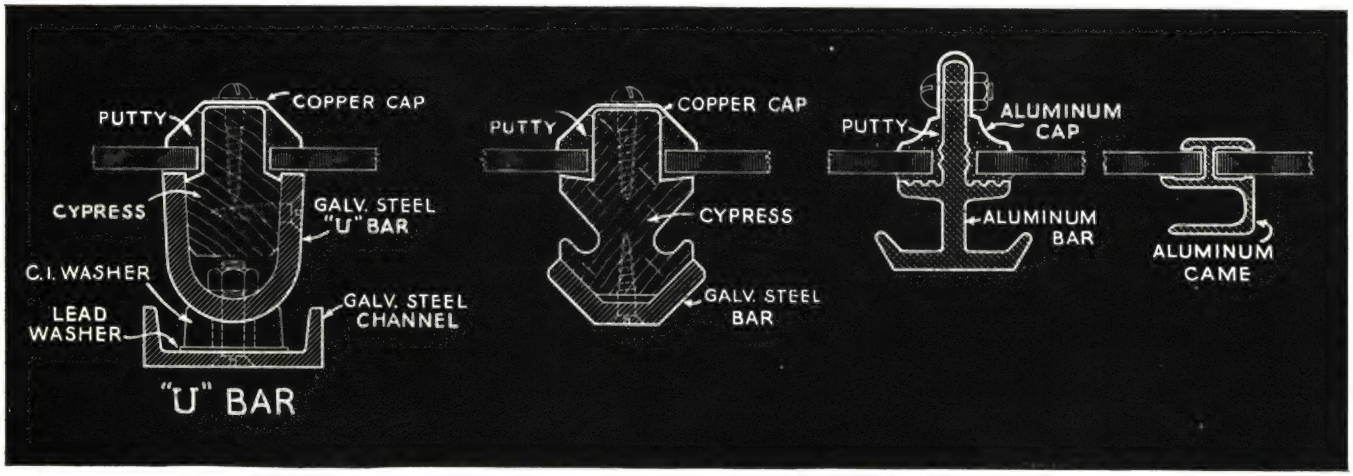
(4) Practical Purpose Construction

A house stripped for the running. No attempts at the ornamental. Just a thoroughly practical good looking house for those seeking the greatest producing space per square foot covered, per dollar expended. Used frequently in connection with farm group locations. Construction is practically the same as used by the commercial grower of cut flowers for market. Has a straight angle galvanized iron eave.

For illustration of house, see page 3.

(5) Special Conservatory Construction

Types Nos. 1, 2 and 3 are used for conservatories, solariums, vitalariums or glassed-over pools. Where the glass enclosure is to be used as a place to lounge or entertain and not primarily for growing plants, a special conservatory construction is desirable. We have developed and built several constructions for these purposes, such as conservatory-living rooms, skylights, solariums and vitalariums.



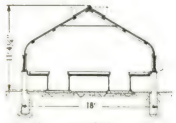
Type No. I Type No. II Type No. III

Special Glazing Details Used in Conservatory Construction

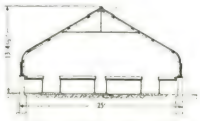
DETAILS OF CONSTRUCTION

Greenhouse Widths

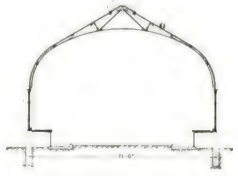
There are three widths which experience has demonstrated to be the most satisfactory for the average single or group of houses on private places. They are 18, 25 and 30. These widths give an economical arrangement of the benches and walks. Any width less than 18 ft., in other than leantos, costs out of proportion to the growing space secured.



18-ft. width with 2 walks and 3 benches



The 25-footer gives four benches and 3 walks



The 30-ft. palm house having high sides with transom ventilation

Ultra Violet Transmitting Glass

This glass costs more than the other, and is worth it for solariums and the sun-soaking lounge portions of swimming pools. We call such ultra violet glass glazed structures "Vitalariums."

Ventilation—Hand and Automatic

Unless otherwise specified, all greenhouses are equipped with a row of continuous ventilating sash on each side of the ridge and hinged to it. Also along the sides and hinged to the gutter or eave plate. These are manually or electrically operated. Panel ventilation when desired can be furnished for the walls in place of the continuous sash hinged to the gutter. Conservatories, swimming pools, solariums, vitalariums, etc., have suitable ventilation to meet their individual requirements, as indicated by design, location and purpose.

Automatic ventilation furnished when desired. The simpler such devices are, the better. We have found the fan type with thermostatically governed louvers to be the most satisfactory. At automatically controlled intervals, the old air is drawn out and replaced by new. The needs of the case, and not the direction of the wind, operate it. In a simple, practically foolproof way, it insures just the right amount of ventilation, and a total freedom from drafts.

Heating—Automatic and Otherwise

(A) Greenhouses and Conservatories—We are specialists in heating glass enclosures. The heating of greenhouses and conservatories requires expert knowledge based on a long experience in meeting the exacting demands of plant life. With humans, variation of temperature causes only discomfort. With plants, it means serious setbacks or total loss. The individual growing temperature requirements of different plants must be known and unfailingly provided for. The rapid fluctuation of temperatures caused by the variation in the sun's radiation, must be reckoned with, else the plants seriously suffer. The entire heating system must also be considered in relation to the ventilation. If the heating be automatic, then hand operation must also be feasible in case of emergencies.

(B) Solariums and Vitalariums—Not only must a dependable, flexible heat be provided, but often humidification and air conditioning as well. Such again is a task for experts only.

(C) Swimming Pools—Two requirements must be met. That of keeping the water in the pool the right temperature; and the warming of the air itself for the comfort of users and the insuring of right conditions for the thriving of plants, so often a combination of the better planned pools. The filtration and purification of the pool water should also be provided for.

(D) Hot Water vs. Steam—For the average size house or group of greenhouses, hot water heat is the most satisfactory because of its steadiness and less intensity. On the larger groups or where heated from a central heating plant, steam is generally used. For conservatories, vitalariums, pools, etc., the conditions dictate the system.

(E) Automatic Heat—Where oil or gas fired boilers are used a thoroughly satisfactory control can be assured by the Lord & Burnham Thermostatic System. With less flexible fuels the results are proportionately satisfactory. To insure individual temperatures in each compartment, we connect the supply pipes with motor valves automatically operated. These valves are so designed that they can also be operated by hand.

(F) Unit Systems of Heat—In conservatories, sun rooms and the like, where the presence of the usual heating coils or radiators may be objectionable, we install the Unit System, consisting of fan equipped radiators. In all of this our engineers are specialized.

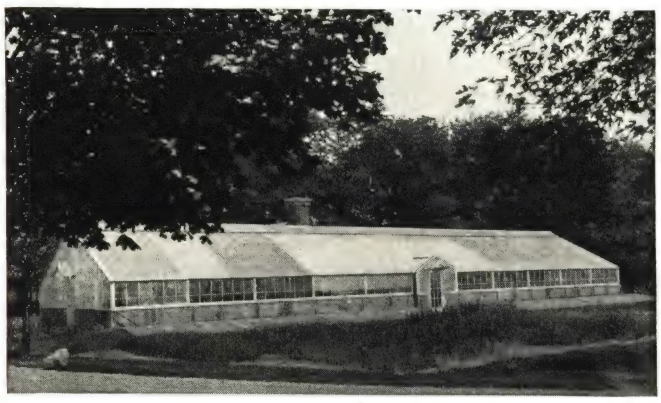
Paint

Have it any color outside or in, that you wish. The lighter it is inside, the greater the reflection and consequent growing advantage for the plants. For general uses our specially prepared aluminum paint is highly satisfactory. Unless otherwise specified it will be used both inside and out on all our glass structures.

All cypress is primed with aluminum before leaving the factory. If the final coat is to be the same, but one additional coat is necessary on the job. With the usual paints whatever the color, two additional coats are essential. If aluminum is used for the final coat, it forms an admirable base for any future paintings.

Screens and Slats

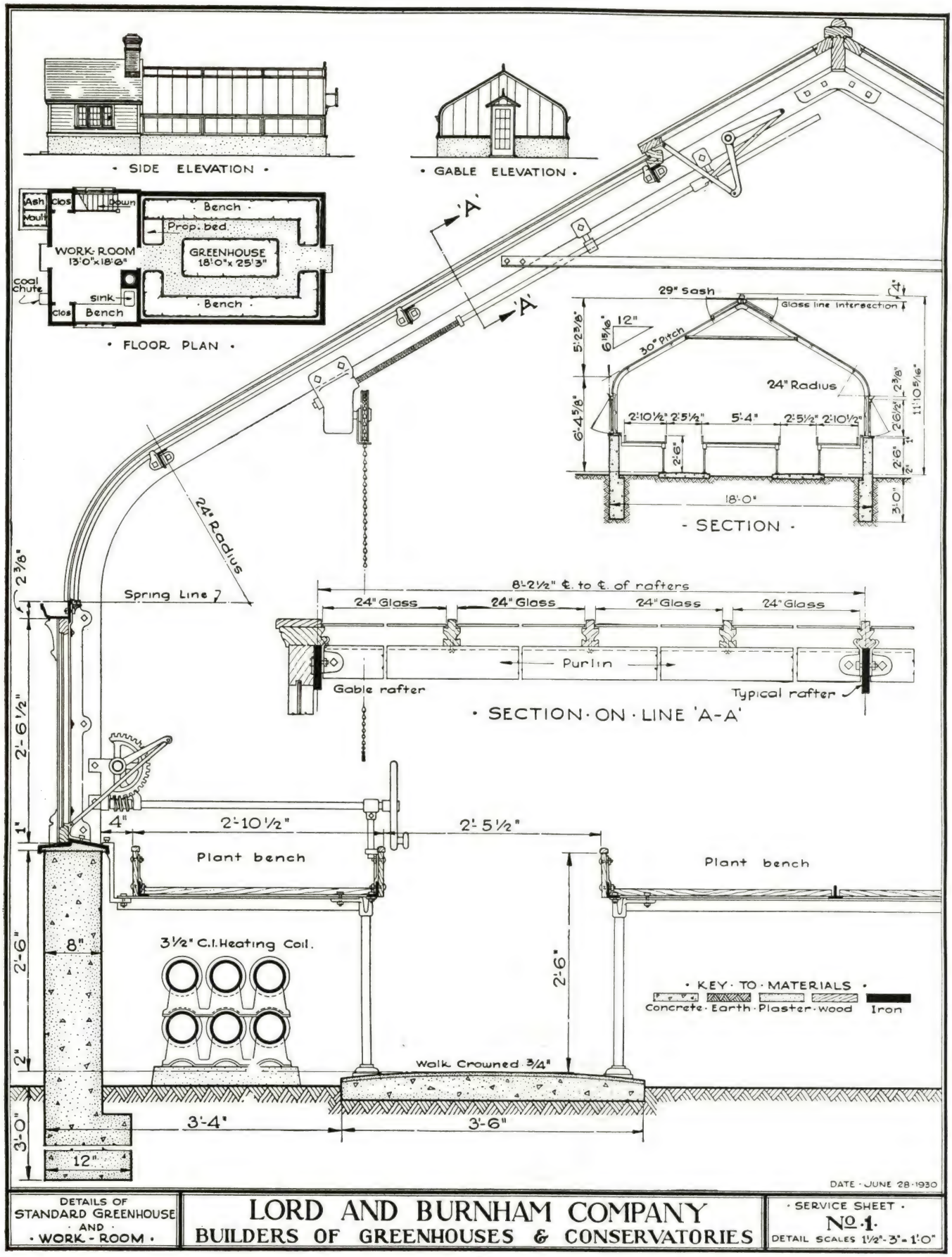
A method of screening has been worked out for conservatories, so that ventilation can be secured without interference. For shading the roof from the sun's glare during the summer months we furnish a special slat shading, which can be rolled up and down.



Straight Eave General Purpose House
30 ft. wide and 100 ft. long, divided into 3 compartments



Slat Shading in Use on Orchid House



DATE · JUNE 28·1930

DETAILS OF STANDARD GREENHOUSE AND · WORK - ROOM ·	LORD AND BURNHAM COMPANY BUILDERS OF GREENHOUSES & CONSERVATORIES	· SERVICE SHEET · No. 1. DETAIL SCALES 1½"-3"-1'0"

SPECIFICATIONS FOR SECTIONAL IRON FRAME GREENHOUSES WITH CYPRESS GLAZING BARS

Iron Frame—***Sills***—The 8-in. foundation walls are to be capped with heavy cast iron sills 10 in. wide. Special fittings and stop ends are to be provided at all corners and intersections.

Gutters—Cast iron gutters to be placed along each side of the greenhouse at the eaves line.

Ornamental splice plates, together with neat cast returned ends and suitable outlets, are to be provided for each run of gutter.

Rafters—Steel rafters, bolted to sills, spaced on 8 ft. 2½-in. centers, bent to the correct radius at the eave line, are to extend in one piece from sill to ridge where they are to be secured together by specially designed fittings, which also serve to support the ridge.

Purlins—Steel angle purlins are to be placed in the roof to support the glazing bars. These purlins are to be secured to the rafters by specially designed lugs providing a two-bolt connection to the rafters.

Ties—Double steel angle ties are to be provided extending between the rafters and bolted to them.

Sash Stops—Sash stops of certified malleable iron are to be placed on each side of the rafters, securely bolted to sills, rafters and gutters.

Woodwork—All wood to be clear, air dried red gulf cypress of tank grade, free from sap and other imperfections. All mouldings, fascias, pilasters, finials, etc., are to be provided to complete the structure.

A ridge is to be secured to the iron rafter brackets. This ridge to be provided with ridge cap and mouldings to receive the ventilating sash.

Grooved rafter caps, moulded to receive the glass, are to be fitted over the rafters.

Cypress glazing bars are to be furnished and placed in the roof of the greenhouse, moulded on the upper face to receive the glass, and provided with condensation grooves in their sides. Gable and partition bars are to be similar to those in the roof, except that the condensation grooves may be omitted.

The metal frame of the greenhouse is to be completely capped with wood, on which the glass is set, to avoid direct metal contact and consequent breakage of glass.

Sash and Doors—The greenhouses are to be provided with ventilating sash on each side of the roof, at the ridge and on each vertical side, all sash to be arranged to open out and to be continuous for each run of ventilation.

Glazed doors, of the design as shown, are to be furnished for the door openings in the gable and partition.

All sash and doors are to be blind mortised and tenoned together and all joints thoroughly white leaded before assembling.

Hood—A glazed hood supported by brackets, is to be furnished and placed over the outside door.

Gables and Partitions—A complete glass gable and partition is to be constructed, where indicated on plan, in a manner similar to the roof.

Ventilation—Ventilating sash in the roof and sides are to be operated by L & B arm and rod, screw-thread type ventilating apparatus, which is self-locking at any point with controls conveniently located.

Glazing—All glass is to be double strength "A" quality, American Window Glass Co. manufacture, or equal, in 24-in. widths, and 26-in. lengths, as far as practicable, the curved glass to be bent to a 24-in. radius.

All glass to be laid with lapped joints, bedded in special L & B greenhouse putty and secured by wedge shaped zinc glazing nails.

Hardware—All ventilating sash are to be hung with heavy wrought steel, hot galvanized butts having brass pins.

Doors are to be hung with solid bronze butts and lock sets, exterior doors to be fitted with mortised cylinder locks.

Plant Beds—Plant beds are to be placed in the greenhouse, arranged as shown on plan, constructed of galvanized steel frames and to have all corners rounded by the use of suitable cast iron fittings. Plant beds are to be furnished with cypress sides and removable cypress bottoms. (*Alternate*—Plant beds are to be furnished with porous tile bottoms, supported on galvanized steel frames and are to have planed slate sides.)

A propagating bed is to be placed where indicated on plan, furnished with apron, additional heat, and covered with glazed sash.

Painting—All materials, not galvanized, to be given one coat of specially prepared greenhouse paint, of our own manufacture, before shipment. The interior of the structure to be finished with Lord and Burnham Special Aluminum Paint, Formula No. 47.

(*Note:* Lord and Burnham Aluminum Paint, Formula No. 47, is an aluminum paint made especially for greenhouse work. It is the result of exhaustive experimentation on the part of this Company in conjunction with the Aluminum Company of America, and is the only formula designed solely for greenhouse work.)

The exterior of the structure to have two coats of Lord and Burnham Special White Greenhouse Paint during erection.

(*Note:* The final coat of outside paint may be tinted to a color desired by the architect or owner, without additional charge, if specified within ten days from placing of the order. While we strongly recommend Aluminum Paint, Formula No. 47, for the interior, this can also be changed if desired.)

The outer face of the sides of the plant bed are to be given two coats of paint after erection. (Does not apply to slate sides which are to be oiled.)

All heating pipes exposed to view are to be given one coat of lamp black in oil.

Heating—A complete gravity hot water heating system is to be installed, and is to consist of 3½-in. cast iron pipe arranged in coils under the plant beds to maintain the following temperatures at zero:

First compartment .....55 to 60 degrees
Second compartment .....50 to 55 degrees
Third compartment .....60 to 65 degrees

The system is to be furnished with all necessary fittings, valves, automatic air headers, expansion tank, cast iron pipe chairs, etc.

The system is to be connected by mains of proper size to a Burnham Hot Water Boiler which is to be placed in the boiler cellar where indicated on plan.

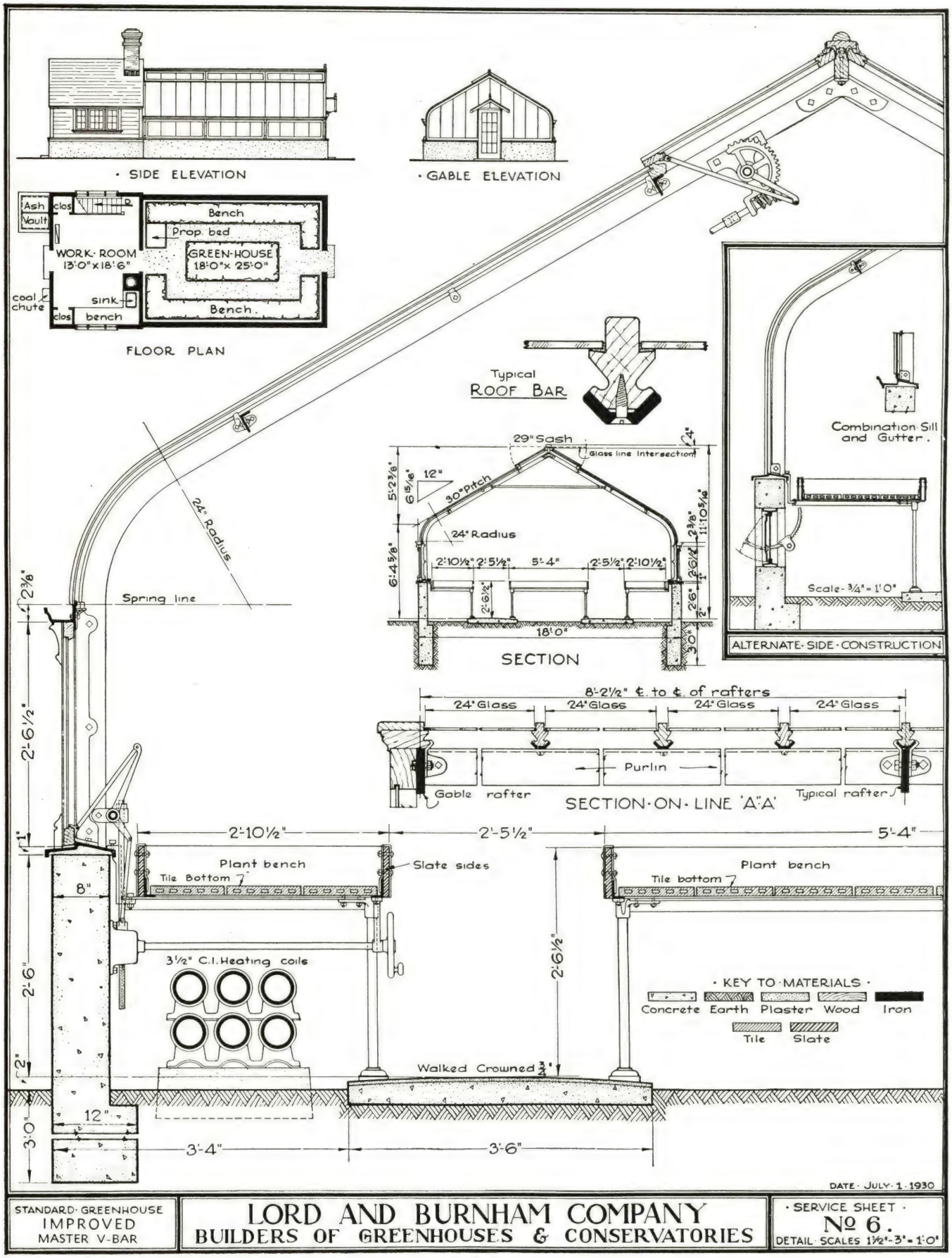
The boiler is to be covered with asbestos cement and connected to the chimney by a galvanized iron smoke pipe, unless the contract is for material only, in which case the smoke pipe is to be furnished by the owner.

Plumbing—A system of plumbing is to be placed in the greenhouse to furnish cold water through galvanized pipe. Brass hose bibbs are to be so located that a 25-ft. length of hose may be utilized. An additional hose bibb is to be placed in the boiler cellar.

Metal Work—Horsehead zinc or copper leaders are to be furnished to connect the outlets of gutters with the uprights of drains.

Finial—Plans are to be furnished for all masonry required in connection with the greenhouse by the greenhouse builder.

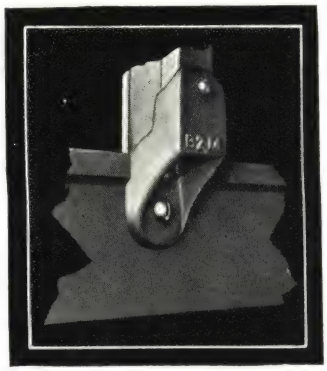
These specifications are of a general nature, and all details must be executed to the architect's entire satisfaction.



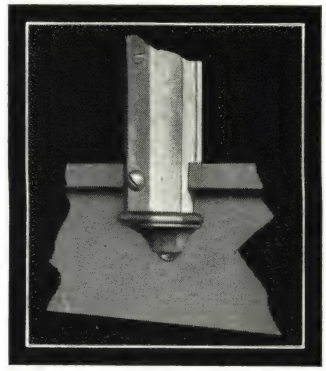
STANDARD · GREENHOUSE
IMPROVED
MASTER V-BAR

LORD AND BURNHAM COMPANY
BUILDERS OF GREENHOUSES & CONSERVATORIES

· SERVICE SHEET ·
№ 6.
DETAIL · SCALES 1½'-3'-1'0"



Method of Fastening Greenhouse Bar to Gutter in Standard Cypress Bar Construction



Method Used in Fastening Improved V-bar to Gutter, Showing Nicety of Refinement

SPECIFICATIONS FOR SECTIONAL IRON FRAME GREENHOUSE WITH THE IMPROVED MASTER V-BAR

(Over forty years ago this company introduced a metal clad bar. Metal clad, or composite bars, of various forms and shapes have since been adopted by others.)

Iron Frame—***Sills***—The 8-in. foundation walls are to be capped with heavy cast iron sills 10 in. wide. Special fittings and stop ends are to be provided at all corners and intersections.

Gutters—Attractively moulded cast iron gutters, to be placed along each side of the greenhouse at the eaves line. Ornamental splice plates, together with cast returned ends and suitable outlets, are to be provided for each run of gutter. (*Alternate*—If wall vents are to be used, cast iron gutter at the eave line is omitted. If desired a combination sill and gutter can be furnished.)

Rafters—Steel rafters, bolted to sills, spaced on 8 ft. 2½-in. centers, bent to the correct radius at the eave line, are to extend in one piece from sill to ridge where they are to be secured together by specially designed fittings, which also serve to support the ridge.

Purlins—Steel angle purlins are to be placed in the roof to support the glazing bars. These purlins are to be secured to the rafters by specially designed lugs providing a two-bolt connection to the rafters.

Ties—Double steel angle ties are to be provided extending between the rafters and bolted to them.

Sash Stops—Sash stops of certified malleable iron are to be placed on each side of the rafters, being securely bolted to the sills, rafters and gutters.

Woodwork—All wood to be clear, air dried red gulf cypress of tank grade, free from sap and other imperfections. All mouldings, fascias, pilasters, finials, etc., are to be provided to complete the structure.

A ridge is to be securely bolted to the iron rafter brackets. This ridge is to be provided with ridge cap and to be moulded to receive the ventilating sash.

Glazing Bars—The glazing bars for roof, sides, gables and partitions, to be special Metal Clad Bars, these bars to consist of special steel shapes galvanized after fabricating, and to be provided with improved cores of air dried cypress. Condensation grooves to be entirely contained within the wood core so as to prevent water from seeping in between the bars and the cores. These cores are to be securely fastened to the steel angles with brass screws. All bars to be furnished in one piece and bent at the eave to receive glass of 24-in. radius.

Sash and Doors—The greenhouse is to be provided with ventilating sash on each side of the roof and on each vertical side, arranged to open out and to be continuous for each run of ventilation. (*Alternate*—If wall ventilation is desired, omit side ventilation.)

Glazed doors, of the design shown, are to be furnished for the door openings in the gable and partition.

All sash and doors are to be blind mortised and tenoned together and all joints thoroughly white leaded before assembly.

Hood—An ornamental glazed hood, supported by brackets, is to be furnished and placed over outside door.

Gables and Partitions—A complete glass gable and partition is to be constructed, where indicated on plan, in a manner similar to the roof.

Ventilation—The ventilating sash in the roof and sides are to be operated by L & B arm and rod, screw and thread type ventilating apparatus, which is self-locking at any point with controls conveniently located. (*Alternate*—If wall vents are desired. Cast iron wall panel vents 16x24 in., complete with cast iron frames and galvanized screens are to be furnished and placed in the center of each bay on each side of the house. These vents to be furnished by the greenhouse contractor, and built into the masonry wall by the mason contractor.)

Plant Beds—Plant beds are to be placed in the greenhouse, arranged as shown on plan, constructed of galvanized steel frames, and to have all corners rounded by the use of cast iron fittings. Plant beds are to be furnished with cypress sides and removable cypress bottoms. (*Alternate*—Plant beds are to be furnished with porous tile bottoms, supported by galvanized steel frames and are to have planed slate sides.)

A propagating bed is to be placed where indicated on plan, furnished with apron, additional heat and covered with glazed sash.

Hardware—All ventilating sash are to be hung with heavy wrought steel, hot galvanized butts having brass pins.

Doors are to be hung with solid bronze butts and lock sets, exterior doors to be fitted with mortised cylinder locks.

Galvanizing—All metal work used in the house is to be galvanized by the hot dipped process after fabrication, with the exception of malleable castings, cast iron gutters and sills.

Painting, Glazing, Heating, Plumbing, Metal Work and Finial—Are the same as for previous specifications for Iron Frame Greenhouse with Cypress Glazing Bars.

MASONRY—POTTING HOUSE, ETC.

Foundations—Greenhouses require a foundation of stone, brick or concrete extending 2 ft. 3 in. above the walk level of greenhouse; below grade the walls should extend below frost level. Tops of all walls should finish with a plinth course 8 in. wide on which cast iron sill can be set.

Walks—It is customary to construct concrete, tile or brick walks between the plant benches extending 6 in. under the beds to support uprights of plant benches. Walks should have a crown of ½ in. to drain water from sprinkling.

Potting House—A suitable building in which the plants can be potted should be attached to the greenhouse. This building can be of masonry or wood designed to harmonize with surrounding buildings.

A cellar with floor at least 7 ft. 6 in. below walk level in the greenhouse is necessary and can be built under Potting Room.

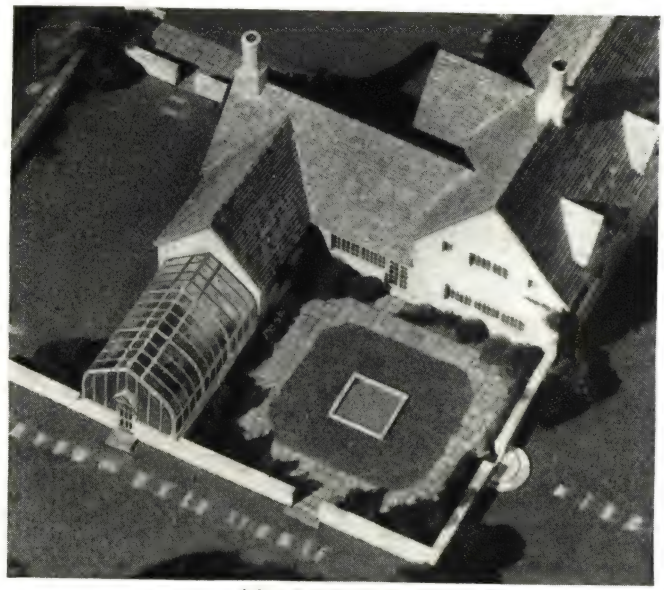
A potting bench, sink, and seed closet are necessary fixtures for the workroom.

A chimney containing 12x12 in. (minimum) tile flue, to which the boiler can be attached, should be provided.



Leanto for a Southern Exposure

Adaptable for attaching to garage or residence, for greenhouse, conservatory, sun-soaking room or swimming pool



Adjoining Residence

There is a distinct advantage, as in this instance, in designing the greenhouse or conservatory at the same time. One then is a direct part of the other and does not have the all-too-often "hitched-on" effect

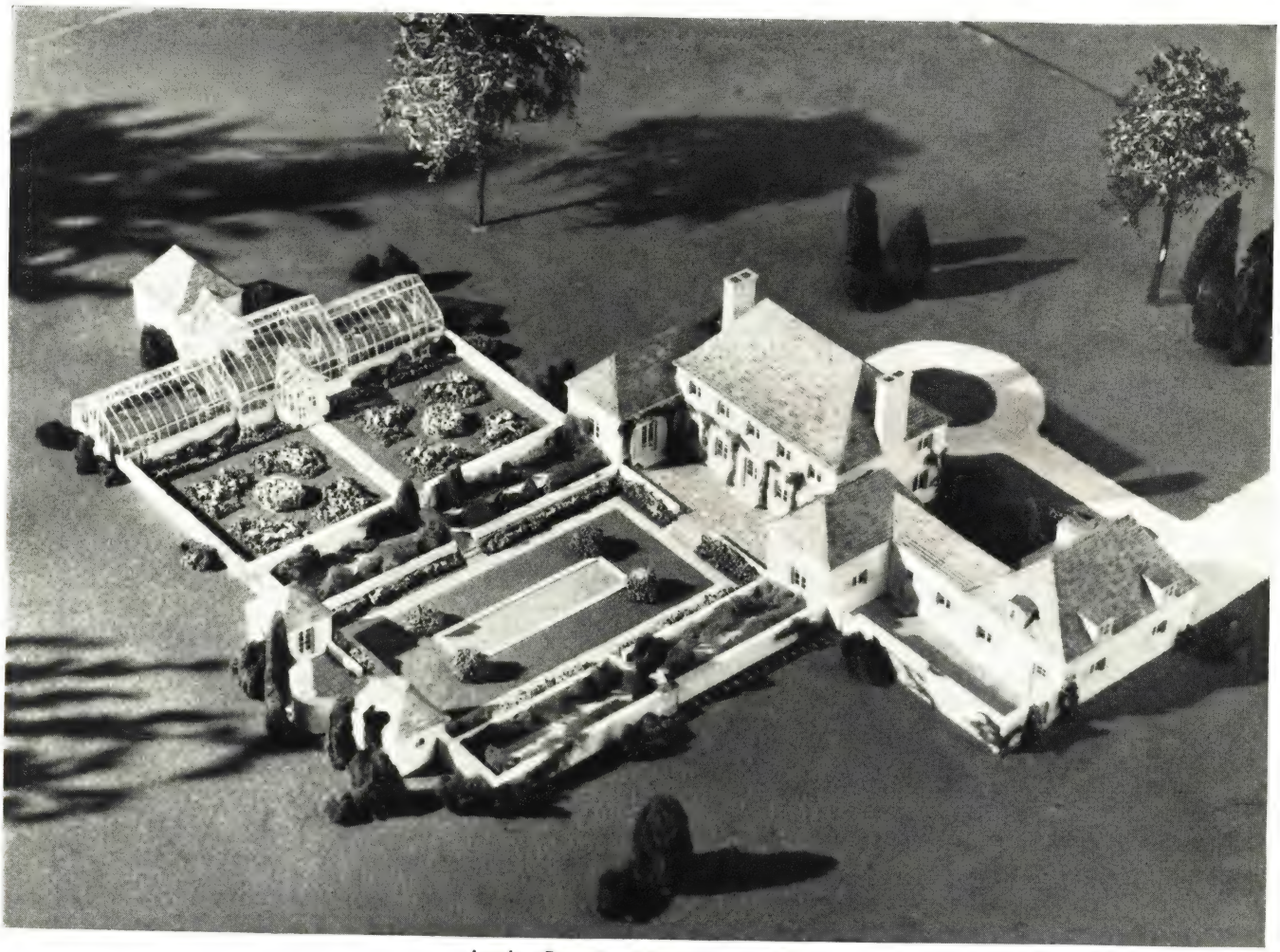


Swimming Pools

They have fast become an indispensable part of the recreational group. The layout also suggests the possibilities of a conservatory link-up. This ensemble designed by a New York architect



Recreational Group of W. A. Fisher, Detroit, Mich.



Another Example of Ensemble Planning

In this instance the landscape architect worked with the residence architect to the end that the group fits into the picture. It is conveniently located for the owner and still sufficiently restrained as not to be a constant clamor for attention

E. A. WARD, President and Treasurer H. W. PRATT, Vice-president R. B. WARD, Secretary

WILLIAM H. LUTTON COMPANY

Designers and Builders of Greenhouses, Conservatories and Modern Glass Structures

TELEPHONES
BErgen 3-8800, 3-8801, 3-8802

GENERAL OFFICES AND FACTORY
267 Kearney Avenue, JERSEY CITY, N. J.

The Products

Greenhouses.
Conservatories.
Solariums.
Garden Frames.
Greenhouse Equipment.
Swimming Pool Enclosures.
Tennis Court Enclosures.
Sludge Bed Enclosures.
Glazed Awnings.
Slat Shades for Glazed Roofs.
Automatic Temperature and Ventilation Control Equipment.

The Company

The WILLIAM H. LUTTON COMPANY has been continuously in business since 1904, specializing in the erection of private greenhouses, conservatories, swimming pool enclosures, solariums and the highest class work of this type.

Through intimate contact and co-operation with leading architects, growers and owners the Solar V-Bar type of construction has been developed. It is a type of construction for glazed enclosures that is exclusive with them and which is considered the standard for quality where the highest grade of work is desired.

The experience of the company has been extensive. This experience is at the disposal of prospective clients and architects in the preparation of plans that will satisfy the architectural requirements and that will, at the same time, be most thoroughly practical from an engineering and growing standpoint. When wanted, competent representatives are available for consultation on short notice, and without obligation.

SOLAR
REG. U.S. PAT. OFF.
V-BAR GREENHOUSES
TRADE-MARK

Attempts have been made to imitate the products of the WILLIAM H. LUTTON COMPANY, so far as patents would permit. Our copyrighted trademark above identifies all products of the WILLIAM H. LUTTON COMPANY, and when specified insures the highest quality in workmanship and design.

Manufacturing facilities are available for the manufacture and erection of the largest of greenhouse ranges. Lutton sales and erection services cover the whole United States. All of the work is fabricated and erected, including complete heating systems, by the William H. Lutton organization.

THE WILLIAM H. LUTTON COMPANY is especially well qualified and equipped to take care of special work both as to design and manufacture.

Features of Lutton Solar V-Bar Construction

Lutton Solar V-Bar construction is the lightest, yet the strongest greenhouse construction that has been developed. A minimum amount of wood is employed in the construction. Its additional cost is more than justified by its greater permanence, by the reduction of shadows, its superior appearance and lower maintenance expense.

All structural steel, such as rafters, purlins, tie rods, and fittings are galvanized *after* fabrication by the "hot dip" process, insuring a thoroughly rustproof structure. The Solar V-Bar construction is almost universally specified where a low degree of fire hazard is essential and it can be furnished with wood treated to pass fire inspection codes. When desired, outer surfaces of all woodwork can be copper or aluminum covered.

The class of equipment, including heating systems, plant benches, hardware, etc., furnished in conjunction with the Solar V-Bar type of construction is of the very highest grade. (See detailed specification.)



Range of Solar V-Bar Greenhouses Built for Clarence H. Geist, Villa Nova, Pa.

GENERAL INFORMATION RELEVANT TO GREENHOUSE CONSTRUCTION

Location of Greenhouse

In locating a greenhouse, ideal conditions are met when the ridge can be run approximately north and south, and when no part of the greenhouse is within the shadow cast by any object at any season of the year or time of the day. It must be remembered that an object 10 ft. high will cast a shadow 20 ft. long at noon in the winter months, and further that it is more important to receive the morning sun than to receive the afternoon sun. It is desirable that the service building, which is almost always provided in connection with a growing house, be erected at the north end.

Suggested Dimensions

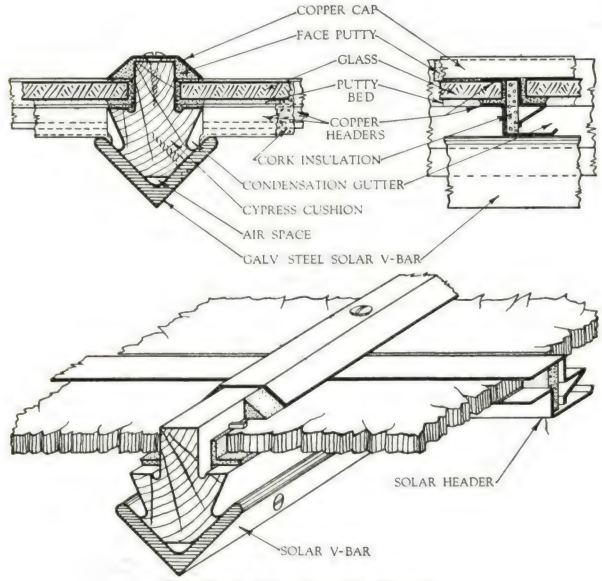
The following is a list of widths and lengths which work out to the best advantage, but units of any width and any length can always be provided to meet special conditions. The widths indicated simply work out best from an economic standpoint with respect to the bench requirement, allowing for the maximum width of benches that can be easily worked and a sufficient width of walk between benches. (See detail drawings.)

Style	Over-all width ft. in.	Lengths										
		ft.	ft.–in.	ft.–in.	ft.–in.	ft.–in.	ft.–in.	ft.–in.	ft.–in.	ft.–in.	ft.	ft.–in.
Lean-to	9–0	17	25–3	33–6								
	12–6	17	25–3	33–6	41–8	49–11						
	15–0		25–3	33–6	41–8	49–11	58–2	66–4				
Even span	8–6	(Connecting passage only)										
	11–0	17	25–3									
	18–0		25–3	33–6	41–8	49–11	58–2	66–4	74–7			
	25–0			33–6	41–8	49–11	58–2	66–4	74–7	82–10	91	99–3

Ventilation

A greenhouse should always be well ventilated. Two lines of top ventilation, one each side of ridge, are desirable. Two kinds of bottom ventilation are available; first, with side sash between gutter and sill, second, wall ventilation under benches with large cast iron wall ventilating panels erected in the foundation walls. (See detail Sheets No. 2-A and 3-A.)

Conservatories, solariums, etc., are frequently provided with special roof ventilators and with steel casement sash or other methods of side ventilation.



Detail of Solar Header Glazing
Patent Applied For



Solar V-Bar Construction, Header Glazing on Roof of Hotel Used for Solarium and Dining Room

Lantern roofs are often desirable to break up the lines of a large roof expanse (see cut, Page 1).

It is frequently desirable to provide automatic top ventilation in each compartment. This is especially desirable in connection with an automatically fired boiler installation and in all cases where a man is not constantly in attendance at the greenhouse. In this case, motor operated ventilating machines should be installed together with special thermostats, weather vane switch, timer, and push button controls, and also with provision for manual operation when electric power is interrupted.

It is strictly essential that the primary control of the automatic system be according to temperature, with a secondary control that will automatically connect a lee ventilator so as to open and close in accordance with temperature, in steps, with an interval of approximately 10 minutes between steps. When a lee ventilator becomes a windward ventilator, while open, the automatic system must provide for the immediate closing of the former lee ventilator without waiting for the step by step action.

Pitch of Roofs

It is desirable to keep the pitch for greenhouse roofs, or roofs where the glass is to be lapped or shingled, between 6 and 7½ ins. per ft., to make them weathertight.

Eaves

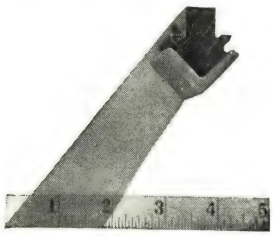
Eaves can be constructed either straight or curved. For Solar Greenhouses the standard curves are 24 and 30-inch radii. The advantage of curved eaves for growing houses is that it gives additional height over the side plant benches where tall plants such as roses and chrysanthemums can be grown. This curve permits of the eave line or base of curve being kept low, which adds greatly to the exterior appearance of the house. Another advantage of curved eaves is that they shed ice and snow.

Palm house roofs can be designed with single radius curves tangent to the straight pitch of roof, or the entire roof line can be made curvilinear by using curves made up of two or more different radii.

Header Glazing

During the last few years, there has been a growing demand for low pitch, butted glass roofs, especially over solariums and conservatories.

We have constructed many such roofs, with pitches as low as 3 ins. per ft., and the tightness and freedom from condensation drip of these roofs has been made

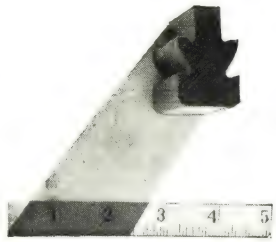


Compare Shadow Cast by Solar V-Bar (Left) with All Cypress Roof Bar Shown at Right

All structural members of Solar V-Bar Greenhouses are designed to cast a minimum amount of shadow

Shadow Cast by Cypress Glazing Bar of Ordinary Greenhouse (Right). Compare This with Illustration at Left

Heavy shadow casting members are not permitted in the Solar V-Bar type of construction



possible only by the use of our insulated, metal, header glazing strips, in conjunction with our Solar V-Bar construction.

These header strips can be manufactured from copper, zinc, aluminum or any other suitable, non-corrosive metal of proper strength, and are so constructed as to allow the glass to be butted, making both the outside and inside surfaces of the glass flush.

The header strips are made in two sections (see detail) and separated by means of cork insulators, thus preventing the outside section which is exposed to the cold outside temperature from coming in contact with the lower or inside section, which is subject only to the warm inside temperature. This insulation prevents condensation from forming on the under-side of the interior strip.

The lower or interior strip also acts as a drip gutter and successfully conveys all condensation drip from the glass to the condensation gutters on the sides of the galvanized Solar V-Bars.

Another very important feature of this dual type of header is that each header becomes a water-tight expansion joint, which permits expansion and contraction of roof members, and prevents cracks or leaks.

Benches

Several different classes of benches can be provided, such as all cypress, cypress sides and bottoms with pipe leg frames, cypress sides and bottoms with galvanized angle iron frames, tile bottoms and slate sides with angle iron frames. (The last should always be specified when the best is wanted.) In no case should the side of the bench be less than 7 in. high to provide sufficient soil depth and for certain cultures this is frequently increased.

Slate top tables with galvanized iron fascias are preferable to growing benches for culture in pots. A section of propagating bench is desirable in any greenhouse, which should be equipped with removable sash and adjustable curtain to control bottom temperature.

Heating

Except in very large ranges of greenhouses, hot water heat is the most economical and is considered by experienced growers as the best heat for the proper growth of plants. The open tank gravity system is generally used and is preferred by most gardeners and growers. 2-in. hot water heating coils have a sufficient capacity to maintain even temperatures, but at the same time are not so large but that a rapid circulation is obtained through them.

The heating installation in a greenhouse is of prime importance. It is common practice simply to specify the temperatures which must be maintained in order that the greenhouse manufacturer can estimate the amount of radiation required to maintain temperatures in his class of construction. On account of the exposure to corrosion, genuine wrought iron pipe coils and mains are desirable. Heating coils are erected under each growing bench and should be provided with valves on both flow and return connections and with a system of mains direct to each coil so that each greenhouse compartment can be controlled and regulated absolutely independent of the temperature in any other greenhouse compartment. (See figure 2.)

When greenhouses are to be heated from a central plant or from a residence boiler, it is desirable that separate automatic temperature control be provided.

Work by Other Contractors

While the William H. Lutton Company is prepared to contract for the complete erection of a greenhouse or other glass structure, including all trades, it is customary that the following work be not included in the greenhouse contract.

(1) Excavating and grading.
(2) Foundations, walks, trenches, etc.
(3) Service building and its equipment.
(4) Drains, bringing water to the building site, electrical work.
(5) Electrical work.

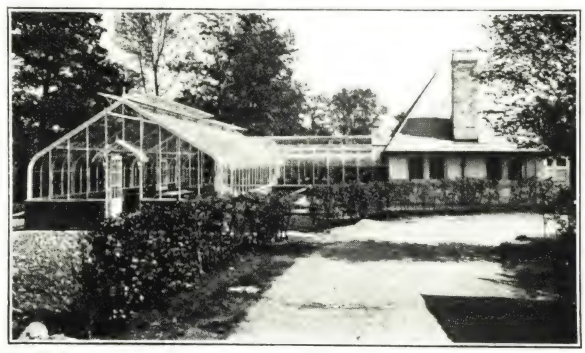
The William H. Lutton Company furnishes without charge all drawings for foundations, walks, trenches, etc. and when wanted, a design for the service building. When the greenhouse is to be tied in to any existing structure their drawings show alterations necessary, if any, in the existing structure.

Greenhouses of Painted Iron Frame Type of Construction (Not Galvanized)

The William H. Lutton Company is prepared to build this class of structure, but it is of a lower grade and not recommended by them except when a saving in first cost is of greater importance than quality. Specifications submitted upon request.



Circular End Conservatory and Solarium Erected for Walter H. Jewell, New Rochelle, N. Y.



18x50-ft. Two-compartment Greenhouse and 11x17-ft. Propagating House Erected for Otto Miller, Cleveland, Ohio

TYPICAL DETAILED SPECIFICATIONS COVERING SOLAR V-BAR TYPE OF CONSTRUCTION

(1) Steel Framework

A complete steel framework to be furnished and erected;
(a) For Structures of Less Than 30 ft. Span—With flat steel rafters, angle iron purlins and tie rods, erected on cast-iron sills not less than 9½ in. wide, weighing 10 lb. or more per lineal foot. Rafters to be in one continuous piece from sill to ridge and of dimensions adequate for the span and load. Special castings to be provided for the support of the ridge and joining of rafters at the ridge. Rafters to be secured to the sill with bolted knees. The sill shall run in one continuous piece between rafters. The sill shall also be provided with special return castings at corners and door openings. Glazing bars over rafters to be identical with regular glazing bars but supported on top of rafters in special lead "M" shaped members. No wood rafter caps to be used. (See sheets No. 2-A and 3-A.)

Door jamb posts shall be of flat steel. Partitions when called for shall be erected on cast-iron sills same as outer walls.

All metal work in superstructure except cast-iron sills shall be galvanized by the "hot dip" process after fabrication and finished after erection in aluminum bronze.
(b) For Structures of More Than 30 ft. Span—Same as covered in specifications (a) above, except that instead of flat rafters, rafters shall be of truss type having a curved lower cord.

(2) Gutters

(a) For Greenhouses and Structures of Normal Span—Cast-iron gutters approximately 5½ in. wide shall be furnished and erected at the eave line. Gutters shall be provided with return ends and with cast-iron downspout outlets on the inside; outlets shall be connected by 16 oz. copper leaders to drains (drains will be provided by others).
(b) When Greenhouse is Provided with Wall Panel Ventilation—Gutter same as under (a), shall be erected at the sill line, with outside down spout connections.
(c) For Palm Houses and Large Enclosures—Cast-iron gutters to be 9 in. wide, otherwise as covered in (a).

(3) Eaves

Eaves shall be curved to a radius of
(a) Pin bend (straight eaves)
(b) 24-in. radius
(c) 30-in. radius
(d) 36-in. radius
(e) 48-in. radius
(f) 60-in. radius
(g) 72-in. radius

(4) Entrance

(a) Gable Entrance—An ornamental curved glazed canopy, supported by means of genuine handmade wrought iron scroll brackets galvanized after fabrication shall be furnished and erected over the gable entrance as shown on plan.
(b) Side Entrance—Side entrance with necessary valleys, gable, and with ornamental curved glazed canopy supported by means of genuine handmade wrought iron scroll brackets, galvanized after fabrication, shall be located where shown on plan.
(c) Vestibules—Vestibules with necessary valleys, gables and side glazing with steel framework shall be furnished and erected where shown on plan.

(5) Glazing Bars

(a) For Greenhouses and Enclosures of Normal Span—Solar V-Bars 1x1x$\frac{3}{16}$ in. fitted with a heart cypress cushion core and provided with a condensation groove on each side spaced to receive 24 in. wide glass, shall be provided.

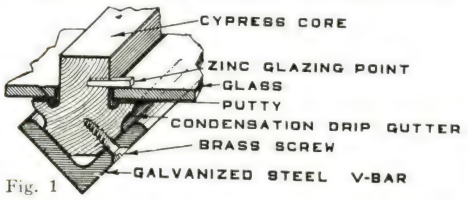


Fig. 1

(b) For Large Enclosures or Where Extra Wind Pressure will be Encountered—Solar V-Bars same as in (a) above, except 1¼x1¼x$\frac{3}{16}$ in. shall be provided.

(6) Ventilation

(a) Two (2) lines of top ventilating sash approximately 30 in. wide, hinged at the ridge and provided with three (3) operating arms between each rafter, equipped with 1 in. diameter steel shafting supported in ball bearing shaft hangers and operated by self-locking worm and gear ventilating machines, with cut worms and gears and ball and roller bearings encased in a grease-tight case with alemite fittings, and operating rod brought down parallel with roof, including necessary universal joints and with mitre gear, with hand wheels brought out beneath side benches. Each line of ventilating sash in each compartment shall be operated separately. (When top ventilators are to be automatically controlled, operating equipment shall be brought down as far as tie rods only, and removable crank shall be provided for emergency hand operation.)


36x48-ft. Solar V-Bar Roof Header Glazing Over Court, Fox Chapel Golf Club, Aspinwall, Pa.

(b) (Alternate with (c) — Side ventilation shall be provided by means of top hung, outward swinging side ventilating sash, between the eave and sill —normal height approximately 2 ft. 6 in. Each sash shall be equipped with arms, shafting and ventilating equipment as described above, but with operating shafting brought out just above the benches.
(c) (Alternate with (b))—Side ventilation shall be provided by means of cast-iron wall panels, 16 in. high by 24 in. wide, with swinging cast-iron shutter and galvanized steel wire screens, built into the foundation wall, operated by means of arms and hangers, self-locking worm and gear machines, etc., the same as the side ventilation sash (wall panels shall be placed by mason contractor).

(7) Automatic Control Equipment for Top Ventilation

Independent fractional horsepower motor units with gear reduction shall be provided for each line of top ventilation in each compartment and connected to it by suitable mechanical means. The thermostat for the primary control of the motors shall be furnished of suitable range and with glass enclosed mercury bulb type contacts, adjustable as to point of control, with brass case and shall be provided with suitable sun shield. A weather vane of neat design including glass enclosed mercury type switch with suitable mechanical connection between switch and weather vane to be furnished and erected where indicated on plan. An electric timer with glass enclosed mercury contacts operated by a synchronous motor from lighting circuit shall be provided.

Design of the equipment shall be such that the lee ventilator is electrically operated in steps, at intervals of approximately 10 minutes in accordance with temperature, to open when too hot and to close when too cool. When lee ventilator is open and becomes a windward ventilator, it shall automatically close without the step by step action. Motors shall be provided with suitable limit switches and with push button controls for manual operation, independent of automatic operation. System to be provided for emergency hand operation in times when electric power may be interrupted.

(8) Glazing

(a) Roof Glazing—Roof glazing shall be shingled construction with ¼ in. glass laps using 24 in. wide "A" quality, double strength, clear, special flat drawn glass, or equal; shall be bedded on Solar V-Bars with special greenhouse putty mixed with pure linseed oil and secured with heavy solid zinc glazing tacks. All surplus putty to be carefully removed.
(b) When a Light Degree of Shading is Wanted—Same as (a) except that glass shall be frosted.
(c) Side ventilating sash shall be glazed with 24 in. wide "A" quality, double strength, clear, special flat drawn glass.
(d) Side sash to be glazed with ¼ in. thick polished plate glass.

(e) Glass in roofs shall be laid with butt joints in Lutton Solar Copper Headers, with cork cores. Headers shall be designed to properly take care of expansion, and collect condensation and conduct it into condensation drip gutters on the Solar V-Bars.

(9) Woodwork

All sash and mouldings shall be of best quality genuine red gulf heart cypress, free from all defects, milled to modern details.

All doors shall be of clear white pine 1¾ in. thick, paneled and glazed as indicated on plan.

(10) Hardware

All ventilating sash shall be hung with galvanized steel butts and brass pins; all nails, bolts and screws shall be of brass or galvanized. Door hardware shall be of polished cast brass or bronze, butts shall be steel bushed, lock sets to have heavy brass knobs, double cylinder locks and shall be provided with master pass key.

(11) Flashing

Where greenhouse joins service building or other structure, a weather tight connection shall be made by flashing with heavy sheet lead or copper in a neat and workmanlike manner. (Flashing reglet shall be left by service building contractor, if service building is other than wood construction.)

(12) Painting

All interior galzanized iron work shall be finished in aluminum bronze. All exterior iron and woodwork shall be painted three coats of best white lead and oil mixed with 20% French zinc. The second coat shall be applied before glazing and the third coat shall be applied after glazing. All exposed surfaces of heating coils beneath the plant benches and mains in boiler cellar shall be finished with a coat of specially prepared heat resisting black paint, that will be harmless to plants.

(13) Plant Benches

(a) Indestructible sanitary type plant growing benches arranged as shown on plan shall be furnished and erected, consisting of galvanized angle iron frames supported on galvanized iron pipe legs, with porous tile bottoms resting in galvanized tees, and with sand rubbed slate fascias 1 in. by 8 in. All metal parts of frame shall be hot galvanized after fabrication.
(b) Plant benches same as in (a); except that sides shall be of genuine red gulf heart cypress. Bottoms shall be of porous tile.
(c) Plant benches same as in (a) except that bottoms and side fascias shall be of genuine red gulf heart cypress. Side fascias shall be provided with moulded cap.
(d) Section of bench indicated on plan shall be equipped for propagating purposes with propagating frame with glazed sash and with cypress curtain beneath bench with adjustable panels to control the bottom heat.
(e) Plant tables where shown on plan shall be furnished and erected, with galvanized angle iron frames having pipe legs and with flat sand rubbed slate top 1 in. thick and provided with galvanized iron fascia approximately 3 in. high.
(f) Where shown on plan, benches shall be equipped with orchid steps consisting of galvanized angle iron frames and genuine red gulf heart cypress slatted steps.

(14) Plant Supports

Each growing bench where indicated on plan shall be provided at intervals of not more than 25 ft. with adjustable plant supports for carrying wire stretchers. These shall be bent to form from angle iron galvanized after fabrication and secured to benches by suitable braces and shall be provided with a cross bar adjustable in height in steps of 2 in. to a maximum of not less than 30 in. At corners the plant supports shall be returned so that wires can be stretched in both directions.

(15) Heating Coils

(a) Hot water heating coils shall be furnished and installed, with sufficient radiating surface in coils of 2-in. Byers or equal, genuine wrought iron pipe, placed beneath the plant benches to maintain a temperature of (60°-65°) in Compartment No. 1

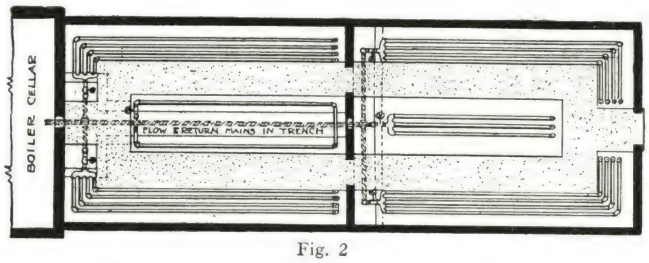


Fig. 2

and (50°-55°) in Compartment No. 2, etc.; these temperatures shall be maintained at night in zero weather, with water at the boiler heated to 180° F.
(b) Same as above but heating coils of 2-in. wrought steel pipe instead of wrought iron.
(c) Heating coils or a cast-iron radiator of sufficient heating surface to maintain a temperature of (65° to 70°) shall be furnished and installed in the workroom.

(16) Mains

(a) Mains of adequate size of Byers or equal genuine wrought iron pipe shall be furnished and installed, connecting the boiler to the various coils in such a manner that the control on each bank of coils is independent of that of any other.
(b) Mains shall be furnished and erected as in (a) except that they shall be of wrought steel instead of genuine wrought iron.

(17) Valves

Each bank of coils shall be fitted on flow bow and return connections with a finished brass gate valve of approved make and each independent coil shall be provided with positive brass air cocks.

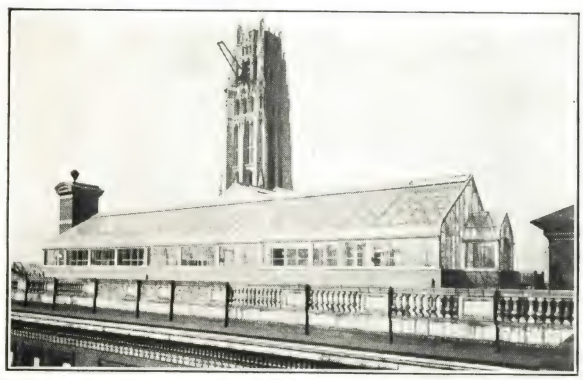
(18) Watering System

A ¾-in. brass finished hose bibb shall be placed at the side of each walk as located on plan.

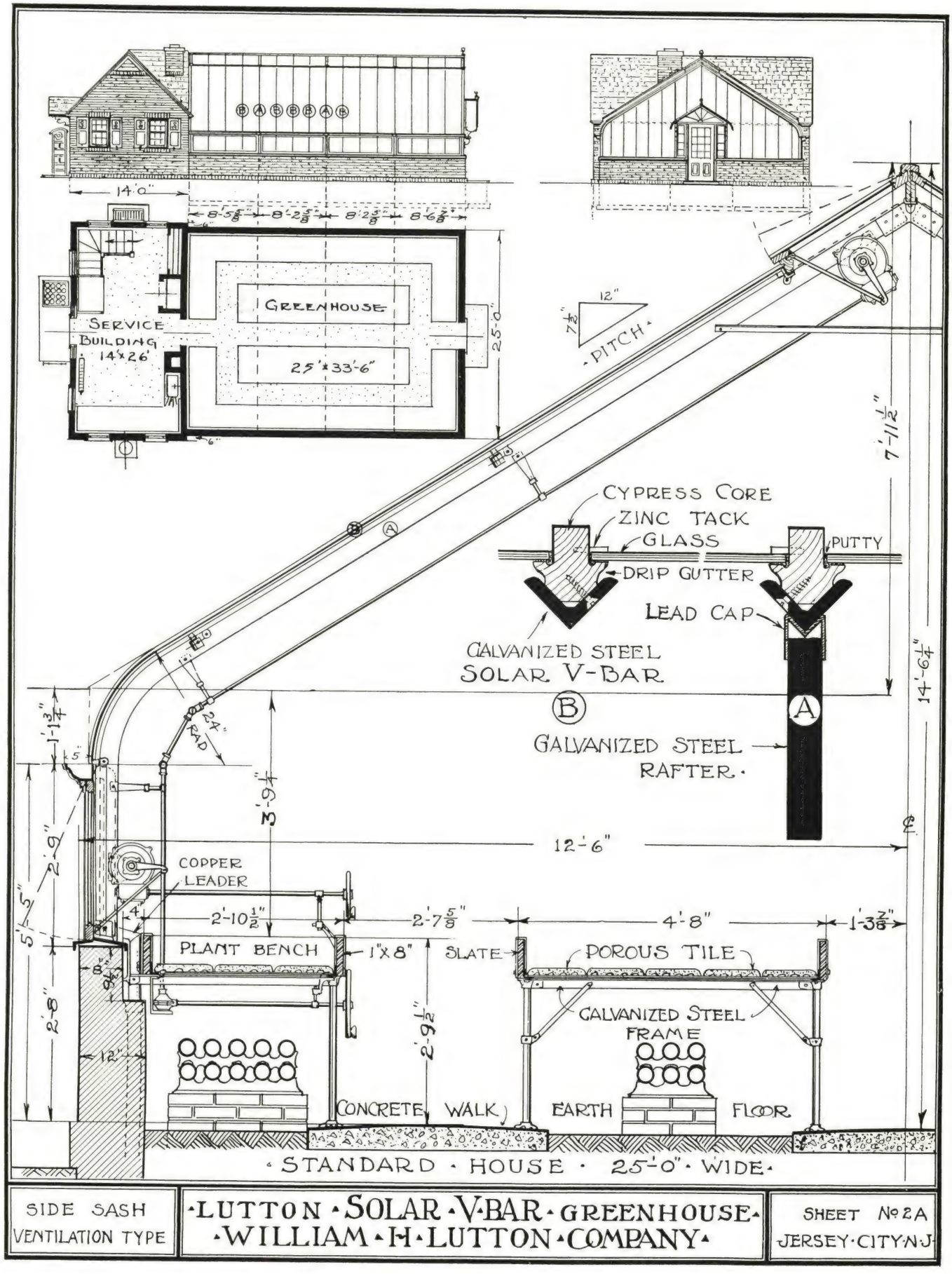
Hose bibbs shall be connected to water supply in boiler cellar by means of (a) brass pipe—(b) galvanized iron pipe.

(19) Automatic Temperature Control Equipment

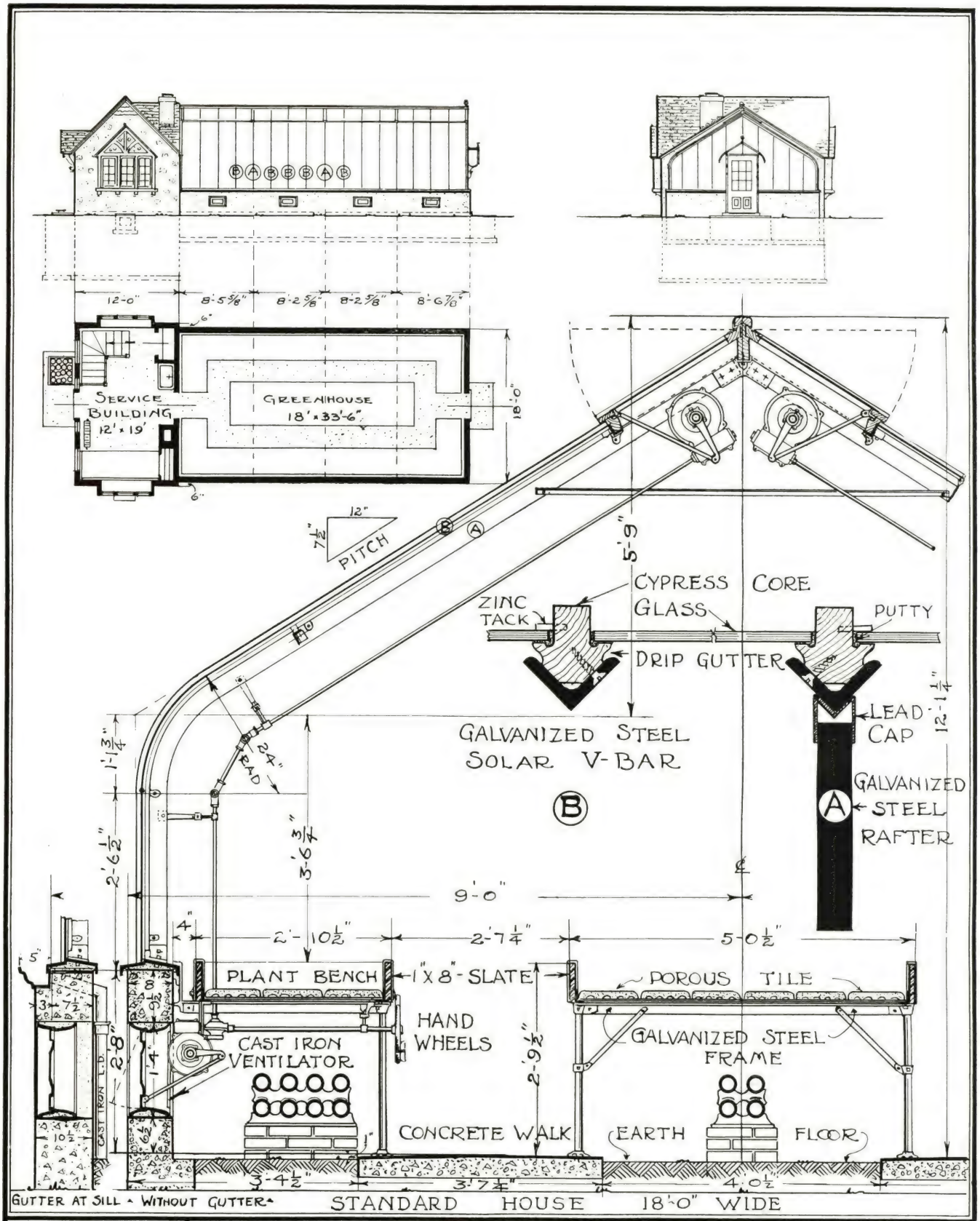
On the flow main to each separate compartment, direct connected motor operated valves shall be furnished and installed. Valves shall be of a type that may be opened and closed by hand in case of motor failure. Each greenhouse compartment shall be provided with a mercury tube type thermostat—range (50°) to (100°). Operating differential at mid


25x83-ft. Greenhouse on Roof of Barnard College, New York, N. Y.


Solarium on Roof of Methodist Episcopal Hospital, Indianapolis, Ind.



SIDE SASH VENTILATION TYPE	LUTTON SOLAR V-BAR GREENHOUSE WILLIAM H. LUTTON COMPANY	SHEET No 2A JERSEY CITY N.J.



WALL VENTILATION TYPE	LUTTON · SOLAR · V-BAR · GREENHOUSE · WILLIAM · H · LUTTON · COMPANY ·	SHEET · N°3A JERSEY CITY · N.J.

temperature not greater than plus or minus 2° F. System shall be designed so that it controls the burner on the furnace and at the same time causes the motor valve controlling the flow of water to its compartment to open and to remain open until the desired temperature has been reached in its compartment.

(20) Boiler

(a) A square sectional cast-iron hot water boiler, American Radiator Company's make or equal, having a rated capacity of ( ) shall be furnished and installed in the boiler cellar. Boiler shall be properly connected to chimney flue and shall be fitted with thermometer, altitude gauge and expansion tank, etc.

(b) A welded steel tube boiler ( ) make or equal having a rated capacity of ( ) shall be furnished and installed in the boiler cellar. (Oil or gas burner shall be furnished by other contractors.) Boiler shall be fitted with altitude gauge, thermometer, aquastat, expansion tank and other necessary equipment.

(21) Solar Slat Roof Shades

Solar Slat Shades shall be furnished and erected over the section of roof indicated on the plan. They shall be adjustable from sill to top ventilating sash header, except where cut by hips or valleys. They shall be fixed to top ventilating sash and operate with the sash.

Slats shall be of selected genuine comb grained heart cypress, ⅞ in. wide by ¼ in. thick, spaced ⅜ in. apart. Slats shall be linked by brass links set over metal shields, so designed that no strain is put upon the slats themselves. Shades shall be painted two coats best white lead and oil with 20% French zinc tinted pearl grey.

A bronze ridge bracket, with bronze pulleys and with saddle spanning the ridge cap, shall be secured to the ridge of each section to be shaded, by means of bolts in such a manner as to prevent working loose in service. Braided rope for adjusting shades, with necessary cleats, etc., shall be included. Shades shall be secured to roof by means of bronze hangers and pins. Fixed shades shall be secured by buttons.

SOME ARCHITECTS UNDER WHOSE SUPERVISION WE HAVE BUILT GREENHOUSES

Dwight James Baum, New York, N. Y.
Howard Greenly, New York, N. Y.
McKim, Mead & White, New York, N. Y.
Walker & Gillette, New York, N. Y.
James W. O'Connor, New York, N. Y.
Peabody, Wilson & Brown, New York, N. Y.
Bowen Bancroft Smith, New York, N. Y.
H. T. Lindeberg, New York, N. Y.
Henry W. Rowe Associates, New York, N. Y.
Leonard P. Botting, New York, N. Y.
Howard S. Patterson, New York, N. Y.
Charles C. Grant, New York, N. Y.
James Rogers, New York, N. Y.
Grosvenor Atterbury, New York, N. Y.
Little & Brown, Boston, Mass.
Mills, Rhines, Bellman & Nordhoff, Toledo, Ohio
Davis & Lewis, Scranton, Pa.
McClure & Spahr, Pittsburgh, Pa.
Robert O'Derrick, Detroit, Mich.
Beckett & Akitt, Detroit, Mich.
Leonard Willeke, Detroit, Mich.
Alvin E. Harley, Detroit, Mich.
Parker, Thomas & Rice, Baltimore, Md.
W. P. Trout, Philadelphia, Pa.

SOME LANDSCAPE ARCHITECTS UNDER WHOSE SUPERVISION WE HAVE BUILT GREENHOUSES

Mrs. Beatrix Farrand, New York, N. Y.
Olmsted Brothers, Brookline, Mass.
Bryant Fleming, Ithaca, N. Y.
A. D. Taylor, Cleveland, Ohio
Pitkin & Mott, Cleveland, Ohio
Thomas W. Sears, Philadelphia, Pa.
R. W. Wilcox, Grand Rapids, Mich.
Arthur E. Davidson, Detroit, Mich.
John H. Small 3rd, Washington, D. C.
Frances Hastings Gott, Rochester, N. Y.

SOME OWNERS FOR WHOM WE HAVE BUILT GREENHOUSES

Yale University, New Haven, Conn.
Mrs. W. G. Rockefeller, Greenwich, Conn.
Hubert McDonnell, Greenwich, Conn.
E. L. Ballard, Ridgefield, Conn.
Schuyler Merritt, Stamford, Conn.
Mrs. R. R. M. Carpenter, Montchanin, Del.
A. Felix duPont, Wilmington, Del.
Miss Amy duPont, Wilmington, Del.
H. F. duPont, Winterthur, Del.
H. Rodney Sharp, Wilmington, Del.
R. W. Bliss, Washington, D. C.
Howard E. Coffin, Sapaloe Island, Ga.
M. E. Hospital, Indianapolis, Ind.
University of Kentucky, Lexington, Ky.
William P. Hamilton, Bar Harbor, Me.
P. W. Sprague, Cape Elizabeth, Me.
Charles C. Walker, Manchester, Mass.
Galen L. Stone, Marion, Mass.
W. O. Briggs, Birmingham, Mich.
R. D. Chapin, Detroit, Mich.
Leonard Freeman, Flint, Mich.
Dr. F. B. Miner, Flint, Mich.
A. M. Davison, Flint, Mich.
John W. Blodgett, Grand Rapids, Mich.
Charles M. Greenway, Grand Rapids, Mich.
E. L. Ford, Grosse Pointe, Mich.
J. D. Schlotman, Grosse Pointe, Mich.
Dr. H. N. Torrey, Grosse Pointe, Mich.
J. B. Ford, Grosse Pointe, Mich.
H. B. Joy, Grosse Pointe, Mich.
E. S. Evans, Grosse Pointe, Mich.
H. J. Stoops, Grosse Pointe, Mich.
C. M. Day, Jackson, Mich.
Mrs. Paul Moore, Convent, N. J.
H. B. Cutting, Morristown, N. J.
William Fahnestock, Katonah, N. Y.
Mrs. Florence Woodward, LeRoy, N. Y.
E. S. Bayer, Mt. Kisco, N. Y.
Jesse I. Straus, Mt. Kisco, N. Y.
Mrs. W. A. M. Burden, Mt. Kisco, N. Y.
H. E. Manville, Pleasantville, N. Y.
Jeremiah Milbank, Port Chester, N. Y.
Percy S. Straus, Port Chester, N. Y.
Ruptured and Crippled Children's Hospital, New York, N. Y.
Columbia University, New York, N. Y.
Columbia Presbyterian Medical Center, New York, N. Y.
Dr. Charles V. Paterno, New York, N. Y.
S. Z. Mitchell, Brookville, L. I., N. Y.
Otto H. Kahn, Cold Spring Harbor, L. I., N. Y.
Ogden Mills, Cold Spring Harbor, L. I., N. Y.
August Heckscher, Great Neck, L. I., N. Y.
Mrs. W. H. Porter, Great Neck, L. I., N. Y.
J. P. Grace, Manhasset, L. I., N. Y.
Carl G. Fisher, Montauk, L. I., N. Y.
W. R. Coe, Oyster Bay, L. I., N. Y.
Mortimer L. Schiff, Oyster Bay, L. I., N. Y.
H. H. Weeks, Oyster Bay, L. I., N. Y.
Percy R. Pyne, Roslyn, L. I., N. Y.
Harold W. Brooks, Southampton, L. I., N. Y.
George Whitney, Westbury, L. I., N. Y.
Jefferson Penn, Reidsville, N. C.
Julius Fleischman, Blue Ash, Ohio
R. K. LeBlond, Cincinnati, Ohio
Otto Miller, Cleveland, Ohio
Salmon P. Halle, Cleveland, Ohio
George R. Ford, Toledo, Ohio
W. W. Knight, Toledo, Ohio
Harold F. Pitcairn, Bryn Athyn, Pa.
Rev. Theo. Pitcairn, Bryn Athyn, Pa.
J. P. Morgan, Chestnut Hill, Pa.
R. M. Cadwalader, Fort Washington, Pa.
Pierre S. duPont, Longwood, Pa.
W. S. Mitchell, Pittsburgh, Pa.
Clarence H. Geist, Villa Nova, Pa.
Moses Taylor, South Portsmouth, R. I.
William H. Vanderbilt, South Portsmouth, R. I.
Herbert Farrel, Nashville, Tenn.
W. L. Moody, Galveston, Texas

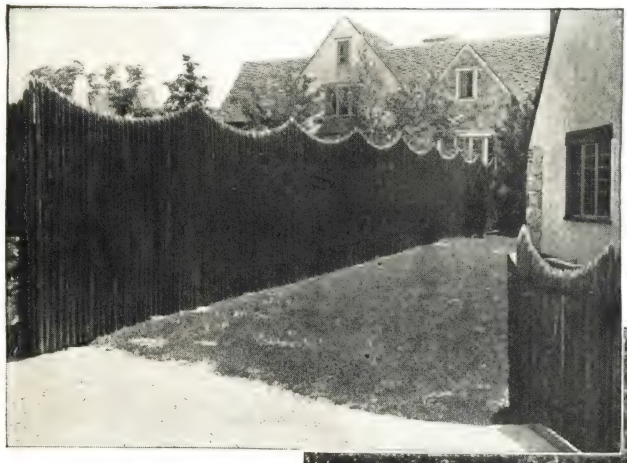
AMERICAN FENCE CONSTRUCTION CO.

TELEPHONE
MUrray Hill 2-4470

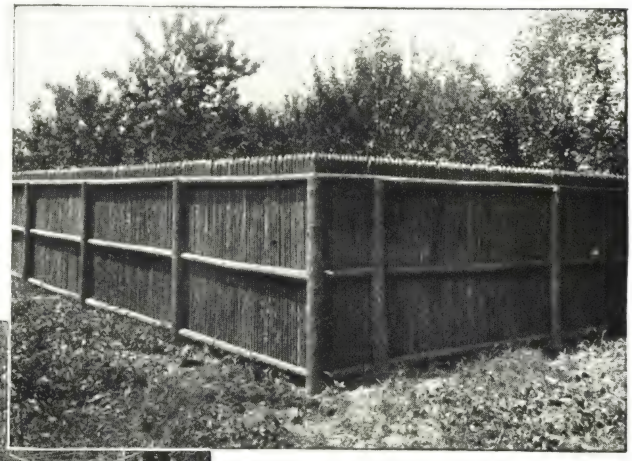
S. W. Corner Fifth Avenue and 44th Street
NEW YORK, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

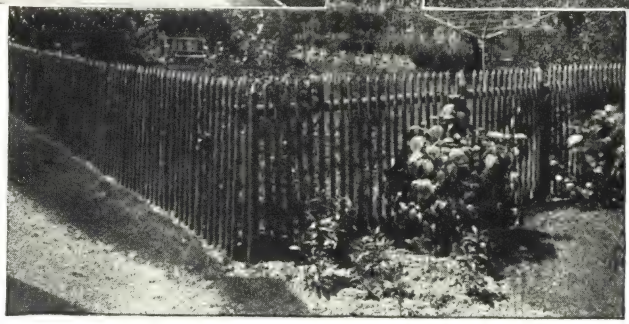
For Our pages on Fences of Wrought Iron and Chain Link Wire, see Manufacturers' Index



Above:
A Special Scalloped Top Design Made from Afco Natural Tight Picket Fence



Right:
Type NPF-2 Afco Natural Picket Fence 4 Ft. High with 2-in. Picket Spacing



Above:
Inside Panel Detail Showing Sturdy Full Round Framework Members

Note that short filler panels can be furnished where necessary. This fence will hold its alignment permanently

AFCO RUSTIC CEDAR FENCES

Afco Rustic Cedar Fences are made of "winter cut" Northern white cedar, which is commonly known as the "wood eternal." This wood is impervious to ravaging insects, and resists the damaging effects of time and the elements. Exposure only mellows its beauty.

Construction Features—Different from most other makes, Afco Rustic Cedar Fences are furnished complete including full round heavy posts. Standard panels are 8 ft. long, the pickets being double nailed to the horizontal rails with old-time cut iron nails. They cannot loosen or sag. Extra long cut nails are furnished for assembling the panels to the posts when setting fence.

These fences are offered in a wide variety of designs, either with bark or rough peeled and in heights from 3 to 8 ft.

A complete catalogue which also shows Hurdles and Special Post and Rail types of unusual quality will be furnished upon request.

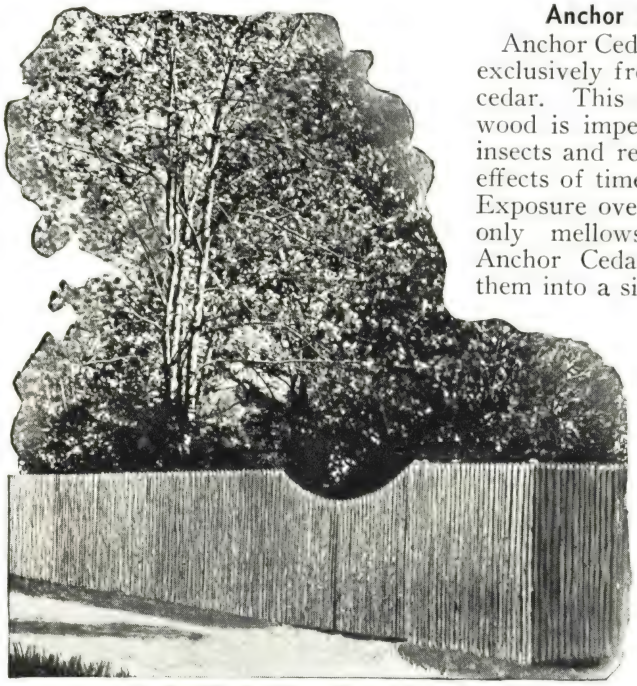


Type NTF Afco Natural Tight Picket Fence 6 Ft. 4 In. High

ANCHOR POST FENCE COMPANY

Eastern Avenue and Kane Street, BALTIMORE, MD.

For Our pages on Wire and Iron Fences, including Sales Offices and Factories, see Manufacturers' Index



Anchor Tight Picket Fence, Type TF

Anchor Cedar Fences

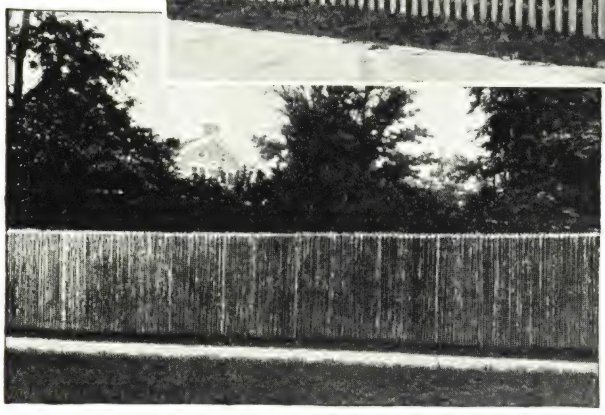
Anchor Cedar Fences are made exclusively from Northern white cedar. This hardy and durable wood is impervious to ravaging insects and resists the damaging effects of time and the elements. Exposure over a period of time only mellows the beauty of Anchor Cedar Fences—turning them into a silver gray, which is attractive in any setting.



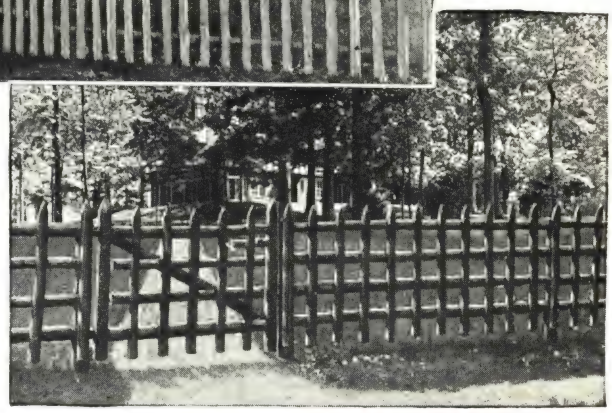
Anchor Farm Rail Fence and Gate



Above: Anchor Picket Fence Type PF-2



Anchor Natural Tight Picket Fence, Type NTF



Anchor Lattice Fence, Type LF

DUBOIS FENCE & GARDEN CO., INC.

Manufacturers of Woven Wood Fence

101 Park Avenue, NEW YORK, N. Y.

THE ORIGINAL WOVEN WOOD FENCE

Made in France of Seasoned French Chestnut

Dubois Woven Wood Fence Blends Perfectly with Any Period or Design

DUBOIS

(TRADE-MARK REG. U. S. PAT. OFF.)

The fact that the foremost architects and landscape artists of this country are using *Dubois* as part of their landscaping schemes is conclusive evidence of its remarkable utility and practical features.

It is being used in a multitude of ways:

To enclose an estate or garden.

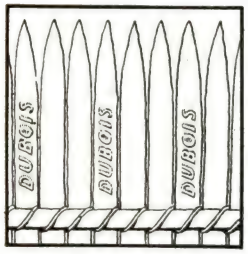
To screen a laundry or service yard.

To provide a harmonious background for flowers and shrubs.

To bring safety and charm to city roof gardens and pent house terraces.

To shut out unwelcome views.

Its installation on golf courses is constantly increasing and it is extensively used as an enclosure for tennis courts, playgrounds, swimming pools and in many other ways.



Genuine Dubois Is Branded on the Back of Every Section for Your Protection

To architects, *Dubois* presents a completely satisfactory answer to their problem of how to achieve privacy for an estate or garden without the sacrifice of beauty or architectural harmony, for *Dubois* has a charm that is unique in character and blends with any style or period of architecture.

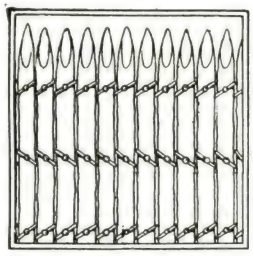
Provides Immediate Privacy

One of the principal advantages of specifying *Dubois* to complete the ensemble of house and grounds is that it gives privacy *immediately*. There is no bare and ugly period of waiting for plantings to grow and, unlike a hedge, *Dubois* never needs attention once erected.

Dubois Is Made in France

"Woven wood" fences have been made by French craftsmen and used with telling artistry on the continent for centuries, but not until the advent of *Dubois* were these richly decorative rustic chestnut fences introduced to home lovers throughout the United States. Still made by hand, with typical French thoroughness, the strict specifications laid down for the manufacture of *Dubois* assure much better quality, uniformity and length of life than when the choice of materials and excellence of workmanship depended upon the skill and conscientiousness of the small maker.

To obtain *Dubois* quality and *Dubois* dependability, it is therefore important that you clearly specify *Dubois* by name. The registered trade-mark "DUBOIS" is branded on the back of every section. Thus you will be assured of genuine *Dubois*.

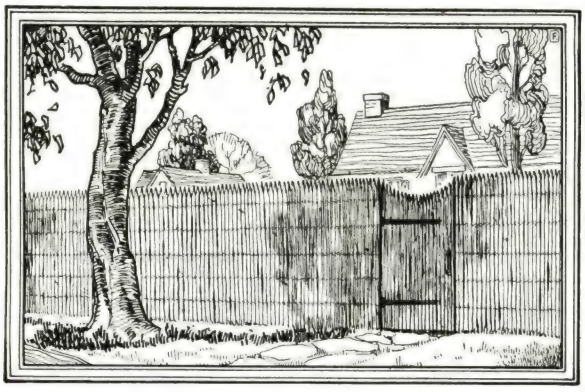


Heavy, Rustproof Copperweld Wire Is Now Used Exclusively to Bind the Saplings



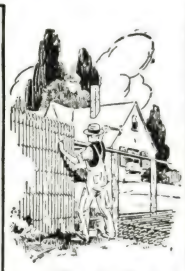
The First Recorded Installation of Dubois Woven Wood Fence, Erected in 1901

This fence is as beautiful and charming today as the day it was erected. *Dubois* Woven Wood Fence never needs painting. The first cost is moderate and as the years pass, it becomes an even more thrifty investment for it is absolutely free from maintenance cost

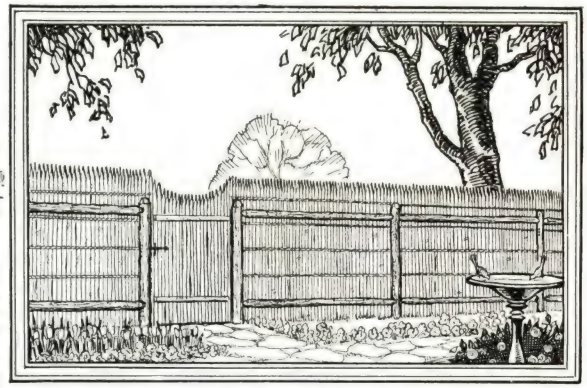


From the Outside

Dubois presents an even façade of sturdy saplings, uniformly straight and so closely woven that outsiders cannot see through

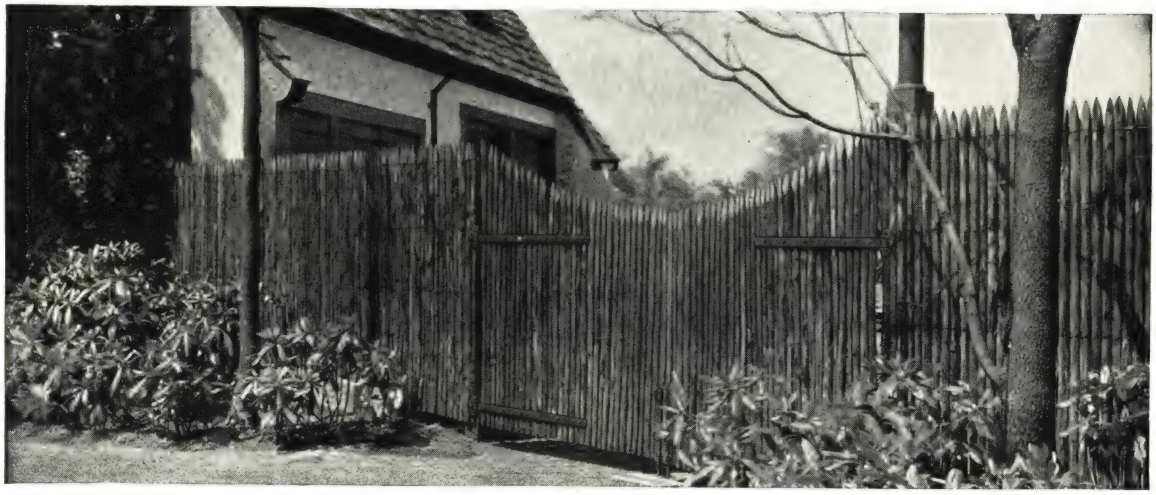


The posts are placed about 8 ft. apart and connected top and bottom with 2x4 in. timbers or other cross-rails. Then the sections of *Dubois* are nailed to this framework—an easy job for almost anyone



From the Inside

The ready-cut rustic framework harmonizes perfectly with *Dubois*, making the inside effect as attractive as from without



Single or Double Gates Are Furnished with Curved or Straight Tops

Gives a Lifetime of Service

Before use the live-cut *Dubois* chestnut saplings are thoroughly seasoned and heat treated by a special baking process to prevent all possibility of warping.

Dubois uses Copperweld *rustproof* wire to bind the pickets securely to their backing strips. Being rustproof and weatherproof, *Dubois* never needs painting. Its first cost is moderate and, as years pass, it becomes an even more thrifty investment for it is absolutely free from upkeep cost. *The first cost is the last.*

A Height for Every Purpose

Dubois is imported from France ready to erect in convenient sections 5 ft. long.

Six Heights—*Dubois* comes in six heights: 18 in.; 3 ft. 10 in.; 4 ft. 11 in.; 6 ft. 6 in.; 8 ft.; and 10 ft.

Gates to match can be furnished equipped with quaint iron hinges and latches. These gates come in both single and double sizes (for driveways), with straight or curved tops and give a most artistic effect.



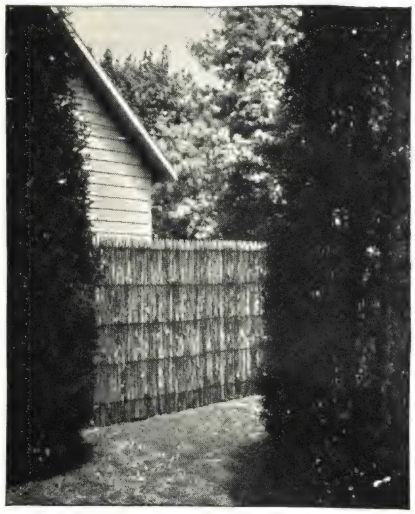


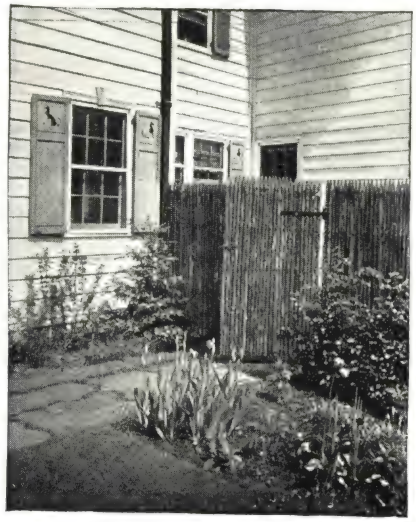














A Few Picturesque Installations of Dubois Woven Wood Fence



Dubois Rustic Post
The cross-rails fit into the posts easily and are held securely

Dubois Is Easily Erected

Dubois is shipped just as it is imported—in 5-ft. sections, and is easily handled. These sections are readily erected. No skilled labor is required. Only a framework of posts and crosspieces is needed which can be procured from any carpenter or lumber dealer.

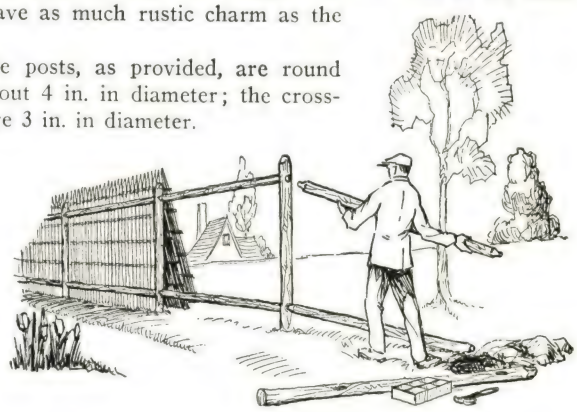
The posts are set approximately 8 ft. apart and should be connected by two crosspieces, to which the sections of *Dubois* are nailed. Locust or cedar is recommended for the posts.

Rustic Framework—Ready to Erect

For those who prefer, we now supply an attractive rustic cedar framework, designed especially as a support for *Dubois*. This consists of mortised and tenoned posts and cross-rails, finished to harmonize with the quaint, rustic aspect of *Dubois*. To erect this, no labor is required beyond the setting of the posts and the fitting together of the ready-cut parts.

In addition to its added convenience, this framework is desirable as well because it is so thoroughly in harmony with the natural charm of *Dubois*. Now the rear side of the fence may have as much rustic charm as the front.

The posts, as provided, are round and about 4 in. in diameter; the cross-rails are 3 in. in diameter.



DUBOIS CLEFT CHESTNUT FENCE

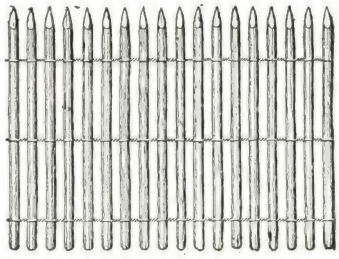
A Beautiful and Economical Fence

In many respects, *Dubois* Cleft Chestnut Fence is the equivalent of the famous *Dubois* Woven Wood Fence for it supplies the same note of charm and rustic beauty given by the latter. It is made in France of live chestnut saplings, thoroughly processed to prevent warping and consequently will give just as remarkably long service as the Woven Wood Fence.

The chief difference between these two fences is that *Dubois* Cleft Chestnut Fence is made by machinery with the saplings *spaced one inch apart,* while in the other type they are closely woven together by hand.

Dubois Cleft Chestnut Fence is furnished with the saplings bound with Copperweld rustproof wire or galvanized wire.

Dubois Cleft Chestnut Fence is ideal for use where a fence somewhat lower in cost than *Dubois* Woven Wood Fence is desired and where absolute privacy is not a consideration.



Section of Cleft Chestnut Fence
Showing spacing between the saplings

Suitable for Many Purposes

This versatile fence may be used in a multitude of ways:

To screen a driveway or service yard.

To mark a property line.

To enclose tennis courts.

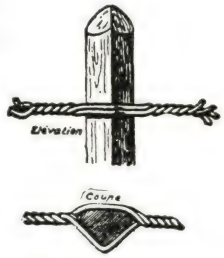
To give a delightful, rustic atmosphere to a garden.

To serve as a background for vines, flowering shrubs, a trellis for climbing roses, and many similar interesting and beautiful applications.

Sizes Available

Dubois Cleft Chestnut Fence is furnished in 16 ft. rolls and in three heights: 6 ft. 6 in.; 4 ft. 11 in.; and 3 ft. 10 in.

Gates, either single or double driveway types, are furnished in corresponding heights.



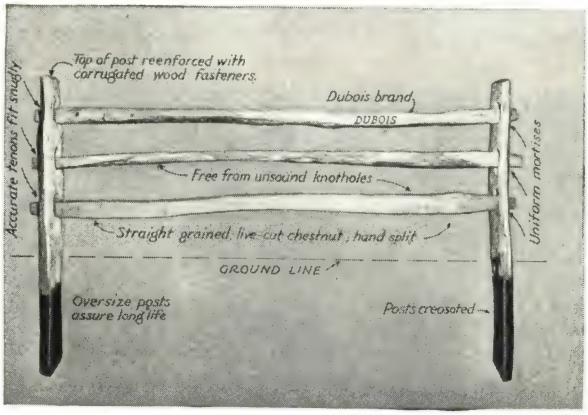
Method of Binding with Copperweld Wire

Installation

Dubois Cleft Chestnut Fence is easy to erect against stringers between cedar or locust posts placed about 8 ft. apart.

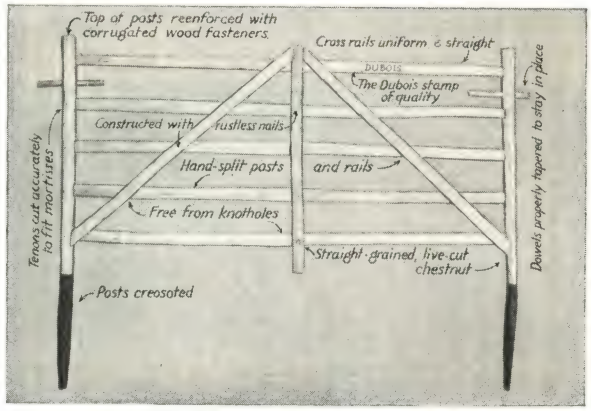
DUBOIS POST AND RAIL AND HURDLE FENCES

Made of Live, Hand Split Chestnut



Dubois Post and Rail Fence

Sections are 10 ft. long. Stands 4 ft. high when set in the ground. Furnished with 3 or 4 bars (same height). Posts are 6 ft. 10 in. long



Dubois Hurdle Fence

Sections are 8 ft. 3 in. long. Stands 4 ft. high when set in the ground. Furnished with 4 or 5 bars (same height). Posts are 6 ft. long allowing 2 ft. underground for good support

THE ELHIDE COMPANY

JOHN C. RUNKLE, President

Makers of Elhide Hand Split Cedar Fencing

CAMBRIDGE, MASS.

NEW YORK OFFICE, 122 East 42nd Street

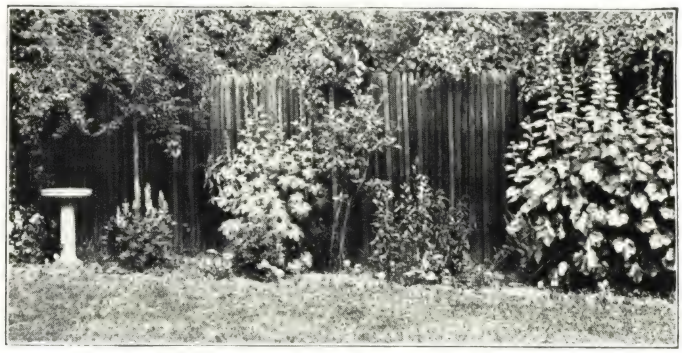
For Elhide Hand-Split Shingles and Elhide Monson (Maine) Roofing Slates, see Manufacturers' Index

Elhide Hand-Split Cedar Fencing

An attractive and unique fencing made of red cedar pickets split out of big timber by hand, air-dried and woven with copperweld rustless wire, making a rustic fencing which retains all the beauty of the natural cedar.

Needs No Painting—If left untreated it gradually attains a beautiful weathered appearance, which blends perfectly with the natural surroundings. The wood takes stain easily, if color is desired.

Two Styles of Pickets—Elhide Hand-Split Cedar Fencing is made with flat pickets or three-cornered pickets. Flat pickets are approximately 2 ins. wide and about ⅞ in. thick. Three-cornered pickets are split on two sides and sawed on the back to fit closely against the rails. The three-cornered pickets appear more rugged than the flat pickets. Pickets in both styles vary somewhat in width, which helps to produce the desired rustic effect.



Elhide Fencing Enclosing Flower Garden
Flat Pickets—Close Style

Three Standard Heights—Both flat and three-cornered picket fencing is made in heights of 3 ft. 10 in., 4 ft. 11 in. and 6 ft. 6 in., with pickets woven either openly or close together. In the open fencing the pickets are spaced about 2 ins. apart and in the close fencing they are placed as closely together as they can be naturally laid. Standard rolls contain 8 lin. ft., but special lengths are made to order.

Easy to Apply—Elhide Hand-Split Cedar Fencing is woven without cross slats or rails, so that it can be distorted vertically a reasonable amount to conform to uneven or inclined ground. It bends readily around trees or posts or to form curves where a straight fence or a square corner is not wanted.

Gates—Single path gates, or double driveway gates, are made to match the fencing, with either straight or concave tops, in any width desired.

Light Weight—Considering the sturdy pickets used, running from 4 to 10 lbs. per lin. ft. of fencing depending upon the length of the pickets and the style of weaving, the fencing is very light in weight.

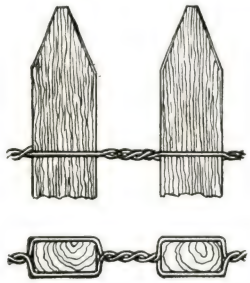
Erecting the Fencing—Ordinarily, wooden posts and rails are used, posts spaced 8 to 10 ft. apart. Fencing is nailed to the rails and the wires which are left projecting purposely at the ends of each section are twisted together to join the different sections, making the fencing continuous. Metal posts and rails may be used if desired, in which case the fencing is wired or fastened with screws to the rails. Post and rails for any installation can usually be secured locally, thereby cutting the freight charges to a minimum.

An Ideal Fencing—Elhide Hand-Split Cedar Fencing is ideal for large or small estates where protection and privacy are desired. The natural beauty of the fencing harmonizes with all styles of modern architecture and the surrounding flower gardens and shrubbery.

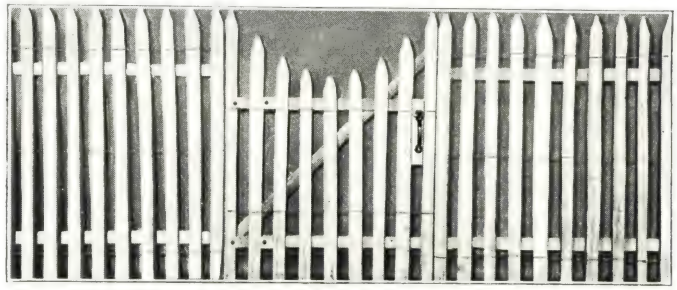
Moderate Cost—The first cost of Elhide Hand-Split Cedar Fencing is the last, for, made from such durable materials, it needs no painting, and therefore no upkeep is necessary.

Special Designs and Literature—Within reasonable limits, Elhide Fencing can be made to design. Specify "Elhide" to make sure you get the right kind of fencing. Woven in United States of America.

Further information and literature describing the fencing more fully upon request.



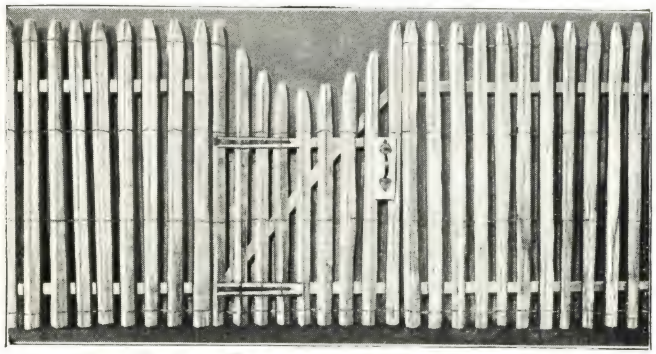
Section of Flat Pickets—
Open Style



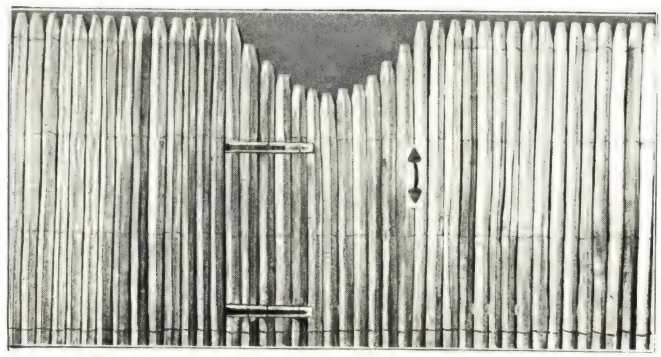
Open Fencing—Flat Pickets—Concave Gate



Section of Three-cornered
Pickets—Close Style



Open Fencing—Three-cornered Pickets—Concave Gate



Close Fencing—Three-cornered Pickets—Concave Gate

HABITANT SHOPS, INC.

Makers of Fine Wood Fences and Furniture Reproductions

710 Jefferson Street, BAY CITY, MICH.

DISTRIBUTORS IN 62 PRINCIPAL CITIES

(Look for the name "Habitant" in Local Telephone Directory)

Products

Wood Fences of Character.

Gates to match.

Also, Reproductions of America's Pioneer Furniture.

HABITANT FENCING

TRADE-MARK

Habitant Fencing

Habitant Fencing is made entirely by hand by the craftsmen of the North Woods of Michigan. Carefully selected, sound Northern White Cedar (arbor-vitae—the tree of life) is used exclusively. This rugged wood is remarkably resistant to time and weather, requiring no painting.

Adaptability—

Habitant Fencing sets with equal harmony in almost every landscape and every architectural background.

Construction—

While Habitant Fencing is similar to other fences at first glance, it is entirely different from most of them in construction. Habitant Standard Panels consist of sound cedar poles mounted on straight rails; complete panels 8 ft. long. Standard sections are 8 ft. on post centers, with special length sections supplied with straight, concave or convex top as required.

Shipped Complete—

Habitant Fence, except the Post and Rail fence, is shipped in complete panels with all line posts furnished.

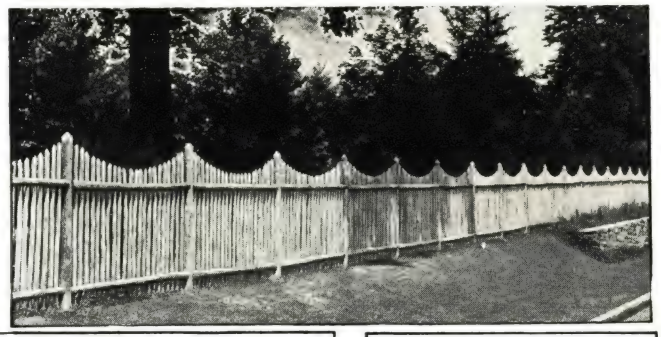
Nation-wide Erection Service—

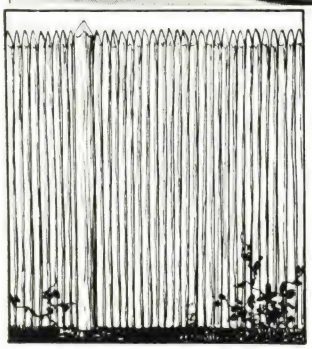
Crews of competent fencing specialists are at your call in every section of the country. You are assured of the utmost in satisfaction.

Catalogue and Estimates

Our nearest distributor will furnish a catalogue of Habitant Fence and Furniture, an estimate and complete information on any job you may have in mind—with or without erection—and without obligation.







Habitant Stockade

No. 200—Closely woven, 2-in. halved pickets, peeled cedar posts and rails. 4 to 12-ft. heights.

No. 900—"Good Will" 2½-in. full round poles. Same appearance on both sides. 3 to 8-ft. heights.

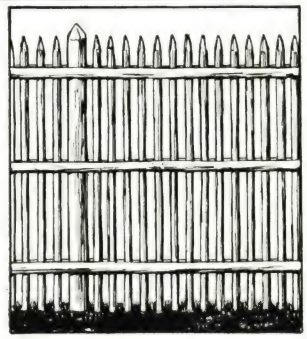
No. 1400—1¼-in. full round pickets, with bark left on; 4 to 12-ft. heights.



Habitant Post and Rail

No. 700—Full round cedar, exceptionally strong. Heavy posts spaced on 12-ft. centers. 3 or 4 rails, 4 ft. high.

No. 400—Lighter than above, posts spaced on 8-ft. centers; 4 or 5 rails, 4 ft. high. *Note: Other heights and numbers of rails on order.*



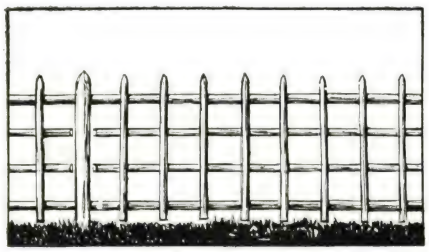
Habitant Picket

No. 300—2-in. halved pickets, 2-in. spacing; 3 to 8-ft. heights.

No. 920—"Good Will," 2½-in. full round poles, 2 in. apart; 4-ft. to 6-ft. 4-in. heights.

No. 1500—1¼-in. full round pickets, with bark on, 2 in. apart; 3 to 8-ft. heights.

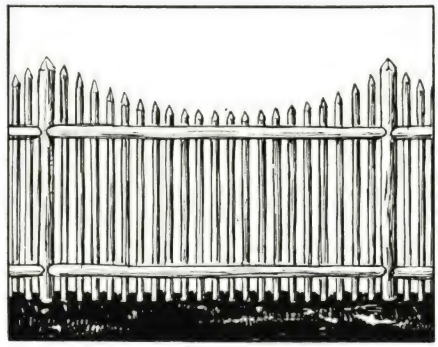
No. 1800—"Heart picket." Flat pickets, waney edged, 2 in. apart; 3 to 8-ft. heights.



Habitant Lattice

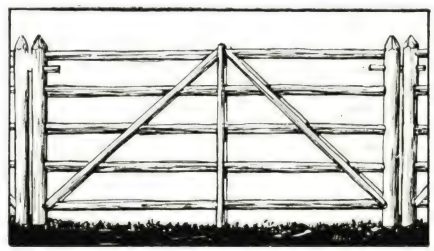
No. 500—For garden use. 3 and 4-ft. heights.

No. 500RA—A similar fence with slightly larger square openings, the top squares having diagonal or cross fillers making an attractive top border. A rose arbor lattice fence, 5-ft. and 6 ft. 4-in. heights.



Habitant Lennox

No. 1200—Curved top picket fence, 2-in. spacing. Full round pickets between halved rails. Same appearance on both sides, 4 and 5 ft. high at highest point.



Habitant Hurdle

No. 654-P—One of the heaviest and strongest hurdle fences made, with rails averaging 2½-in. diameter and posts fully 7 ft. long and diagonally braced on both sides. Sections 8 ft. 3 in. long; 5 bars, 4 ft. high.

ROBERT C. REEVES CO.

Manufacturers and Distributors of Wooden and Wire Fences

101 Park Avenue, NEW YORK, N. Y.

Reeveshire* Products

French Provincial* Woven Wood Fence—a sturdily constructed fence of live chestnut saplings, woven together with copperweld rustproof wire.

"Cleft Chestnut" Fence—somewhat similar to French Provincial* but with saplings spaced 1 in. apart.

English Type Hurdle Fence and Gates.

Old-fashioned Post and Rail Fence.

Copperweld Chain Link Fence.

Reeveshire*
"The Name of Famous Fences"

Literature and Estimates

We have prepared interesting pamphlets and booklets dealing with the application and installation of Reeveshire* Fences. These will be sent on request.

Estimates gladly furnished on receipt of specifications.

Service to Architects

Our Service and Advisory Departments were organized to co-operate in the solution of fencing problems. In submitting any fence problem to the Robert C. Reeves Co., you have the assurance that they will give not only *competent* advice but an *impartial* recommendation.

The Reeves organization handles every type of fence, and their only interest in recommending any particular kind is that it shall best serve your purpose.

REEVESHIRE* WOVEN WOOD FENCES

French Provincial* Fence

Equally charming and practical is this woven wood fence. The grace of the slender palings and its rustic simplicity blend into any background. Age only mellows its beauty and it is an attractive frame for any enclosure. It affords privacy and protection while presenting an extremely pleasing appearance to the outside world.

Sturdy and Economical—The practicability of the French Provincial* Woven Wood Fence lies in the sturdiness of its construction. The live chestnut saplings are grown, cut and assembled in the provinces of France, and are woven together with rust-resisting copperweld wire. Rigidity is provided by a firm stripping which is attached to the back. Its economy lies in the fact that the hand-split saplings never need painting.



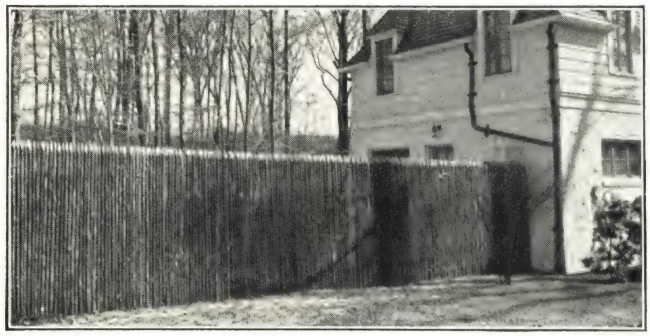
French Provincial* Gate

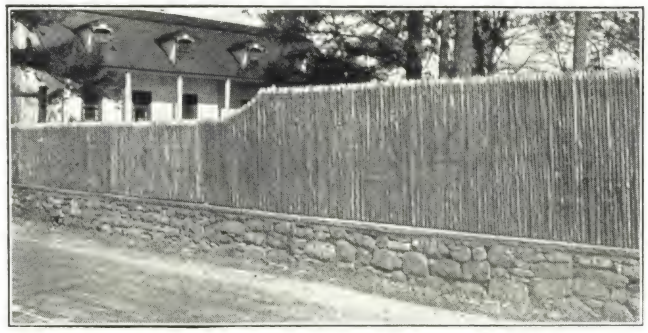
How Furnished—Supplied in panels in full 5-ft. lengths and in six heights; 10 ft.; 8 ft.; 6 ft. 6 in.; 4 ft. 11 in.; 3 ft. 10 in., and 18 in. Gates are furnished complete with hardware.

"Cleft Chestnut" Fence

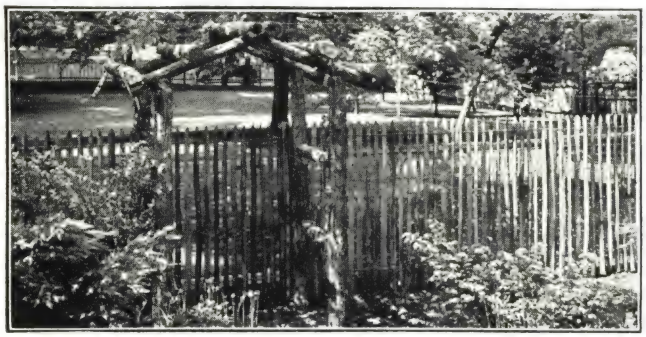
Somewhat similar in construction and design to the French Provincial* with the exception that the saplings are spaced one inch apart and that this type of fence is furnished in rolls instead of in sections. It is somewhat lower in cost than French Provincial* and adaptable wherever absolute privacy is not desired.

How Furnished—Supplied in 16-ft. rolls, in five heights; 10 ft., 8 ft., 6 ft. 6 in.; 4 ft. 11 in., and 3 ft. 10 in., and fastened with either copper weld or galvanized wire.





French Provincial* Fence





"Cleft Chestnut" Fence

*Trade-mark registered U. S. Patent Office.

REEVESHIRE* HURDLE FENCES

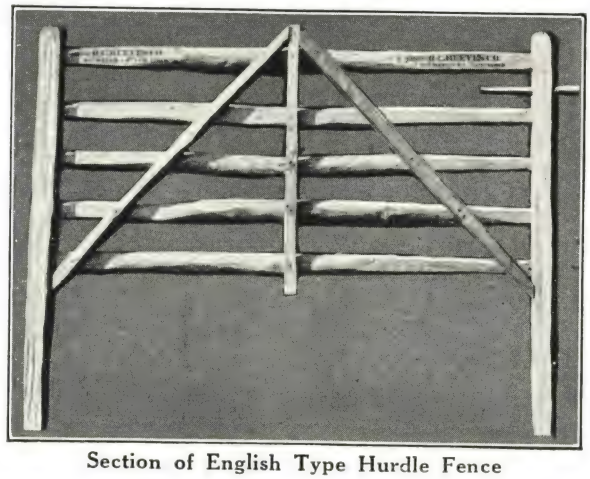
English Type Hurdle Fence

An adaptation of the riven chestnut Hurdle Fence which has been used in England for centuries. It is made of split chestnut timber, constructed in sections or hurdles, each hurdle being 8 ft. 3 in. long. Posts are 6 ft. long and extend 18 in. into the ground. When erected the fence is 4 ft. high. The posts of one hurdle are securely fastened to those of adjoining hurdles by means of wooden pins which are supplied. This makes for exceeding strength, as no one post is required to support alone a strain on its particular hurdle.

The hurdles are made in 3 types—4, 5 and 6-bar, all of which are the same length and height, the difference being in the spacing between the bars.

Uses—English Type Hurdle Fence is more than an enclosure—it is decidedly an artistic fence, possessed of unusual rustic charm and it blends well with many types of architecture. Ideal as a division fence in the suburbs, as a boundary fence for large estates, or to accentuate the setting for a residence of the English farmhouse or similar type.

The 4-bar hurdles are suitable for enclosing pastures for cattle where a close fence is unnecessary. The 5-bar type makes an ideal fence for paddocks or pastures for spirited horses and is used for this purpose on the estates of many leading horsemen of the country. The 6-bar hurdles make a very close fence and are particularly suited for enclosing pastures or pens for sheep.



Section of English Type Hurdle Fence

Hurdle Fence Gates—Made with 4, 5 and 6 bars to conform to the three types of fencing.

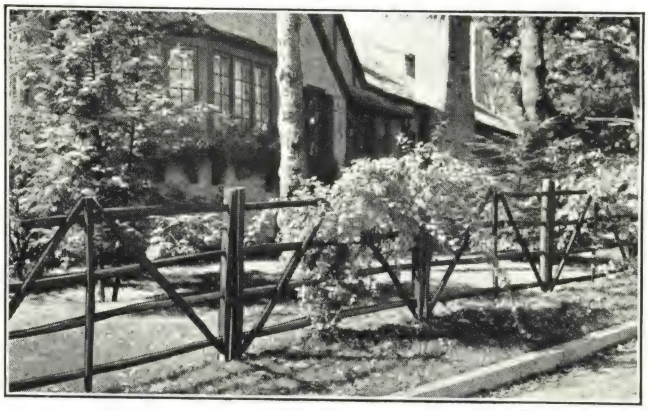
Stocked in 10-ft. lengths with extra braces. Furnished to order in any desired length.

Portable Post and Rail Fence

Much heavier than the English Type Hurdle Fence although of the same length and height when set.

Posts extend 2½ ft. into the ground.

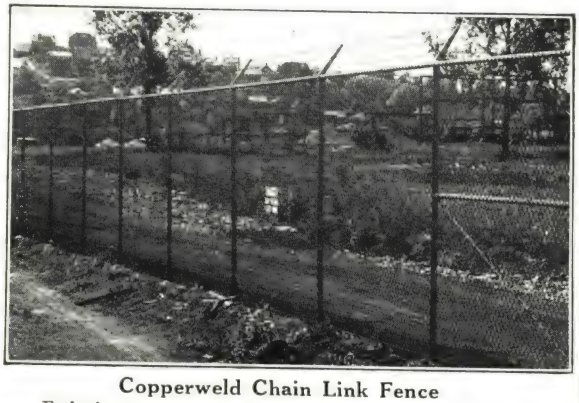
Generally used as permanent fences in hunting districts.





English Type Hurdle Fence

OTHER REEVESHIRE* FENCES



Copperweld Chain Link Fence

Enduring copperweld fence offers permanent protection and eliminates painting and the usual maintenance and replacement costs. Beautifies as it protects. We are prepared to give complete service—from the first plans to the final erection. Where a wire screen fence is desired, Copperweld Chain Link Fence is most suitable

The two types of fencing here shown are typical Reeveshire* products and provide the utmost in quality, design and adaptability.





Old-fashioned Post and Rail Fence

An authentic early American fence. Made of split chestnut. Economical and practical for pastures and many other purposes. Provides a touch of distinction when used in front of dwellings as above

*Trade-mark registered U. S. Patent Office.

ESTABLISHED 1892

AMERICAN CHAIN LINK FENCE COMPANY

77 Summer Street
BOSTON, MASS.

FACTORIES: MEDFORD and REVERE, MASS.

THE IMPROVED MAFERA CHAIN LINK FENCE (PATENT NO. 1,811,511)

Description

The method of constructing woven wire fences has, in the past, remained much the same. We have, however, placed upon the market, in addition to our complete line of woven wire fences, a *patented* form of fence construction that has at once found favor with architects, home owners, plant executives and public officials.

Previously, all woven wire fences were made with a top and bottom selvage of sharp, twisted barblike projections. This results from the fact that the fence is woven of one continuous fabric without a break, except at top and bottom where the strands were twisted one upon the other and clipped. These twists and barbs are not particularly artistic or ornamental and detract considerably from the harmonious appearance of the fence as a whole.

The Mafera (Patented) Chain Link Fence has been constructed to eliminate the ragged selvage edges, without sacrificing anything of the essential strength and rigidity of the fence itself.

It avoids injury to hands or clothing, and provides a selvage which is at once ornamental and attractive and enhances rather than detracts from the general artistry of the fence itself. An advantage of this type of fence is that it may be erected without departing in the least from the methods now employed all over the country.

Construction

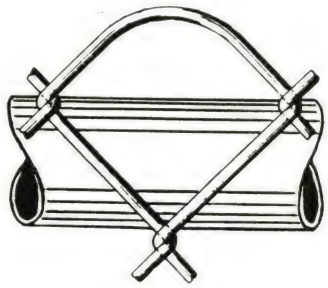
We illustrate diagrammatically a section of the Mafera Fence in order to show its novel construction.

This fence, according to usual practice, is woven of Number Nine and Number Six Wire and presents a succession of interlocking meshes of One and Three-Quarter-inch Meshes for Tennis Courts, and Two-inch Mesh for all other uses. These constitute a continuous fabric of any desired length and height but, in sharp distinction to the usual woven fence, the upper and bottom edges of the wire fabric are rounded and welded together so as to form a smooth attractive edge that is positively harmless as far as cutting or scratching is concerned.

Should it be desirable to have the bottom edge twisted to sharp protective points or barbs this may be readily accomplished, and it should be so ordered.

Also, the fabric pattern may be formed with meshes of any desired shape and size. The method of fastening to posts and rails does not differ in any way from that of standard chain link fences in general.





Uses of Mafera Chain Link Fences

This improved type of fence is particularly recommended for residences of all types, also for schools, suburban gardens, parks and churches on account of its safety and neatly finished appearance.

In industrial plants and institutions it is also very desirable. Experts pronounce it the only real improvement made in chain link fences in a decade. There is no place for it to come apart; it is equal in strength to any fence on the market of similar weight and gauge, and will remain firm, erect and in perfect alignment. Prices are consistent with present types on the market.

Data and Information

We shall be glad to answer inquiries from architects and others interested in this improved form of woven chain link fence and to quote prices if you will give us an idea of your requirements.

The principals of the American Chain Link Fence Company have been connected all their lives in the manufacturing of wire fences, this company having been established by Guy Mafera in 1892, and the present executives are of the second generation. They are therefore completely familiar with all fencing requirements.

In addition, we can supply any type of woven wire fence, in any quantity required.

We will gladly send catalogue on request.

AMERICAN FENCE CONSTRUCTION CO.

Fences of Wrought Iron—Chain Link Wire and Rustic Wood

TELEPHONE
MUrray Hill 2-4470

S. W. Corner Fifth Avenue and 44th Street
NEW YORK, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

Products

IRON PICKET FENCES and GATES of plain or ornamental design; CHAIN LINK WIRE FENCES for all purposes; Poultry and Kennel Runs; Tennis Court Enclosures; Baseball Backstops.

Also Window Guards; Iron and Wire Work.

For our page on Rustic Cedar Fences and Gates, see Manufacturers' Index.

AFCO

TRADE-MARK

Standardized and Special Design Fences

This company offers a wide and complete choice of designs in standardized fences and gates both of iron picket and chain link wire types. In addition, it is prepared to execute special-design fences and ornamental iron work from architect's designs. Some of our work of this kind is pictured here.

Iron picket fences, because of the infinite possibilities of ornamental design work, are standardized only in respect to the general use of certain "plain" picket fences of the designs detailed on the following page. Ornamental work, special gates, etc., are executed in infinite variety.

Chain link wire fences, however, are a standardized product, as per specification details presented on the second following page.

Catalogues, installation views, and blue prints of stock and semi-standard designs of iron or wire fence are available for reference.

We gladly assist in preparing specifications that enable the economical production of special designs from standard size materials.

Estimates and Service

Estimates on either fence materials or fences plus erection will be given, either by this office or local representatives throughout the Eastern, Central and Southern States. The fullest measure of co-operation is available.

Information regarding standard practice in the size of members, dimensions of concrete footings and other such practical data is made available to any who will find it helpful.

Lcft: **Plate No. 463**
Below: **Plate No. 443**

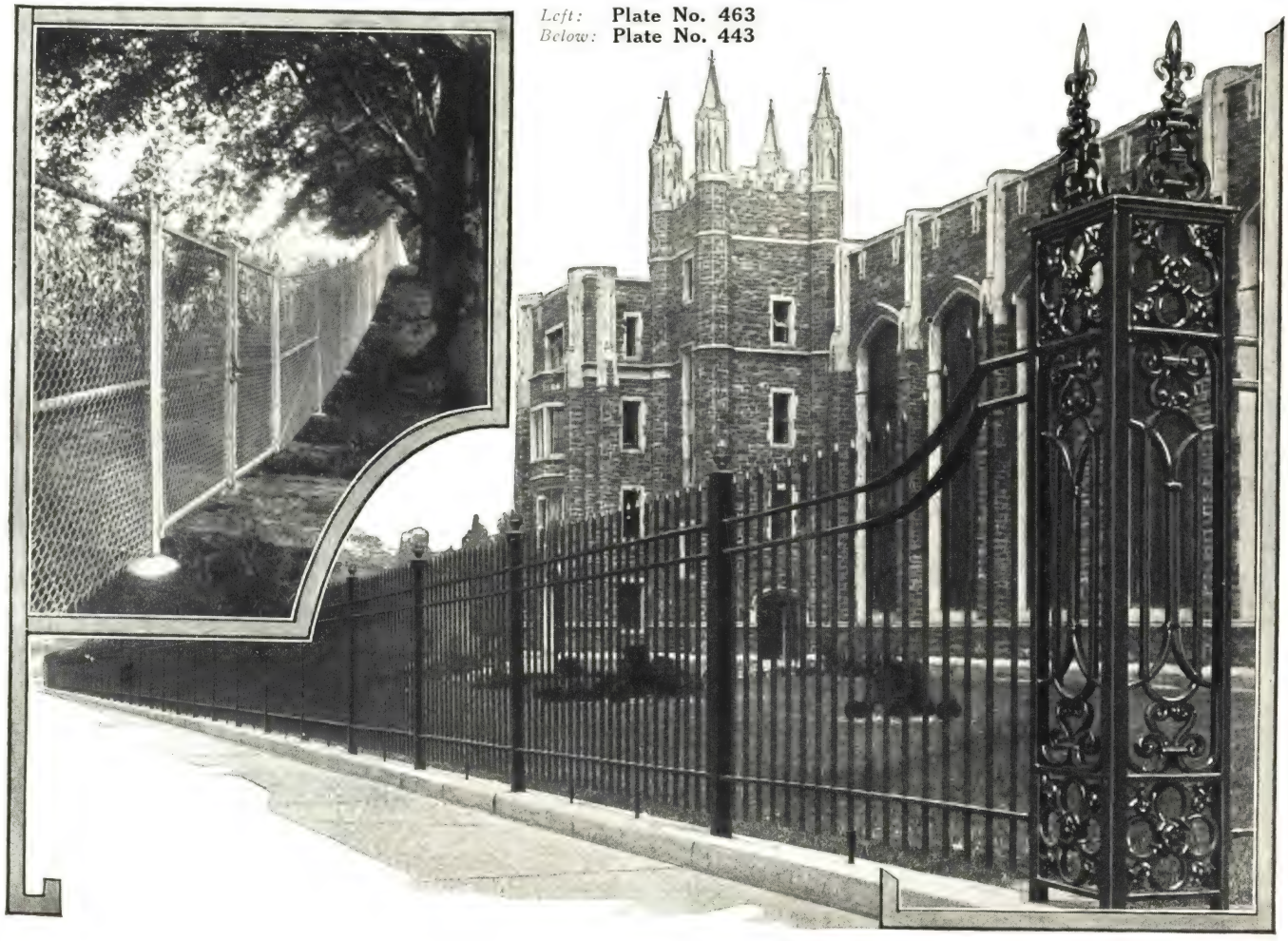




Plate No. 537

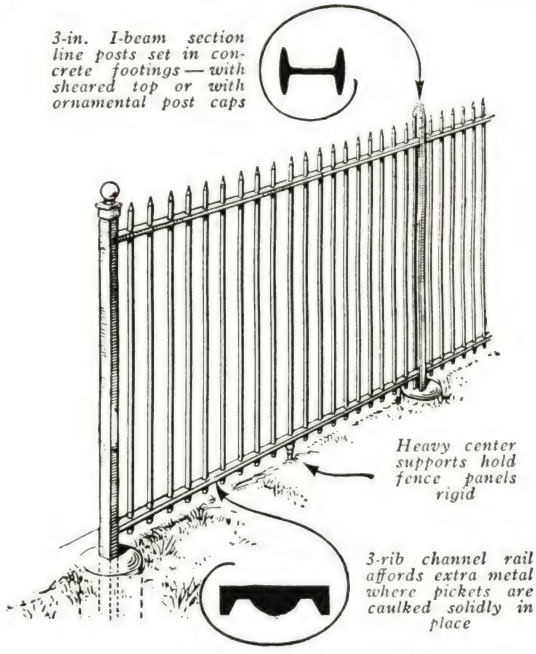


Plate No. 482

Iron Picket Fences

The standard iron fences are of designs and weights detailed here. Simple ornamentation can be added to the "plain" designs as required. Special design work originates with the architect, often with our co-operation in preparing a specification which will utilize standard sizes in materials.

Structural Details—Afco Iron Picket Fences are built with special I-section line posts, which are set in concrete and require no back bracing. The section is designed to develop maximum strength per pound of metal and to give beauty to the fence without over-heavy members. The posts for the line of fence may have either sheared tops, or be ornamented with heads.



Afco recommends the square-tubular posts for ends, corners and gate posts, in appropriate sizes, and with ornamental post caps. Ornamental gate posts can be furnished in either standard or special designs.

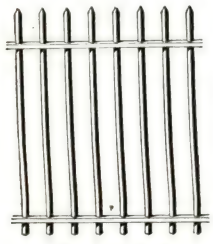
To provide extra strength where the picket passes through the rail Afco builds with a center-rib channel section. This rib also provides the extra metal for caulking.

Afco Fences are caulked by a positive process which recesses two sides of each picket and forces metal from the rib of the rail into this recess. This results in a positive bond between picket and rail, and a panel flexibility which compensates for minor changes in ground contour and eliminates a costly survey on average fence lines.

Afco Iron Fence Panels of standard 10-foot lengths are strong enough to support their weight over their entire length without sagging. But to further increase strength and to insure permanent horizontal alignment each panel is equipped with an adjustable center support set in a concrete footing.

Entrance Gates

Afco entrance gates can be furnished to match the standard fence designs here illustrated. More elaborate or special designs will be found illustrated in the Afco Iron Fence Catalogue. Afco gates are equipped with self-oiling ball and socket hinges to insure easy operation.



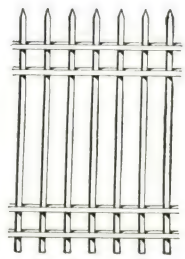
Style 20-5



Style 35-5



Style 30-5



Style 40-5

SPECIFICATIONS OF AFCO IRON PICKET FENCES

Type of fence	Pickets, in.	Picket spacing, c. to c. in.	Channel rails, in.	Length of panels, ft.	Weight, pounds per lineal foot — Height of fence (to top of pickets) 4 ft.	5 ft.	6 ft.	7 ft.	8 ft.
20–5	5/8	5	1½x1½	10	19	23	26	..	..
20–6	3/4	5	2x5/8	10	26	31	36	..	..
20–7	7/8	6	2x5/8	10	..	38	45	52	59
20–8	1	6	2x5/8	10	..	..	55	64	69
30–5	5/8	5	1½x1½	10	20	25	28	..	..
30–6	3/4	5	2x5/8	10	28	33	38	..	..
30–7	7/8	6	2x5/8	10	..	40	47	54	61
30–8	1	6	2x5/8	10	..	..	57	64	71
35–5	5/8	5	1½x1½	10	23	27	30	..	..
35–6	3/4	5	2x5/8	10	30	35	40	..	..
35–7	7/8	6	2x5/8	10	..	42	49	56	63
35–8	1	6	2x5/8	10	..	..	59	66	73
40–5	5/8	5	1½x1½	10	23	27	30	..	..
40–6	3/4	5	2x5/8	10	30	35	40	..	..
40–7	7/8	6	2x5/8	10	..	42	49	56	63
40–8	1	6	2x5/8	10	..	..	59	66	73



Plate No. 492—Bulwark Fence

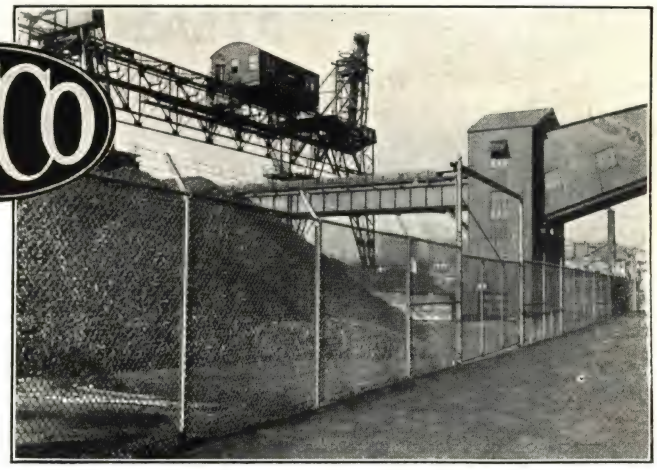


Plate No. 495—Type 1103 Fence

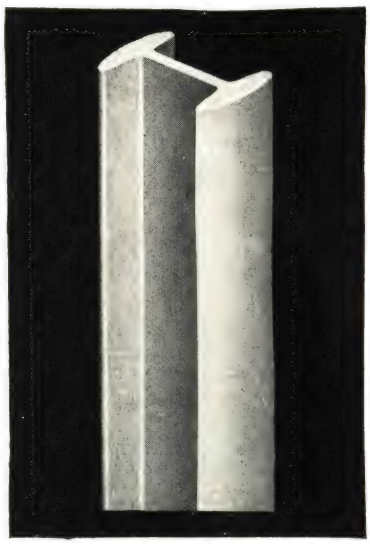
SPECIFICATION DETAILS OF AFCO CHAIN LINK FENCES

(All posts set in concrete footings)

Afco Style	Heights, ft.	Fabric		End and corner posts		Intermediate or line posts			Top rail, diameter, in.	Barbed wire	Gates		Gate posts	
											Width opening			
		Mesh, in.	Gauge wire	Square, in.	Depth footings, ft.—in.	Diam., in.	Spacing, ft.	Depth footings, ft.—in.			Single, ft.	Double, ft.	Square in.	Depth footings, ft.—in.
"Suburban"	3½, 4	2	11 or 9	2	2—6	1⅝ o.d.	8 or 10	2—6	1¾ o.d.	None	3½, 4	8, 10	2	2—6
"Guardian"	4, 5, 6	2	9 or 6	2	3—0	2 o.d.	10	2—6 (4' high) 3—0 (others)	1⅝ o.d.	None	3½, 4	8, 10 12, 14	2 2½	3—0
"Bulwark"	5, 6, 7, 8, 9, 10	2	9 or 6	2½	3—0	2¼ "I"	10	3—0	1⅝ o.d.	None	3½, 4	8, 10, 12 14 to 24	2½ 3	3—0
Style "913"	5, 6	2	9 or 6	2	3—0	2 o.d.	10	3—0	1⅝ o.d.	3 strands	3½, 4	8, 10 12 14	2 2½	3—0
Style "1003"	6, 7, 8, 9, 10	2	9 or 6	2½	3—0	2¼ "I"	10	3—0	None	3 strands	3½, 4	8, 10, 12 14 to 24	2½ 3	3—0
Style "1103"	6, 7, 8, 9, 10	2	9 or 6	2½	3—0	2¼ "I"	10	3—0	1⅝ o.d.	3 strands	3½, 4	8, 10, 12 14 to 24	2½ 3	3—0
"Standard Tennis"	8, 10, 12	1¾, 2	11, 9 or 6	2½	3—0	2¼ "I"	10	3—0	1⅝ o.d.	None	3½ All 7-ft. high with transom panel	10	2½	3—0

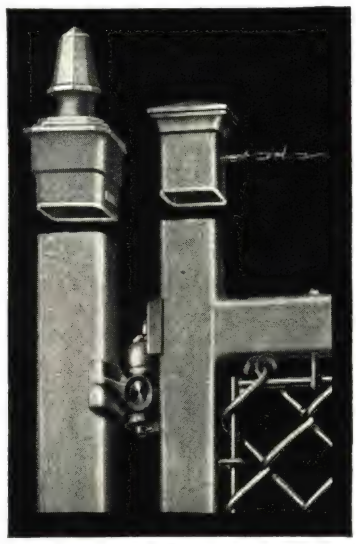
Notes: Gate frames are of 1¼-in. square tubular members for "Suburban;" 1½-in. square for "Guardian," Style "913" and "Standard Tennis" Fences; 2-in. square for "Bulwark," Style "1003" and Style "1103."

Three Important Improvements in Afco Construction



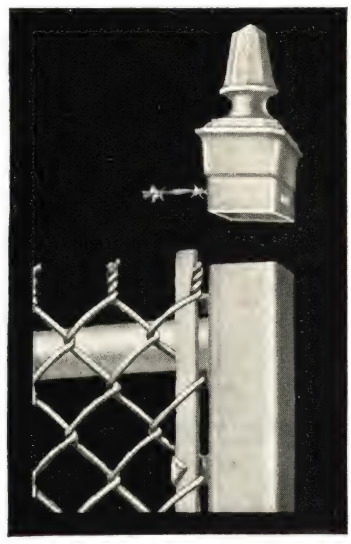
Special "I" Beam Line Posts

The Afco Special "I" Beam Post is furnished with all fences of heavy construction. The strength and enduring qualities of this post insure lasting and economical protection



Square Frame Gate

The Afco Square Frame Gate is one of the strongest gates on the market today. Welded at each corner, the entire gate frame is a solid and rigid structure



The Square Terminal Post

The Afco Square Terminal Post eliminates braces and bands and is consequently more attractive. Its square construction makes it stronger and more protective

ATLAS FENCE COMPANY

Protective and Ornamental Iron and Wire Fences

TELEPHONE
LExington 2-0224

103 Park Avenue, NEW YORK, N. Y.

MAIN OFFICE AND FACTORY
NEWARK, N. Y.

NEWARK, N. J. PHILADELPHIA, PA. HARTFORD, CONN.

Sales Agents in Prominent Cities—Wire, Telephone or Write Us for Nearest Representative

Products

ATLAS CHAIN LINK FENCES and GATES.

ATLAS ROAD FENCES — ATLAS TENNIS FENCES.

ATLAS WROUGHT PICKET FENCES and GATES.

ATLAS ORNAMENTAL ENTRANCE GATEWAYS.

Also Baseball Backstops, Goal Posts, Diamond Mesh Partitions and Window Guards.

Uses

Atlas Chain Link and Wrought Picket Fences meet every requirement of a good fence, especially for industrial plants, railroads, transformer stations, schools, parks, reservoirs, institutions, estates, residences, etc.

Service

Atlas Factory Representatives and Engineers are always ready to render assistance in the solution of all fencing problems. We will submit without cost or obligation, plans and estimates for every fencing need.

Manufacturing Policy and Facilities

At Newark, N. J., easily accessible for quick shipments by rail, boat, or motor truck, we have a complete fence manufacturing plant exclusively devoted to the manufacture of wire and iron fences—handling every step of manufacture from the raw materials to the finished product—a strong and durable fence. Quality must be *in* the material, and all the component parts must be properly related. Extra weight in fence frame construction means nothing, and is needless, unless there is combined with it—strength and durability. It is with especial emphasis on the last two essentials that Atlas Fences are constructed.

Catalogue

Send for your copy of our new, profusely illustrated catalogue describing Atlas Fences for every fence requirement.

Test of Posts Conducted by Pittsburgh Testing Laboratory

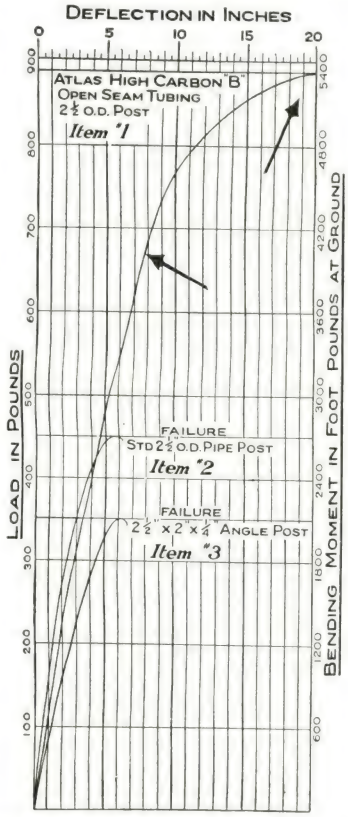
This test was made to determine relative strength of various sections used as standard fence posts.

Item 1—Atlas standard high-carbon open-seam post 2⅜ in. but nominally specified by ATLAS FENCE COMPANY as 2½-in. outside diameter. The standard mill weight listed as 3.12 lb. per ft., ungalvanized. Actual weight of post tested 3.30 lb. per lin. ft., hot galvanized; wall thickness $\frac{3}{64}$ in. (.140).

Item 2—This was a standard 2½-in. outside diameter copper-bearing galvanized pipe post. The rated weight being 3.65 lb. per lin. ft.; wall thickness $\frac{11}{64}$ in.

Item 3—Angle posts of 2½x2x¼ in. and identified as commercial steel angle. The listed weight being 3.7 lb. per lin. ft. and the actual weight of post tested 3.55 per lin. ft. The post was tested with 2½-in. flange of angle in line with the pull.

Reference to the graph will show that in this test, made without prejudice by the Pittsburgh Testing Laboratory, *the Atlas standard high-carbon open-seam post had 100%* greater strength than the pipe post *(Item 2 on graph) and more than 150% greater strength than the angle post of commercial steel (Item 3).*



TYPES AND SIZES, ATLAS STANDARD FENCE FRAME CONSTRUCTION

Types and Heights	Line posts	Min. Concrete Base: Depth	Min. Concrete Base: Diam.	Post spacing	Line post tops	*Pressed steel arms, 15¾" long	Barbed wires	End posts	Corner posts	Gate posts: Single gates up to 6' opening; double gates up to 12' opening	Gate posts: Single gates 7' to 11' opening; double gates 14' to 24' opening	Gate posts: Single gates 12' to 18' opening; double gates 26' to 36' opening	Gate frame—tubular	Gate top finish	Top rail	Middle rail	Horizontal braces	Bolts, nuts and rivets	Rail clamps	Finish
Atlas Home: Up to 4' high	1⅝"	2' 6"	8"	10'	Certified malleable	None	None	2½"	2½"	2½"	None	None	1⅜"	Scroll	1⅜"	None	None	Solid brass or bronze (High tensile strength)	Heavy pressed steel	Hot dipped galvanized
Atlas Heavy Estate: 5', 6' and 7' high	2"	2' 9"	10"	10'		None	None	2½"	2½"	3"	4"	6⅝"	2"	Plain	1⅝" B	None	1⅝"			
Atlas Super Estate: 5' high and up	2½"	2' 9"	10"	10'		None	None	3"	3"	3"	4"	6⅝"	2"	Plain	1⅝" B	None D	1⅝"			
Atlas Armed: 5', 6' and 7' high	2"	2' 9"	10"	10'		Arms	3	2½"	2½"	3"	4"	6⅝"	2" A	Plain	1⅝" B	None	1⅝"			
Atlas Standard Armed: 5' high and up	2½"	2' 9"	10"	10'		Arms	3	3"	3"	3"	4"	6⅝"	2" A	Plain	1⅝" B	None	1⅝"			
Atlas Double Armed: 7' high and up	2½"	2' 9"	10"	10'		Arms	5	3"	3"	3"	4"	6⅜"	2" A	Plain	1⅝"	None	1⅝"			
Atlas Estate Tennis: 8', 10' and 12' high	2"	2' 9"	10"	10'		None	None	2½"	2½"	3"	4"	6⅝"	2"	Plain	1⅝"	Note (D)	1⅝" D			
Atlas Club Tennis: 8', 10' and 12' high	2½"	2' 9"	10"	10'		None	None	3"	3"	3"	4"	6⅝"	2"	Plain	1⅝"	Note (D)	1⅝" D			

*Represents vertically 12 in. in height of fence.

A—3 strands of barbed wires on the gate extend vertically. B—In these types of fence (where the top rail is omitted), a No. 6 gauge (W&M) coil spring cable wire is placed along the top approximately 6 in. below the top selvage of the fabric. D—In fences, 12 ft. high, a middle rail of same size as top rail is recommended.

Atlas High Carbon Steel Fence Posts

All Atlas Chain Link Fence framework is tubular, of high carbon steel, hot-dip galvanized, rolled with an open seam, thus preventing the accumulation of condensation on the inside of the post. The Atlas tubular post, one of the strongest shaped fence members, contains a high carbon content of .35 to .60 per cent, is properly heat-treated, refined and close grained, thus insuring the strongest and most lasting fence frame construction. (See specifications for sizes, etc.)

Field Construction

No matter where it is erected, a trained crew of experienced salaried Atlas erection engineers personally erect every Atlas Fence. None of our fences are erected under contract with other fence erection crews.

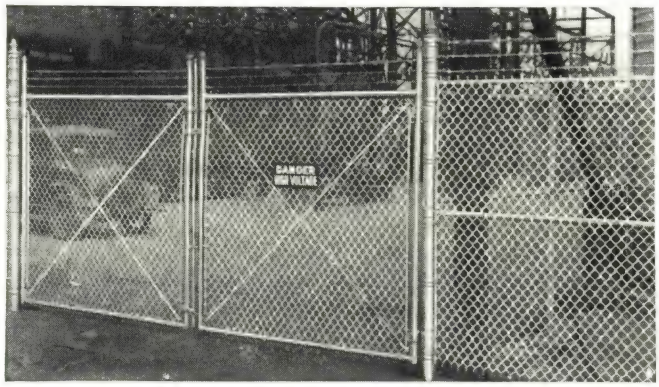
Atlas Chain Link Fabrics

Atlas Chain Link Fence fabric is woven from the very best hard-drawn steel wire, consistent to a close and rigid specification. Every square inch must stand a test of at least 65,000 lb. for tensile strength—a mighty rigid test.

Atlas Chain Link Fence fabric is furnished under the trade name of Atlas "Galvanized-After-Weaving." (See specification chart.)

Atlas Chain Link Fences

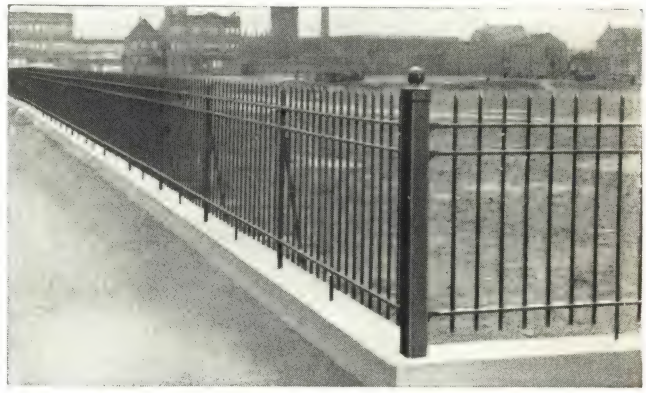
The strength and durability of Atlas Chain Link Fences make them ideally adaptable to every situation where a neat attractive fence line for protection or ornamentation is desired. Atlas Fences are manufactured and erected to meet the contours and particular requirements of each particular job.



Atlas Chain Link Fence

Atlas Wrought Picket Fences and Gates

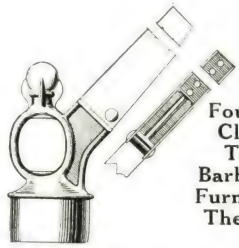
Atlas Wrought Picket Fences are made up in various standard styles and sizes, also to meet individual specific requirements. All pickets are permanently locked in place by the Atlas Shur-Tite Compression process, firmly and lastingly bonding the members together. Atlas Fences are not manufactured for "stock" but to meet individual requirements.



Atlas Wrought Picket Fence, Newark, N. J.

Atlas Ornamental Entrance Gateways

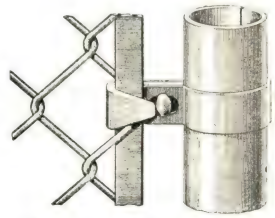
Although Atlas Ornamental Gates are usually made in special designs in keeping with the particular plans of the owner, architect or engineer, we are always ready to submit standard styles of Atlas Ornamental Gates.



Four-point, Close-set, Two-ply Barbed Wire Furnished for These Arms

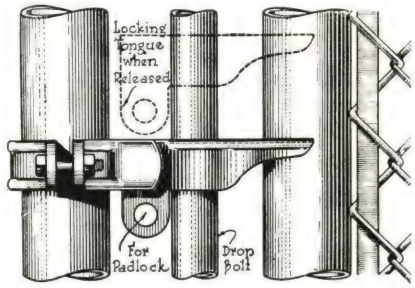
Detail of Top

Showing arm to carry three barbed wires



Detail of Atlas Boltless Fitting

Showing Atlas high carbon open seam tubular post



Atlas Positive Gate Locks

(From inside of gate)

SPECIFICATIONS ATLAS CHAIN LINK FENCE FABRICS

Types and heights	Style of galvanizing	Width of fabric	Wire mesh and gauge (W. & M.) of wire	Selvage finish		Fabric ties to line posts	Fabric ties to top rail and braces	Fabric ties to corner gate and end posts
				Top	Bottom			
Atlas Home: Up to 4′ high	After weaving Commercial	3′ 0″ 3′ 6″ 4′ 0″	1″—#14 1⅝″—#11 2″—#11, #9, #6	Knuckled A	Barbed A	Special formed non-rusting high tensile aluminum bands	Wire ties	Heavy pressed steel Boltless bands with Atlas boltless malleable fitting
Atlas Heavy Estate: 5′, 6′ and 7′ high	After weaving	5′ 0″, 6′ 0″, 7′ 0″	2″—#9 or #6	Barbed	Knuckled			
Atlas Super Estate: 5′ high and up	After weaving	5′ 0″ to 12′ 0″	2″—#9 or #6	Barbed	Barbed			
Atlas Armed: 5′, 6′ and 7′ high	After weaving	4′ 0″, 5′ 0″, 6′ 0″	2″—#9 or #6	Barbed	Barbed			
Atlas Standard Armed: 5′ high and up	After weaving	4′ 0″ to 11′ 0″	2″—#9 or #6	Barbed	Barbed			
Atlas Double Armed: 7′ high and up	After weaving	6′ 0″ to 11′ 0″	2″—#9 or #6	Barbed	Barbed			
Atlas Estate Tennis: 8′, 10′ and 12′ high	Commercial	8′ 0″, 10′ 0″, 12′ 0″	1⅝″—#11	Knuckled	Knuckled			

A—This type of fabric is reversible.

In all heights of fences 5 ft. high and over, a No. 6 coil spring wire is placed along the lower part of the fabric, approximately 6 in. above the bottom edge of the selvage. This coil spring wire is attached to the fence framework with aluminum tie wire. The fabric in turn is attached to the coil spring cable wire with galvanized wire ties, spaced not over 2 ft. apart.

ANCHOR POST FENCE COMPANY

Manufacturers of Wire Fences, Iron Fences and Rustic Cedar Fences

GENERAL SALES OFFICE

Eastern Avenue and Kane Street, BALTIMORE, MD.

DISTRICT SALES OFFICES

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BRANCH SALES OFFICES

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CAMBRIDGE, MASS., 238 Main Street
CHICAGO, ILL., 646 No. Michigan Boulevard
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DETROIT, MICH., 508 Architects Building
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HOUSTON, TEX., 2301 Commerce Street
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WASHINGTON, D. C., 615 Colorado Building
WILMINGTON, DEL., 1609 Pennsylvania Avenue

SALES AGENTS IN OTHER PRINCIPAL CITIES—CONSULT TELEPHONE DIRECTORY

FACTORIES: BALTIMORE, MD., CLEVELAND, OHIO and SAN FRANCISCO, CAL.

Products

ORNAMENTAL IRON ENTRANCE GATES; ELECTRICALLY WELDED IRON FENCES; GATES.

WIRE and IRON FENCES of all kinds and in several heights, for country places, residences, parks, playgrounds, institutions, factories, mills, railroads, reservoirs, etc.

TENNIS COURT and ATHLETIC GROUND ENCLOSURES; KENNEL, POULTRY and STOCK PADDOCK FENCES; expert designing and construction of special ENCLOSURES for game, birds, etc.; IRON and WIRE ARBORS, ARCHES and TRELLISES.

For Rustic Cedar Fences, see Manufacturers' Index.



TRADE-MARK

Nation-wide Sales and Erecting Service

A chain of Anchor offices located in principal cities in all parts of the United States insures immediate attention to the requirements of architects. We maintain trained crews of erectors who erect fences under the supervision of our main office and branches, thus insuring good workmanship and an economical job. If desired, we will make surveys for grades and measurements and take entire charge of the work. When a customer prefers to do the erecting, tools and necessary instructions are furnished.

Estimates and Catalogues

Estimates given for products delivered and set complete in any part of the country. In requesting estimates, send, if possible, a diagram giving dimensions, location of gates, ends and corners.

For the convenience of architects and their specification writers we have prepared a special folder according to specifications for A.I.A. filing system. It contains a complete set of catalogues, specification sheets with scale drawings, details and dimensions on Anchor Wire and Iron Fences and Gates. The nearest Anchor office will gladly send you one of these handy folders. Just write for folder "A.I.A. File 14-k."



Ornamental Iron Entrance Gate on the Estate of Asa G. Candler, Jr., Atlanta, Ga.
This installation also includes 5700 ft. of Anchor Chain Link Fence, Type DOA-1, 7 ft. high



Anchor Garden Gate on Private Estate



Anchor-Weld Iron Fence, Type RA-1
Surrounding residence of H. C. McCrady, Pittsburgh, Pa.

Iron Fences and Entrance Gates

Long experience enables this company to manufacture iron fences and ornamental gates properly proportioned and designed, and correctly made in all details. Special or stock designs furnished.

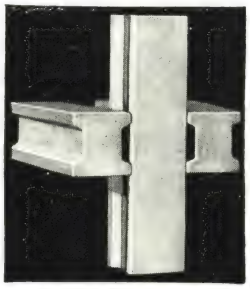
Anchor-Weld Iron Fences and Gates

The ANCHOR POST FENCE COMPANY have been manufacturing iron fences for 40 years. About 15 years ago they adopted the electric weld process for manufacturing this product due to its great superiority. As shown in the illustrations, we use grooved square bars: ½, ⅝ and ¾ in. square. The rails consist of these bars in horizontal pairs the length of a panel. Welded between these pairs, and at right angles to them, are the pickets. All welding is done on the flange sides of rails and pickets.

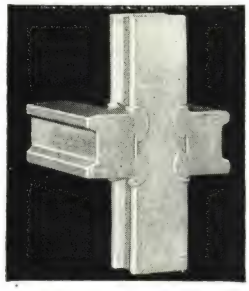
The strength of this type of construction is enormous. Not only does it permit the making of panels as long as 10 ft., but the center support is unnecessary.

Even when supporting an additional weight of several hundred pounds at the center, the rails show little or no deflection. Pickets can not loosen and fall. Gates, made in the same manner as the railing, require no diagonal braces to maintain rigidity.

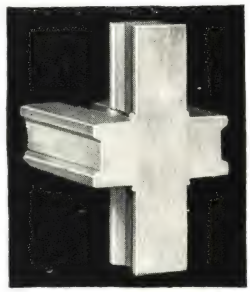
Elaboration is possible: circles, scrolls, ellipses, and other special features may be introduced, double top or bottom rails may be used, and highly ornamental iron posts or brick, stone, concrete, or cast iron columns may be employed.



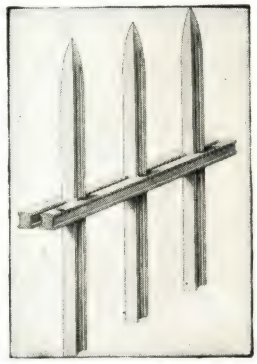
Grooved Square Rods of Open Hearth Steel



Electrically Welded Under Tons of Pressure



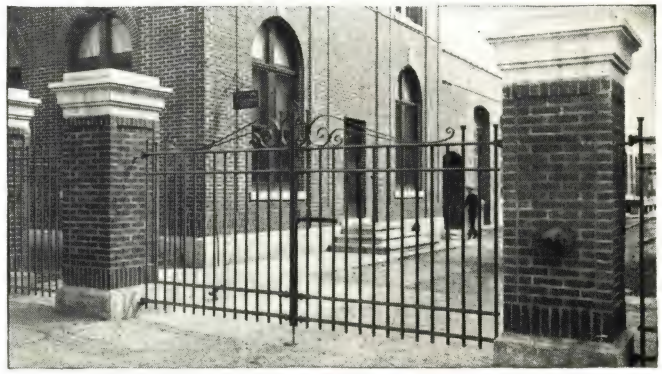
Forming One Solid Piece at Each Intersection



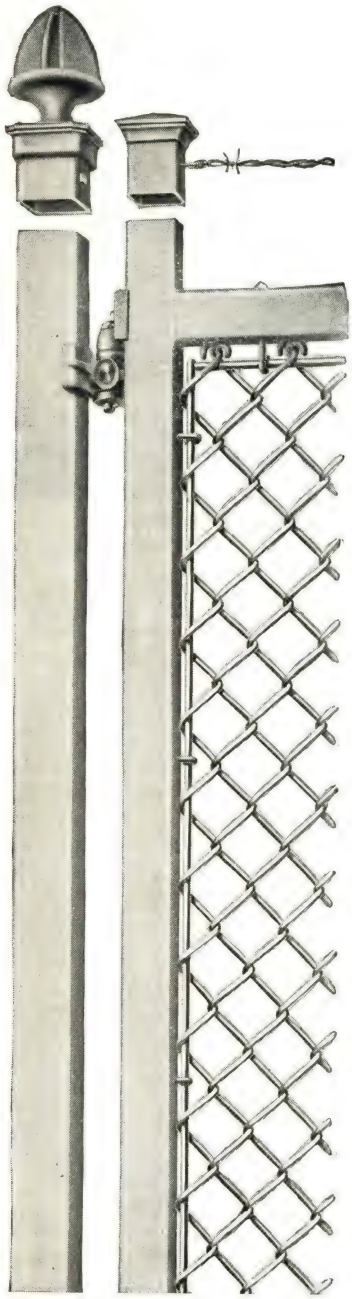
Perfect Union of Pickets and Rails



Anchor-Weld Iron Fence, Type RA-3
And single walk gate at St. Mary's School, Elizabeth, N. J.



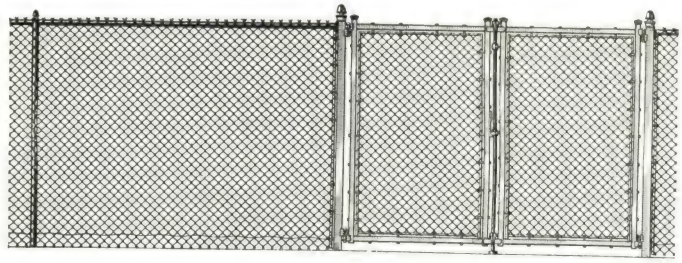
Anchor-Weld Double Gate
At the factory of The Duratex Co., Newark, N. J.

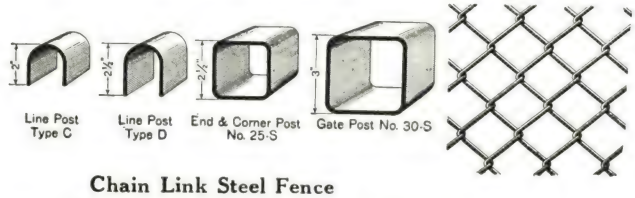


Section of Anchor-Weld Wire Gate with Anchor Square Terminal Post



Anchor Drive-Anchorage





Chain Link Steel Fence

Fabric.....Copper-bearing steel wire, galvanized *after* weaving
Line posts..High carbon steel, Type C or D, U-bar, spaced about 10 ft.
End, corner and single gate posts.....No. 20-S or 25-S
Double gate posts.....No. 25-S

Anchor Chain Link Fences

It is our contention that a chain link fence should be not only enduring in construction, but attractive in appearance as well. Anchor Chain Link Fences have been designed with these points in mind. Their four exclusive features—(1) *High carbon steel U-bar Line Posts;* (2) *Square Terminal Posts;* (3) *Drive-anchorage;* (4) *Anchor-Weld Wire Gates*—contribute materially to their exceptional strength and distinction.

Anchor Chain Link Fabric is of best quality copper-bearing steel wire, *galvanized after weaving.* Made of No. 9 and No. 6 gauge wire, the latter being more commonly used. Heights up to 10 ft. The small mesh affords no foothold for climbers and the three strands of barbed wire at the top provide an additional safeguard.

Both top rail of galvanized pipe and barbed wire topping are optional. All parts are heavily galvanized by the hot-dip spelter process.

Anchor Square Terminal Post

An exclusive Anchor feature developed for Anchor Fences.

Stronger—because of its square shape; unclimbable—no bands or footholds for trespassers to use as a stepladder; more protective—fabric can not be detached from post from outside; better-looking—has no fabric-holding bands.

Anchor U-bar Intermediate Posts

Because they are U-shaped and are made of high carbon steel, these posts are exceptionally strong and rigid. They are heavily galvanized throughout.

Anchor Drive-Anchorage

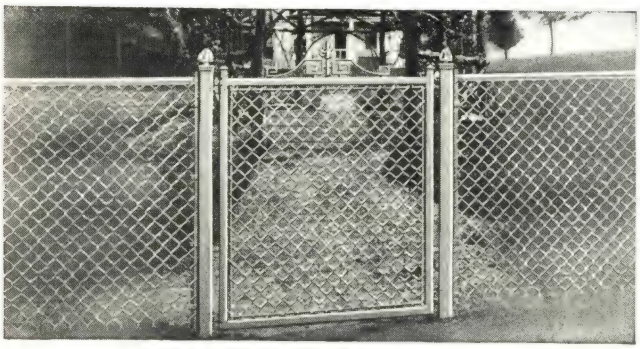
To insure permanent alignment of Anchor Fences we set the posts by our *drive-anchor* method, as illustrated. Neither frosts, thaws nor the heavy strains to which a fence is subjected can disturb a fence anchored by this method.

Anchor-Weld Wire Gate

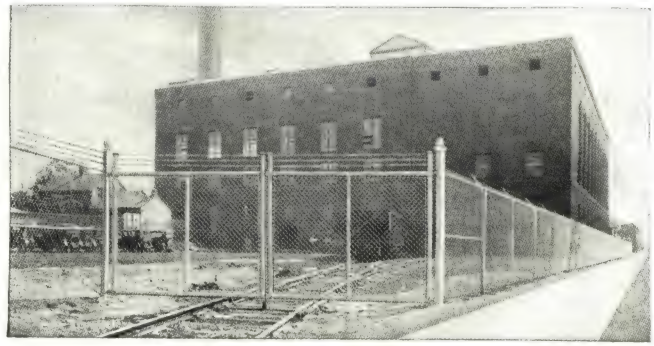
The Anchor-Weld Wire Gate is the latest Anchor development. It marks an important improvement in gate construction.

For the frame of this gate we use square tubular steel, which contributes materially to the attractive appearance, strength and rigidity of the entire gate structure. The horizontal and vertical members of the frame are inseparably *arc-welded* together at the corners. So strong is this construction that no diagonal braces are needed.

Anchor-Weld Wire Gates are made in both single and double types, in a variety of widths.



Anchor Chain Link Fence
A lawn type of fence with Anchor-Weld Single Wire Walk Gate



Anchor Chain Link Fence
An installation including Double Anchor-Weld Wire Gate

ESTABLISHED 1858

J. W. FISKE IRON WORKS

Ornamental Iron, Brass, Bronze, Wire and Zinc Work

69-71 Park Place, NEW YORK, N. Y.

Products

ORNAMENTAL METAL WORK and FENCING as follows: Ornamental Entrance Doors, Window Guards, Lamps and Lamp Standards; Metal Stairs; Memorial Tablets; Fountains; Iron Railings and Entrance Gates; Woven Wire and Climbproof Chain Link Fencing; Sanitary Stable and Barn Equipment.

Also Brass and Bronze Railings; Andirons and Fire Sets; Fire Escapes; Flagpole Bases; Balls and Trucks; Folding Gates; Leader Shoes; Marquises; Garden and Park Furniture; Sundials; Tree Guards; Wire Partitions.

Co-operative Service

The J. W. FISKE IRON WORKS will submit estimates for products either delivered or erected complete. A well organized engineering staff is maintained, and contracts for designing and erection complete are made when desired. Co-operation with the architect, contractor or owner in executing unusual specifications is a specialty.

Fiske Quality

The quality of Fiske products is best evidenced by installations for the United States Government, States, cities and leading commercial organizations, and upon many of America's largest private estates.

Entrance Gates, Fencing and Ornamental Iron Work

This company will carry out any design in ornamental entrance gates, iron fencing, window guards, metal stairs and similar work, or will prepare and submit designs for such work.



Illustrations of Work Finished and Installed by J. W. Fiske Iron Works

(1) Seymour H. Knox Residence, Aiken, S. C.
Peabody, Wilson & Brown, Architects

(2) L. H. Shearman Estate, Manhasset, L. I., N. Y.
J. W. O'Connor, Architect

(3) General Howard S. Borden Residence, Rumson, N. J.
George S. Chappell, Architect

(4) Thomas A. Edison Junior High School, West Orange, N. J.
Guilbert & Betelle, Architects

(5) State Capitol, Raleigh, N. C.
Atwood Nash Inc., Architects

(6) United Piece Dye Works, Lodi, N. J.

(7) Richmond Borough Hall, St. George, S. I., N. Y.
Carrere & Hastings, Architects

(8) S. L. Rothafel Bronze Tablet
Roxy Theatre, New York, N. Y.

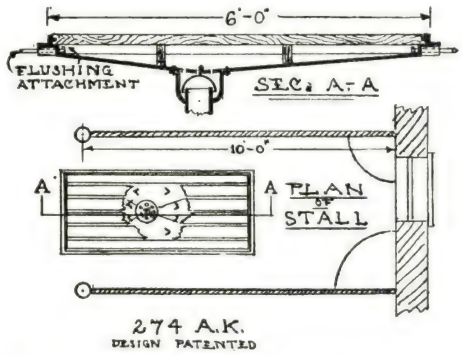
Sanitary Stable and Barn Equipment

In most of the finest stables in this country Fiske Sanitary Stable and Barn Equipment has been installed. This includes both the privately owned and commercial stables. Hundreds of architects have specified our equipment because they have felt that by so doing they best served the interests of their clients. On this page a few standard details are shown, the result of more than 70 years of specialized experience in this class of construction. You will find us ready to co-operate when unusual conditions require special treatment.

Our complete catalogue of stable equipment will be sent on request, as well as any special information.



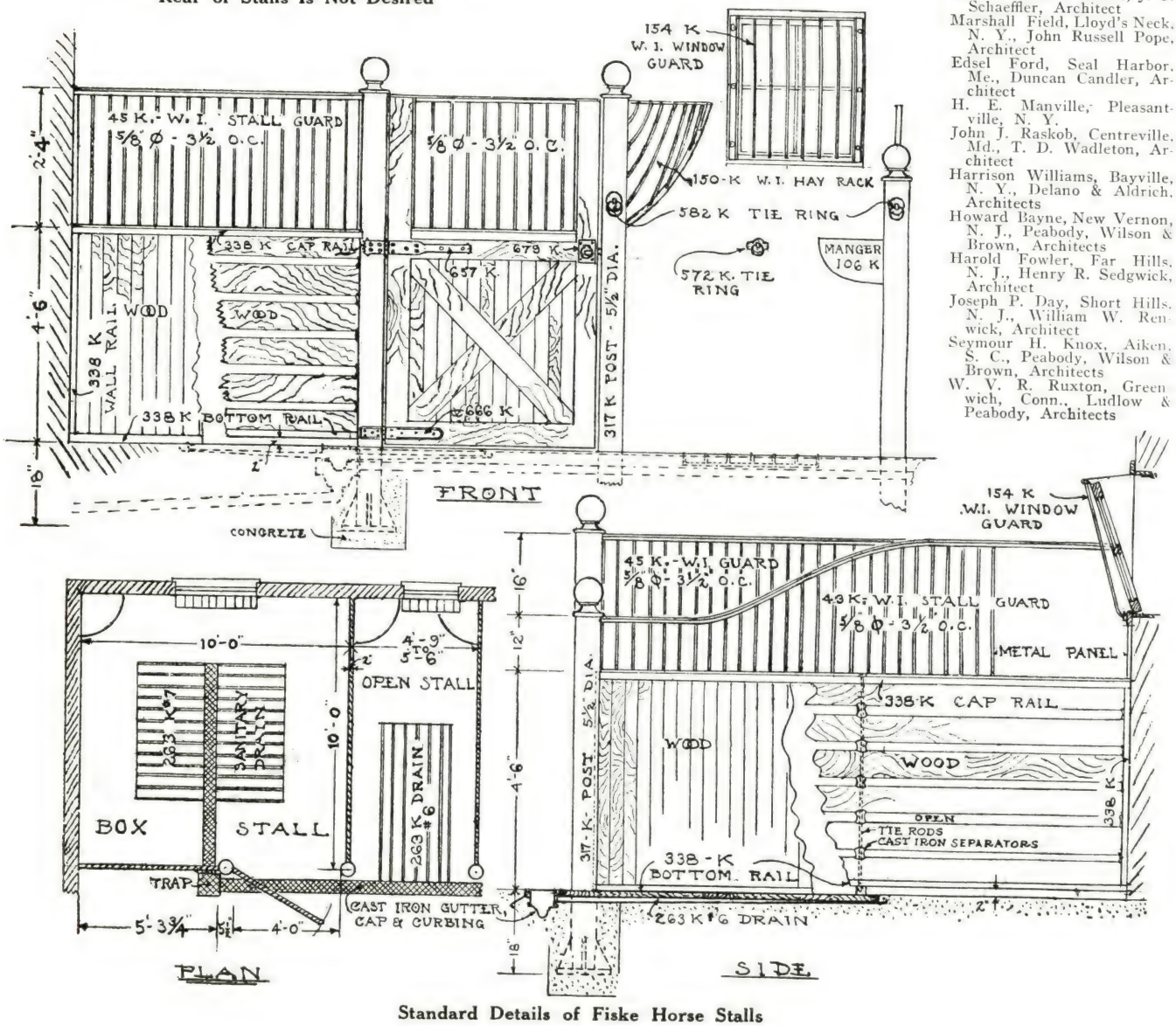
Herbert N. Straus Stable, Red Bank, N. J.
ALFRED HOPKINS and ASSOCIATES, Architects



A Type of Drain Used Where Gutter at Rear of Stalls Is Not Desired

A Few Recent Installations

Borden Farm Products, J. C. Schaeffler, Architect
Marshall Field, Lloyd's Neck, N. Y., John Russell Pope, Architect
Edsel Ford, Seal Harbor, Me., Duncan Candler, Architect
H. E. Manville, Pleasantville, N. Y.
John J. Raskob, Centreville, Md., T. D. Wadleton, Architect
Harrison Williams, Bayville, N. Y., Delano & Aldrich, Architects
Howard Bayne, New Vernon, N. J., Peabody, Wilson & Brown, Architects
Harold Fowler, Far Hills, N. J., Henry R. Sedgwick, Architect
Joseph P. Day, Short Hills, N. J., William W. Renwick, Architect
Seymour H. Knox, Aiken, S. C., Peabody, Wilson & Brown, Architects
W. V. R. Ruxton, Greenwich, Conn., Ludlow & Peabody, Architects



Standard Details of Fiske Horse Stalls

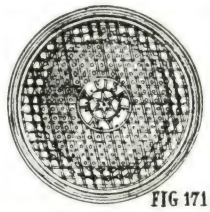


FIG 171 K

CESSPOOL OR COALHOLE COVER WITH RIM.

Covers are furnished in following diameters:
12in (14in incl Rim.) 20in (24in incl Rim.)
16in (20in " ") 22in (26in " ")
18in (22in " ") 24in (28in " ")

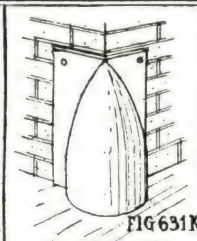


FIG 631 K

CAST IRON WHEEL GUARD

18in. high, 12in diam.

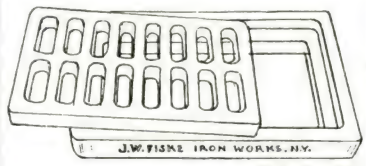


FIG 160A K

GRATING & FRAME - HEAVY

No 1: 15½ in long, 10½ in wide 2¼ in deep. Grating 13½ in long, 8½ in wide

No 2: 15 in long, 15 in wide 2¼ in deep. Grating 13½ in square, 1in thick

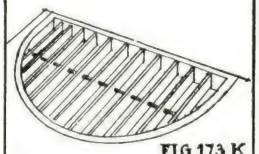


FIG 173 K

WROUGHT IRON GRATING

Any size made to Order

Prices given on Application.

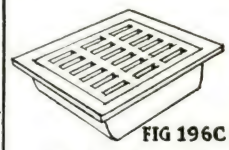


FIG 196C K

FRAME WITH GRATING - HEAVY

No 1 Frame 12in x 12in. - Grating 9½ in x 9½ in

No 2 Frame 16 in x 16in - Grating 13 in x 13 in

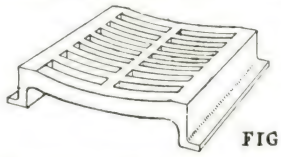


FIG 159A K

HIGHWAY CATCH BASIN FRAME & GRATING
(Very Heavy)

24" long, 22½" wide, 5½" deep, Grating only, 20½" x 20" 2½" thick in center

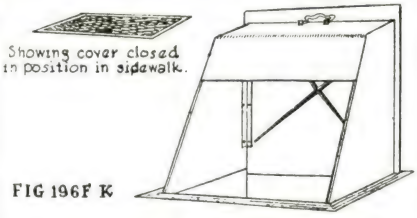


FIG 196F K

SAFETY COAL HOLE COVER & FRAME

	Cover	Frame
No. 1-	18" x 18"	23" x 23"
No 2-	22" x 22"	27" x 27"
No 3-	30" x 30"	35" x 34"

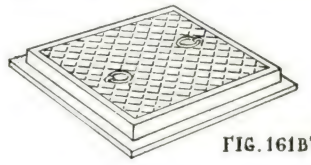


FIG. 161B K

MANHOLE FRAME & COVER, FOR CONCRETE.

Size cover	Outside dimensions	Depth frame
12"x12"	16¼"x16¼"	3"
18"x18"	22"x22"	3"
24"x24"	28"x28"	3"
30"x30"	36"x36"	3"



FIG. 196E K

LIGHT CUTTER BASIN & GRATE

For lawns & carriage drives, not for street use
18" wide x 24" long x 5" deep
Grating only, 16" x 22"

HEAVY GUTTER BASIN & GRATE

For roadways, streets, parks, cemeteries etc
No. 2 - 18" wide x 24" long x 5" deep
Grating only, 16" x 22"
No 1 - 3" x 15" x 3" for use in draining small areas The outlet is so designed that it can be used on 4", 6", 8", or 10" pipe



SPIRAL STAIRS

Furnished for all floor heights with following diameters 4'-0", 4'-6", 5'-0", 5'-6", 6'-0", 7'-0"

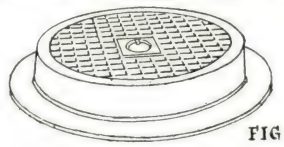


FIG 173A K

MANHOLE FRAME & COVER

Opening	Depth	Diam on bottom	Cover
20" (light pattern)	4"	26½"	20½"
20" (deep pattern)	6½"	26¾"	20½"
20" (heavy pattern)	4¾"	27"	20½"
24" (light pattern)	6"	31½"	24¼"
24" (heavy pattern)	6"	31½"	24¼"

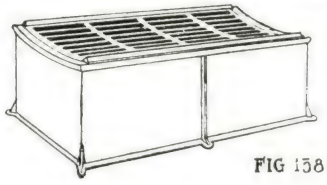


FIG 158 K

ROAD BOX

For public or private roadways, etc
No. 1 - Top: 25" long, 14½" wide, 10" deep
Grating only 23" long, 13¾" wide
No. 1A - Top: 25" long, 14½ wide, 4" deep
No. 2 - Top: 32" long, 14½ wide, 4" deep



FIG 163 K

MANHOLE FRAME & COVER

No.	Clear opening	Size cover	Flange diam.	Depth	Weight
13	22¼"	24"	34⅝"	8"	385 lb.
28	22"	24"	31½"	8"	405 lb.
45	23"	25"	37"	10"	500 lb.
98	24"	26"	38"	8"	509 lb.
36	21¼"	22½"	38¼"	10⅛"	545 lb.

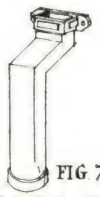


FIG 761 KK

LEADER SPOUT

Length 7 Feet.
Top made to receive 4x3 in leader. Outlet for 4 in soil pipe, offset 5¾ in.



FIG. 761 HK

LEADER SPOUT

Lengths 12", 18", 24", 30", 36" 48", 60 & 72"

To Receive 2"x3" Leader, 3" Outlet.
To Receive 3"x4" Leader, 4" Outlet.
To Receive 4"x5" Leader, 4" Outlet.



FIG 201C K

CAST IRON GRATING

For concrete or iron gutter Width - 5¾

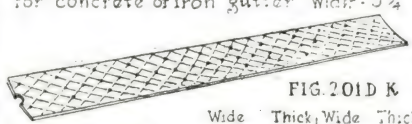


FIG. 201D K

	Wide	Thick	Wide	Thick
GUTTER COVER	3½"	⅜"	7"	½"
For concrete gutter	4	⅜"	8"	½"
	5	½"	9"	½"
	6	½"	9"	⅝"



FIG 173B K

GRATING

To fit in bell ends of soil pipe

Size of pipe	Grating	Size of pipe	Grating
8"	10"	18"	20⅜"
10"	12"	20"	23¼"
12"	14¾"	24"	27¾"
15"	17¾"		

SCS

A FEW OF J. W. FISKE IRON WORKS SPECIALTIES

AUG. 1928

CINCINNATI IRON FENCE COMPANY, INC.

Manufacturers of Ornamental Iron and Wire Work

3330 Spring Grove Avenue
CINCINNATI, OHIO

Products

ORNAMENTAL and PLAIN IRON and WIRE WORK of every description and for every purpose:

Steel and Iron Fence suitable for residences, estates, school grounds, parks, etc.; Gates for interior or exterior—swinging, folding and sliding; Wire and Iron Window Guards, Grilles, Gratings, Shutters and Partitions, etc.

Estimates

Blue prints on request. Estimates cheerfully given.

Fencing Design and Construction

The dominant features of Cincinnati Iron Fencing are its rugged strength, coupled with attractive design.

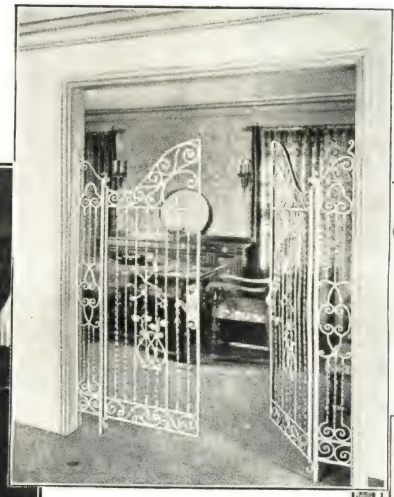
Rails—Made of channel, angle or flat sections.

Pickets—Square, round, flat or angle, suitable thickness according to height required, pointed or tipped with malleable iron heads.

Posts—Made in large variety of sizes and styles to harmonize with the architectural surroundings.



No. 620. Interior Wrought Iron in True Character



A Dignified Wrought Iron Interior Gate



No. 450. Iron Work—a Distinguishing Feature of a Building



No. 491. Wrought Iron Balcony Railing



Stair Rail and Interior Gate in Private Residence, Long Branch, N. J.

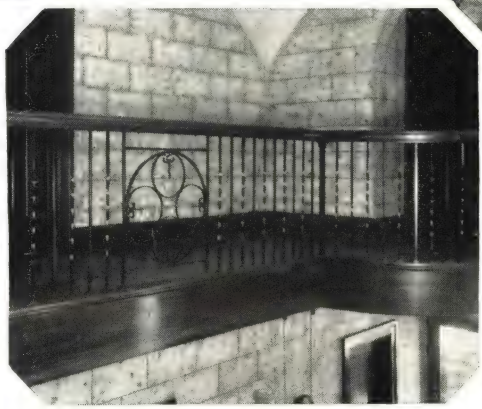
No. 702. Railing
No. 2310. Interior Gates

Right:

No. 459. Window Balcony

A simple conventional design. The window balcony may be used as a flower box





No. 700. Balcony Rail

Wrought iron of handsome design, with wood handrail. Alternate pickets are twisted



No. 462. Stair Rail

Attractive interior Spanish type stair railing with brackets extending down into the stair tread. Can be made in any height



Stair Rail in Home of M. E. Eastman, Architect and Builder, Cincinnati, Ohio



Wrought Iron Fence and Entrance Gate, Steenerson Memorial Cemetery, Crookston, Minn.



Wrought Iron Fence and Entrance Gate on Large Estate Near Lynchburg, Va.

CYCLONE FENCE COMPANY

Subsidiary of United States Steel Corporation

WAUKEGAN, ILL.

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GREENSBURG, IND. NEWARK, N. J. TECUMSEH, MICH. PORTLAND, ORE.

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		MILWAUKEE, WIS.		

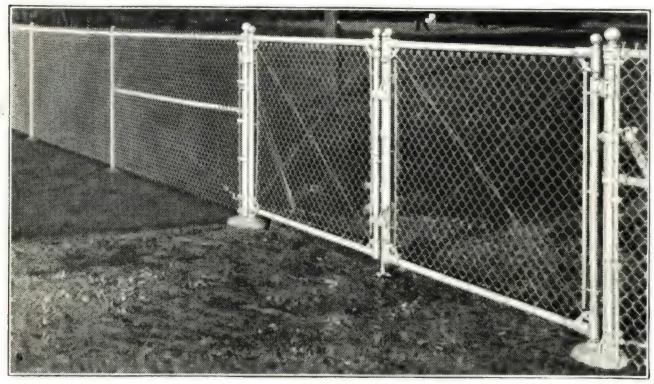
PACIFIC COAST DIVISION: Standard Fence Company, OAKLAND, LOS ANGELES, SAN FRANCISCO, CALIF., PORTLAND, ORE., SEATTLE, WASH.

Cyclone Safeguard Chain Link Fence

Specifications—Built in heights from 4 ft. up to and including 10 ft. Chain Link fabric is full height of fence.

Fabric—"Galv-After" Chain Link copper-steel wire heavily zinc-coated (or hot-galvanized) by hot-dip process after weaving. No. 9 or No. 6 gauge wire woven in a 2-in. mesh. On heights 5 ft. and over, both edges of fabric have twisted and barbed finish. On heights 4 ft. and lower, one edge has twisted and barbed finish, the other has knuckled finish and it is recommended that the knuckled edge be placed at top of fence dressed below top rail with the barbed edge at the bottom.

Posts—***Line Posts***—Hot-dip galvanized: 2-in. H-column copper-steel. Weight 4.10 lb. per lin. ft. where fence is 6 ft. and over in height. Where fence is less than 6 ft. in height, 2-in. outside diameter, weight 2.72 lb. per lin. ft.



Cyclone Safeguard Fence

Beautiful and dignified property protection for country estates and homes—also golf grounds and clubs

End, Corner, Angle and Pull Posts—3-in. outside diameter, weight 5.79 lb. per lin. ft. where fence is 6 ft. and over in height. Where fence is less than 6 ft. in height, these posts are 2½-in. outside diameter, weight 3.65 lb. per lin. ft.

Gate Posts—The size and strength of gate posts for swinging and sliding gates have been carefully determined by our Engineering Department. Details upon request.

Post Spacing—Posts are spaced in line of fence not farther apart than 10-ft. centers.

Depth of Posts—Line posts for fence 4 ft. or lower are set 24 in. in concrete base; terminal posts 30 in. In 5-ft. fence, line posts are set 30 in., terminal posts 36 in. In Cyclone Safeguard Fence 6 ft. in height and over, all posts are set 36 in.

Post Setting—Concrete post bases are of proper mixture, size and shape to furnish sufficient foundation.

Post Tops—Hot-dip galvanized. All posts fitted with heavy ornamental post tops of malleable iron. The base of these tops when tubular posts are used, fits into the post and a flange carries over the outside to cap the post against moisture.

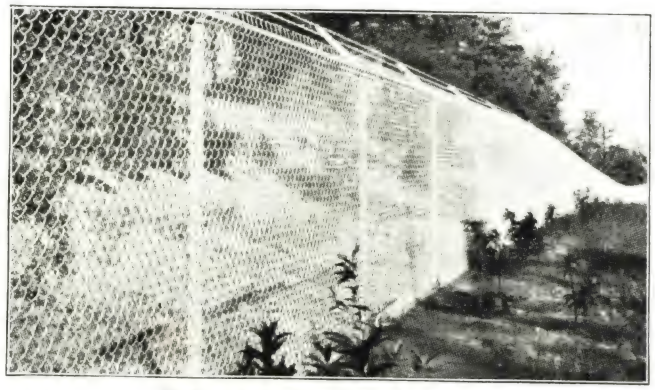
Top Rail—Made by the National scale-free process, hot-dip galvanized. Tubular copper-steel 1⅝-in. outside diameter, weight 2.27 lb. per lin. ft. when fence is 5 ft. or over in height. When fence is 4 ft. or lower, top rail is 1⅜ in. outside diameter. Provided with expansion rail coupling. Top rail passes through post tops and forms a continuous brace from end to end of each stretch of fence.

Braces—Hot-dip galvanized, furnished only on fences 6 ft. and over in height. End, gate and corner posts are braced by tubular copper-steel braces 1⅝-in. outside diameter, weight 2.27 lb. per lin. ft. Braces are spaced midway between the top rail and ground and extend to the first line post, fastened by malleable iron or pressed steel connections, then trussed from line post back to end, gate or corner post.

Fittings—Hot-dip galvanized. All fittings used with Cyclone Safeguard fencing and gates are malleable, wrought iron, pressed steel or aluminum.

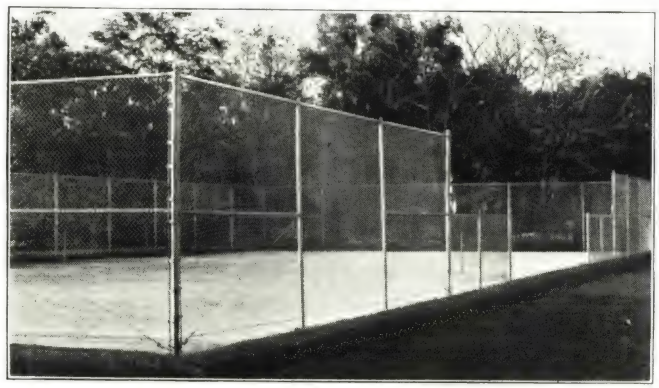
Fabric Bands—Aluminum. Fasten the fabric to line posts and top rail, spaced approximately 14 in. apart.

Finish—All materials entering into the fence construction, except aluminum bands, are heavily galvanized.



Cyclone Invincible Chain Link Fence

Standard height, 7 ft. All copper-steel materials. Built in heights up to and including 11 ft. Fabric, "Galv-After" Chain Link, heavily zinc-coated (or hot-galvanized) by hot-dipping process after weaving. No. 9 or No. 6 gauge wire woven in a 2-in. mesh. Extension arms carry 3 rows of 4-point barbed wires, 12 in. in or out from fence line. Posts and framework, H-column steel, hot-dip galvanized



Cyclone Tennis Court Enclosures and Back Stops

Framework, tubular copper-steel, hot-dip galvanized. Fabric "Galv-After" Chain Link No. 11 gauge copper-steel wire woven in a 1¾-in. mesh. Standard height, 10 ft.



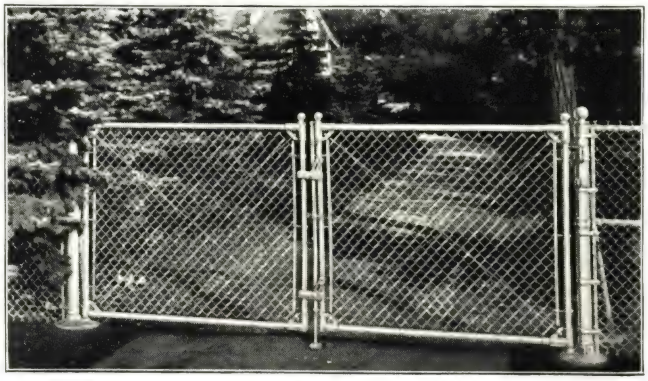
Cyclone Colonial "Complete Fence"
Standard heights: 36, 42, 48 and 54 in. Framework, tubular steel, hot-dip galvanized. Fabric, style "F." Pickets spaced 3 in. apart at top, 1⅜ in. apart at bottom



Safeguard Fence with Wrought Iron Gate
Standard heights: 36, 42 and 48 in. Framework, tubular copper-steel hot-dip galvanized. Fabric "Galv-After" Chain Link copper-steel No. 9 gauge. 2-in. mesh



Cyclone Banner Fence
Furnished with "Galv-After" Chain Link fabric in 3½ or 4-ft. heights. End, corner and gate posts are heavy tubular copper-steel, set in concrete. Line posts, banner drive style. All posts heavily hot-dip galvanized. Braces, heavy tubular copper-steel. Gates, either walk or double drive to match fence



Cyclone Swinging Gates
Either single or double, for Safeguard Fence

Specifications, Cyclone Swinging Gates

Standard Sizes—Single swing walk gates built standard for 4-ft. opening. Double swing gates for driveways built standard for 8 to 18-ft. openings. Where conditions are such that standard sizes cannot be used, gates are built to meet requirements.

Frames—Hot-dip galvanized, tubular copper-steel. In heights 6 ft. or over, frames are 2-in. outside diameter. Corner fittings are extra heavy malleable iron.

Stays—Hot-dip galvanized, tubular copper-steel. Stays, together with ⅜-in. adjustable truss rods, keep gate absolutely rigid; prevent sagging, buckling and side weave.

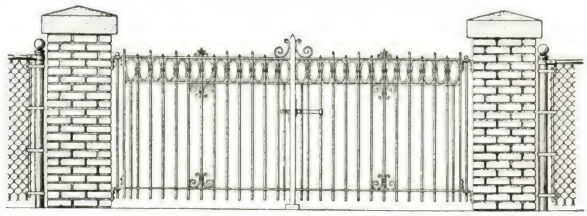
Fabric—Cyclone "Galv-After" Chain Link to match fabric used in fence.

Hinges—Hot-dip galvanized. Made of malleable iron. Exceptionally large bearing surface for clamping hinge on gate post. Cyclone hinge equipment will carry 100% overload. Bottom hinge is ball and socket pivot type.

Latch and Lock—Hot-dip galvanized. Plunger bar type with positive latch; arranged for padlock locking. Double drive gates equipped with catch posts to hold gates in open position.

Wrought Iron Double Gates

Cyclone Wrought Iron Fence and Entrance Gates are built in a variety of heights and attractive patterns for residences and estates.



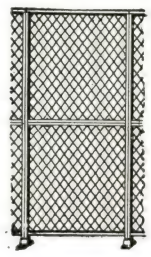
Cyclone Wrought Iron Double Gate

Wire Work of All Kinds

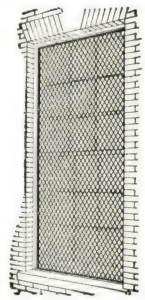
Partitions (Built-in-Sections)—Standard size sections 4 ft. wide by 8 ft. high. Frames are 1-in. channel iron. Fabric is No. 10 gauge wire woven in 1½-in. diamond mesh. Furnished with either swinging or sliding gates. Handholes or wickets provided where needed. Floor flanges furnished for either wood or concrete floors. Sections are interchangeable, movable; can be taken out and used elsewhere—no refitting—no loss.

Send blue print or layout of partition work wanted.

Window and Skylight Guards—Frames are 1-in., ¾-in. channel, or ⅜-in. round iron. Fabric is usually No. 10 gauge wire woven in 1½-in. diamond mesh. Channel iron frames fit into openings. Round iron frames usually allow ¾ in. on all sides for lap. Special guards built with either channel or round iron frames, using size of wire and mesh desired.



Partition Section



Window Guard

Complete Responsibility—Nation-wide Fencing Service

Engineering Counsel—Cyclone Engineers will make a complete study of your fence requirements and submit recommendations, layouts, and estimates of cost.

Cyclone Erection Crews—There are more than 100 erection crews constantly at work installing Cyclone Fence. One of these crews is available for your installation.

However, if you prefer to have your own workmen install the fence, a Cyclone erection superintendent will be furnished at nominal charge, to direct them.

Diagram, Prices, etc.—When writing for information, prices, etc., send simple diagram of proposed fencing. Give measurements of each stretch and total measurements. State whether single or double swing, or sliding gates are wanted and give size of opening.

ESTABLISHED 1886

THE STEWART IRON WORKS COMPANY, INCORPORATED

Ornamental Iron, Iron Picket and Chain Link Wire Fences and Gates

711 Stewart Block, CINCINNATI, OHIO

SALES AND ERECTING SERVICE FROM COAST TO COAST

Products

PLAIN and ORNAMENTAL IRON FENCES and GATEWAYS; CHAIN LINK WIRE FENCE and GATES.

Also Iron Railings, Iron Grilles, Bronze and Iron Lanterns and Lamp Standards, Lawn Furniture, Park Settees, Folding Gates, Window Guards, General Ornamental Iron and Wire Work.

For our page on Jail and Prison Construction. see Manufacturers' Index.

Stewart FENCES



Factory, Covington, Ky.
(Opposite Cincinnati, Ohio)

Facilities

This Company, "The World's Greatest Iron Fence Builders," has back of it an experience of 46 years. The plant occupies 8 acres and has 350,000 sq. ft. of floor space, manned and equipped to produce products on scheduled time and at proper prices.

A complete design and drafting department is available for the preparation of design suggestions—or to co-operate in working out architects' designs.

The company specializes in ornamental iron fences and entrance gates, in addition to maintaining large scale production of standard designs.

STANDARD IRON PICKET FENCES

Stewart manufactures a range of plain or standard design iron fences *for all purposes.* The following pages present those in most general use. A wider selection will be found in the Stewart Iron Fence Catalogue (sent on request).

Our "Book of Designs" is available for those who wish to consult its 96 pages of design suggestions.

Gates are furnished, when specified, with Stewart bronze interior locks. Heavy gates are designed with bronze bushed socket mounted hinge bars, with provision for oiling.

Structural Details

Stewart, because of its volume production, has evolved and offers special design fence members which produce structural and commercial advantages.

Line-of-fence Posts—Stewart builds with "I" section posts and, except for the heaviest fences, of an oval face section especially rolled for Stewart use. This section offers maximum strength per pound of metal, is an open and easy painted section, and needs *no* back bracing.

This is a new and revolutionary improvement in iron fence design, and one which establishes Stewart Fences in a preferred class.

Adjustable rail fittings are designed to facilitate the lining up of horizontal rails after posts are set.

Post Caps—Standard designs are illustrated or, for practical economy, posts with pointed (sheared) tops can be used.

Rails—The improved patented Stewart three-rib channel has been redesigned with deeper flanges and a heavier center rib. Pound for pound this is much more rigid than a commercial channel or flat bar. The center rib affords extra metal at the point of calking.

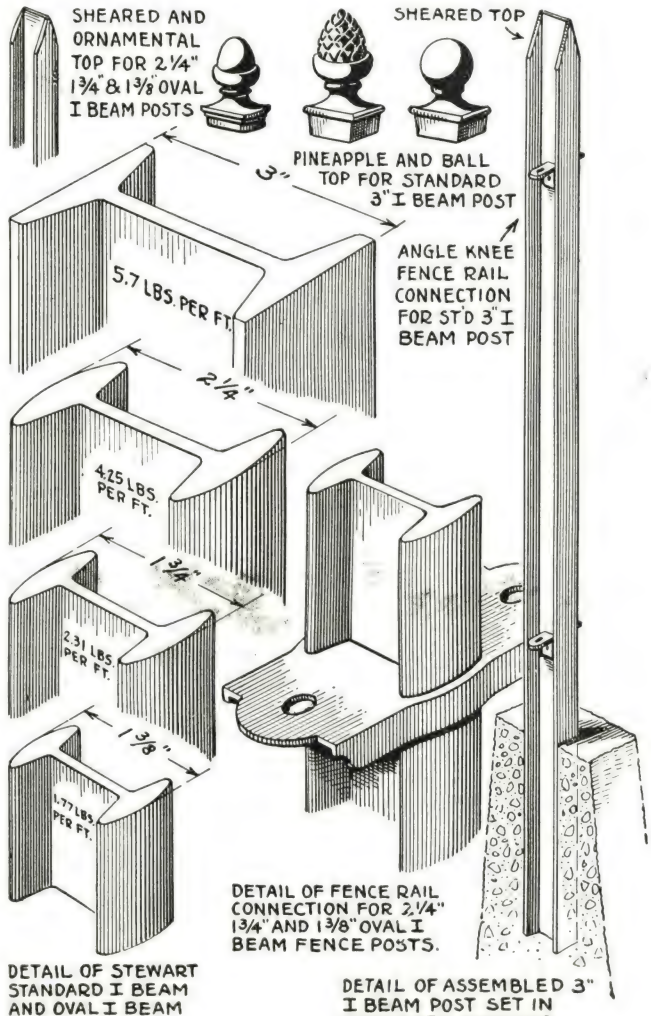
Pickets—Are round or square in ⅜, ½, ⅝, ¾ and ⅞-in. sizes—or heavier if required.

Calked or Welded Pickets—The Stewart Improved three-rib channel rail permits either form of picket fastening, at the customer's option. Calking is done by methods which work the metal of the rail into the picket, and fix the latter rigidly and permanently in place.

For installations requiring it, welded picket construction can be supplied—with each picket electric-welded in place.

Center Supports—Adjustable center supports for the panels of iron fence are furnished as part of standard construction (see detail illustration).

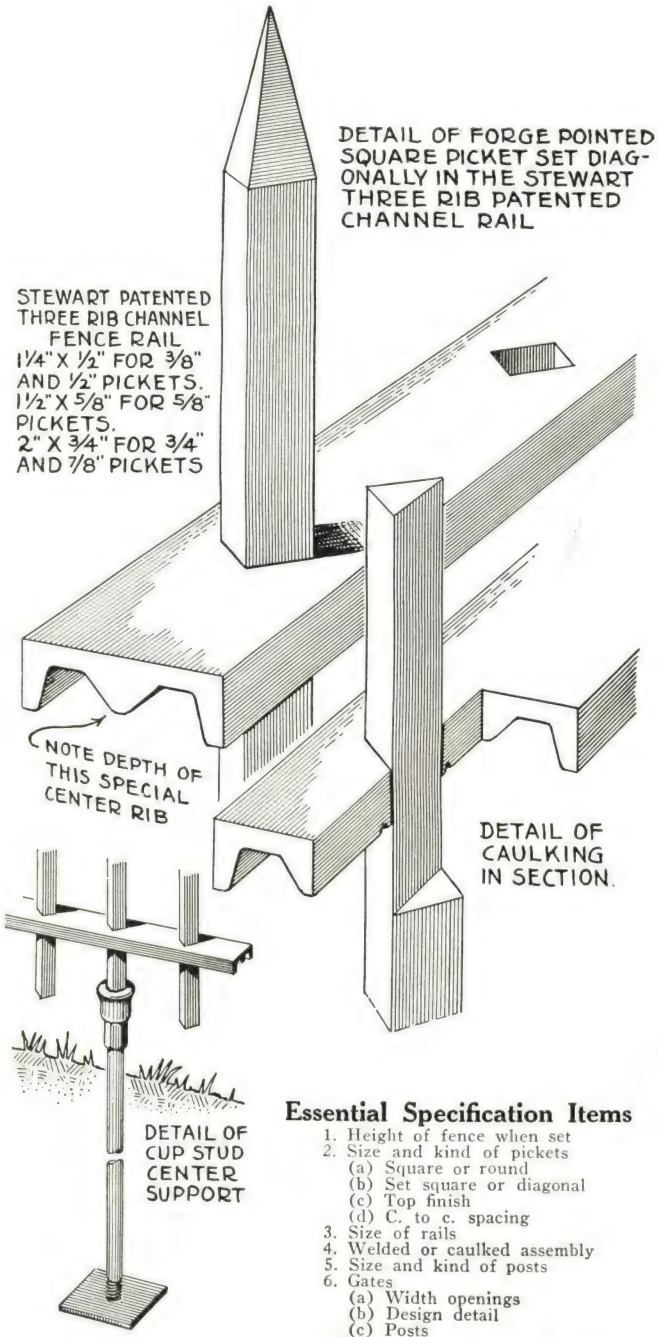
Gates—Walk, driveway and special gates may be of design matching the fence, or of ornamental design.



Ornamental and Special Design Work

The company maintains a special division for the execution of designed ornamental iron fences, gates, balcony railings, grilles, etc. The craftsmanship of this department of Stewart's shop compares with any ornamental iron works in the country.

The company offers, also, the services of its staff of designers, whose specialization on ornamental iron work has given them a facility of expressing decorative ideas in forms which can be worked out to practical cost advantage. Blueprints and photographs of work done are available, inquiries solicited.

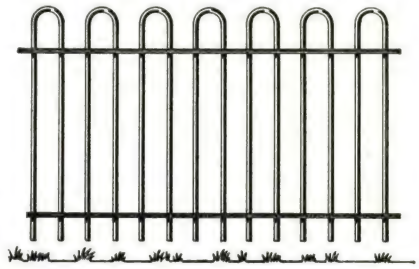


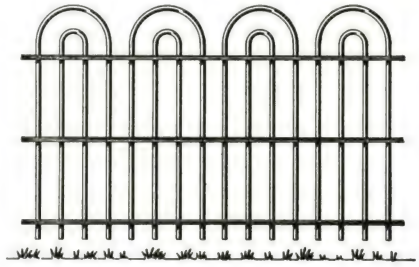
Essential Specification Items

1. Height of fence when set
2. Size and kind of pickets
   (a) Square or round
   (b) Set square or diagonal
   (c) Top finish
   (d) C. to c. spacing
3. Size of rails
4. Welded or caulked assembly
5. Size and kind of posts
6. Gates
   (a) Width openings
   (b) Design detail
   (c) Posts
7. Plan and profile detail to
   (a) determine panel lengths and post spacing
   (b) detail grades
   (c) show special items

A few of the many standard designs follow. Send for a catalogue showing complete line.

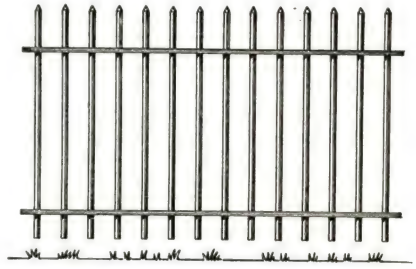
Stewart Design
No. 800—⅜ in. round pickets
No. 801—½ in. round pickets
4 in. picket spacing
1⅜ in. oval "I" posts

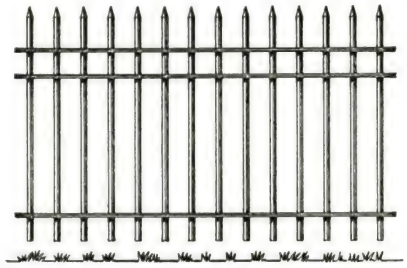




Stewart Design
No. 810—⅜ in. round pickets
No. 811—½ in. round pickets
3 or 4 in. picket spacing
1⅜ in. oval "I" posts

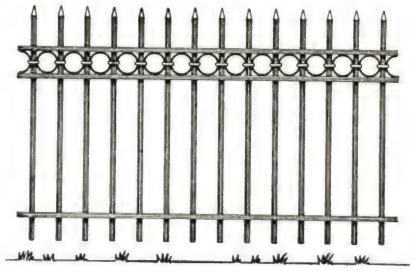
Stewart Design
No. 901—½ in. square pickets
No. 910—⅝ in. square pickets
No. 911—¾ in. square pickets
No. 912—⅞ in. square pickets
Picket spacing—4 in. for 901; 5 in. for 910, 911 and 912.

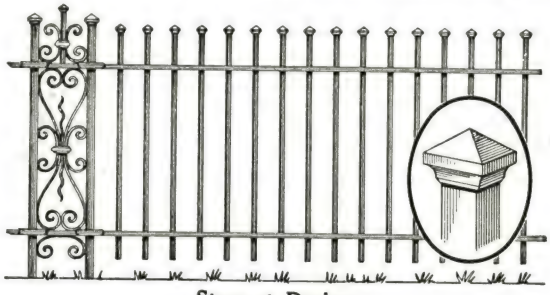




Stewart Design
No. 950—½ in. square pickets
No. 951—⅝ in. square pickets
No. 952—¾ in. square pickets
No. 953—⅞ in. square pickets
Picket spacing—4 in. for 950; 5 in. for 951, 952 and 953.

Stewart Design
No. 1000—½ in. square pickets
No. 1001—⅝ in. square pickets
No. 1002—¾ in. square pickets
Picket spacing—4 in. for 1000; 5 in. for 1001 and 1002.



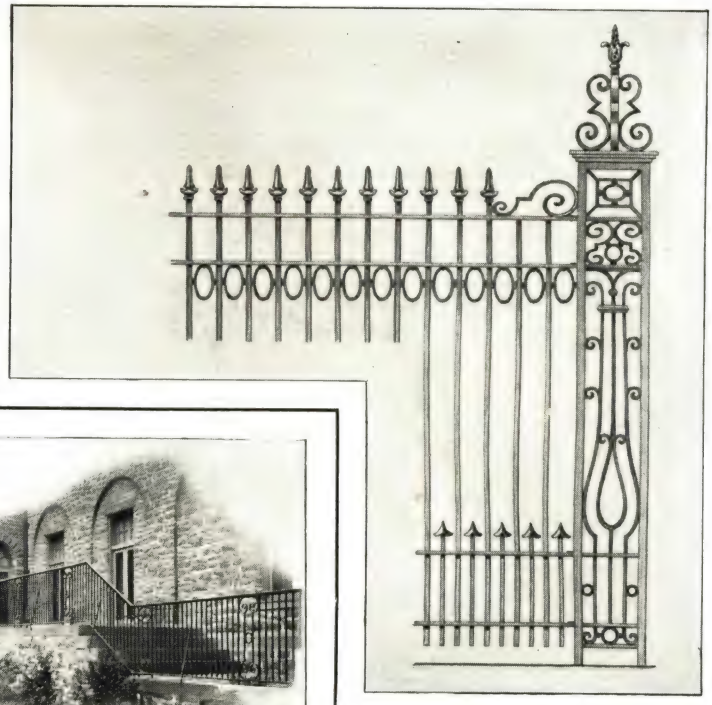


Stewart Design
No. 960—½ in. square pickets on 4 in. centers
No. 961—⅝ in. square pickets on 5 in. centers
No. 962—¾ in. square pickets on 5 in. centers
Ornamental design panel posts are optional.

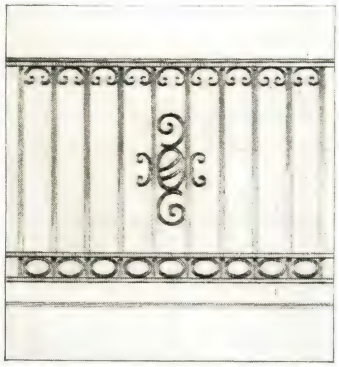
See the following pages for ornamental fence and gate designs, and chain link wire fence.



Plate No. 90 A Stewart Ornamental Iron Fence



Detail from Plate No. 90

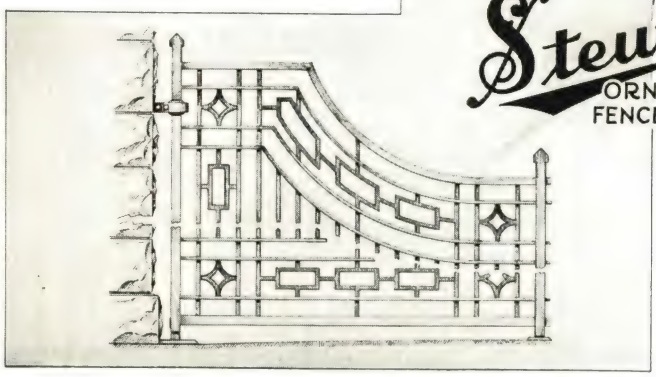


Detail of Railing Design 1115



Plate No. 129498-F Balcony Railing

Stewart
ORNAMENTAL
FENCES & GATES



Detail from Plate No. 52-A

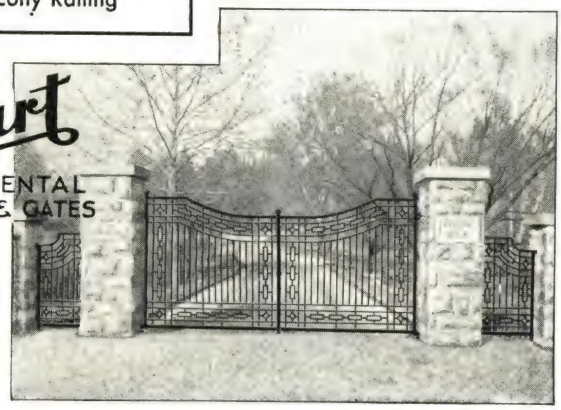
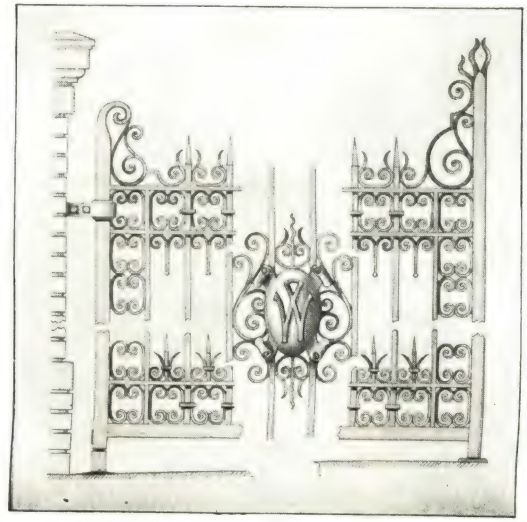


Plate No. 52-A A Distinctive Iron Gate Design

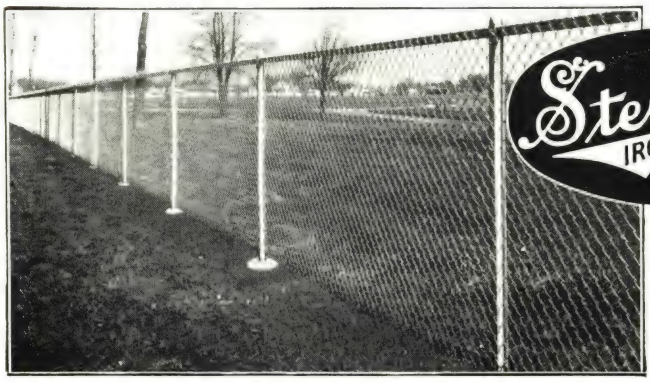


Plate No. 111 A Special-design Iron Fence and Gates

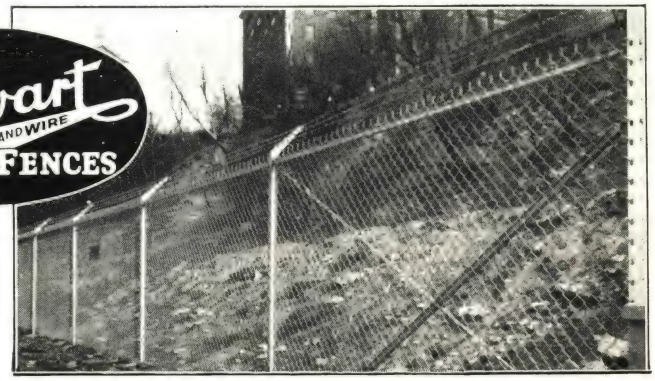


Detail from Plate No. 111

STEWART CHAIN LINK WIRE FENCES



Stewart Design OTH



Stewart Design 3T-OB

Standardized Designs

These afford a range of choice for all purposes—from light lawn fence to school, institutional and industrial property enclosures.

Materials Specification—Fabric of copper bearing steel woven in chain link mesh and hot dip galvanized after weaving.

Framework members of copper bearing steel, fittings of pressed steel, ornamental tops of malleable iron—all hot dip galvanized *after* fabrication.

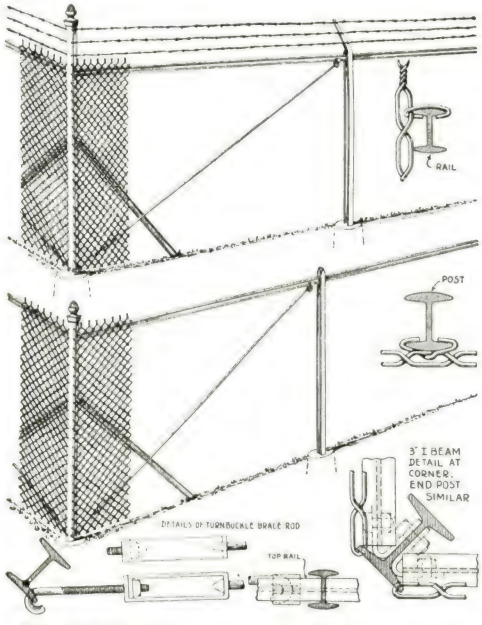
Design Advantages—Stewart Chain Link Fences are an engineered product in which refinements of detail are worked out for practical advantage. The Stewart oval back I-beam post with integral arm construction is noteworthy. It is the heaviest post in standard use today and has a complete surface exposure. The same section in a smaller size is used as a top rail. Thus with Stewart Fences there are no pockets where internal moisture accumulation can take place.

Standard OTM Fence (No Barbed Wire)

Fabricated in 4, 5 or 6-ft. heights with 2-in. mesh fabric of No. 9 or No. 6 gauge wire, 1¾-in. oval back I-beam line posts and top rail. Terminal and gate posts 3-in. open section post. Posts spaced 10 ft. apart and set in heavy concrete footings.

Standard OTH Fence (No Barbed Wire Overhang)

Fabricated in heights from 5 to 11 ft. with 2-in. fabric No. 6 or No. 9 gauge wire, 2¼-in. oval back line posts; 1¾-in. oval back I-beam top rail; 3-in. open section terminal and gate posts. Can be furnished with or without top rail. Posts spaced 10 ft. apart and set in heavy concrete footings.



Details Showing Corner Post Construction

Standard 3T-OB Fence (with Barbed Wire Overhang)

The same structural specifications as Stewart OTH Fence plus the barbed wire overhang arrangement with 3 strands of barbed wire. The extension arm which holds the barbed wire strands is an integral part of the post itself, thereby making breakage or dismantling impossible.

Stewart Lawn Fence

Standard in 3, 3½ and 4-ft. heights with 2-in. fabric of No. 9 gauge wire, 2-in. tubular line posts, 2½-in. tubular terminal and gate posts, and 1⅜-in. tubular top rail. Posts spaced 10 ft. apart and set in heavy concrete footings.

Stewart Tennis Court Fence

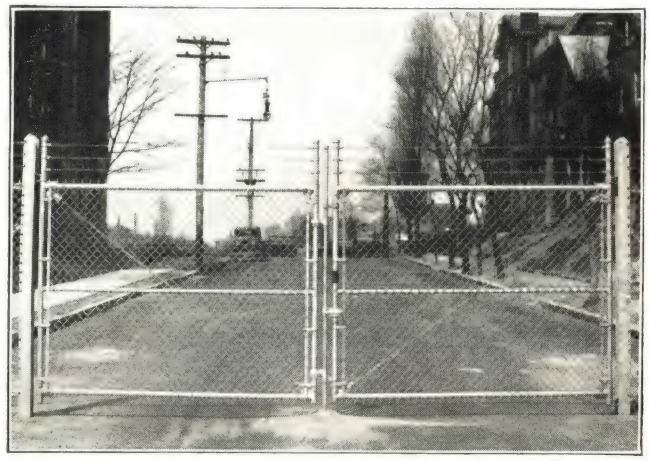
Furnished in 8, 10 or 12-ft. heights of 1¾-in. mesh of No. 11 gauge wire, 2½-in. O.D. pipe line posts or 2¼ in. oval back I-beam posts; top rail 1⅝-in. pipe or 1¾-in. oval back section; terminal and gate posts 3-in. pipe or 3-in. I-beam sections. Middle rail of 1⅝-in. pipe or 1¾-in. oval back section is furnished for 12-ft. high enclosures and at extra cost for 8 or 10-ft. high enclosures. Posts spaced 10 ft. apart and set in heavy concrete footings.

Stewart Gates

Furnished any width desired. We also furnish sliding gates with 1.9-in. outside diameter steel tubular frames joined with pressed steel corners; a horizontal cross member; ½-in. solid round steel brace rods. Stewart hinges are absolutely unbreakable.

Double Gate Latch Device—Very simple and effective. Permits opening left-hand gate independently of the right. Locks by means of a padlock arrangement which can be operated from either side of gate.

Gate Equipment—Includes center stop for setting in concrete and automatic back stop to hold gates in open position.



Stewart "Heavy Duty" Gates Hung from Sturdy I-Beam Gate Posts

PAGE FENCE ASSOCIATION

520 North Michigan Avenue, CHICAGO, ILL.

MEMBER COMPANIES

Distributing Chain Link Products of the Page Steel and Wire Company, an Associate Company of the American Chain Company, Inc., Bridgeport, Conn.

ALABAMA: BIRMINGHAM—Ingalls Iron Works
ARKANSAS: LITTLE ROCK—Arkansas Foundry Co.
CALIFORNIA: LOS ANGELES—Southern California Fence Co.
SAN FRANCISCO—Michel & Pfeffer Iron Works
COLORADO: DENVER—Stearns-Roger Mfg. Co.
CONNECTICUT: BRIDGEPORT—T. M. Barnes
NEW HAVEN—The John P. Smith Co.
WESTPORT—Page Fence Exhibit
FLORIDA: JACKSONVILLE—Jacksonville Supply Co.
MIAMI—E. F. Holmes
ORLANDO—Harry P. Leu, Inc.
TAMPA—Tampa Marine Co.
GEORGIA: ATLANTA—J. R. Whitman
SAVANNAH—Savannah Iron & Wire Works
ILLINOIS: CHICAGO—Chicago Fence & Wire Co.
INDIANA: INDIANAPOLIS—Hoosier Fence & Wire Co.
IOWA: DES MOINES—Des Moines Steel Co.
KENTUCKY: PADUCAH—Paducah Iron Co.
LOUISIANA: NEW ORLEANS—Orleans Steel Products Co.
SHREVEPORT—Beaird Corporation
MAINE: SOUTH PORTLAND—Bancroft & Martin Rolling Mills
MARYLAND: BALTIMORE—Horace T. Potts & Co.
CUMBERLAND—Young Sales & Engineering Co.
MASSACHUSETTS: BOSTON—C. A. Gates & Co.
SPRINGFIELD—Cheney Bigelow Wire Works
MICHIGAN: DETROIT—Barnes Wire Fence Co.
FLINT—Koehler Bros.
SAGINAW—Koehler Bros.
MINNESOTA: DULUTH—W. P. & R. S. Mars Co.
MINNEAPOLIS—Crown Iron Works Co.
MISSISSIPPI: JACKSON—Mississippi Steel & Iron Works
MISSOURI: KANSAS CITY—Kansas City Wire & Iron Works
ST. LOUIS—Sears and Piou
NEBRASKA: LINCOLN—Lincoln Steel Works
OMAHA—Gate City Iron Works
NEW YORK: BINGHAMTON, C. Y. Cushman
BUFFALO—Buffalo Fence Construction Co.
FORT EDWARD—Newton & Hill, Inc.
NEW YORK—Brook Iron Works
ROCHESTER—National Fence Co.
SYRACUSE—Cummins Brick & Tile Co., Inc.
NEW YORK: TROY—Fred K. Blanchard, Inc.
WATERTOWN—Thos. H. Bradley
NORTH CAROLINA: CHARLOTTE—General Equipment Co.
OHIO: ASHVILLE—J. S. Roof
CINCINNATI—The Davis & Siehl Co.
CLEVELAND—The Betz-Pierce Co.
PORTSMOUTH—Standard Supply Co.
TOLEDO—Toledo Fence & Post Co.
WASHINGTON COURT HOUSE—W. W. Wilson & Son
ZANESVILLE—The F. Wilking Hardware Co.
OKLAHOMA: OKLAHOMA CITY—Capitol Steel & Iron Co.
TULSA—The Peerless Supply Company
OREGON: MEDFORD—Volney Dixon
PORTLAND—Portland Wire & Iron Works
PENNSYLVANIA: ERIE—Erie Concrete & Steel Supply Co.
PHILADELPHIA—Horace T. Potts & Co.
PITTSBURGH—Stewart-Holland Co.
SCRANTON—The Bittenbender Co.
RHODE ISLAND: PROVIDENCE—Rayhill & Greene Supply Co.
TENNESSEE: CHATTANOOGA—James Supply Co.
JOHNSON CITY—Johnson City Foundry & Machine Co.
KNOXVILLE—Nelson Iron Works
MEMPHIS—Miller-Cochran Co.
NASHVILLE—Kerrigan Ornamental Iron Works Co.
TEXAS: DALLAS—Columbia Fence & Wire Co., Inc.
EL PASO—Neff-Stiles Co.
FORT WORTH—Fort Worth Structural Steel Co.
HOUSTON—Vincent A. Tozzi Co.
SAN ANTONIO—Southern Steel Co.
UTAH: SALT LAKE CITY—Consolidated Wagon & Machine Co.
VERMONT: BURLINGTON—Vermont Structural Steel Corp.
VIRGINIA: DANVILLE—Vass-Mobley Hardware Co.
RICHMOND—Richmond Machinery & Equipment Co.
ROANOKE—Noland Company, Inc.
WASHINGTON: SEATTLE—Galbraith & Co.
SPOKANE—Consolidated Supply Co.
WEST VIRGINIA: CHARLESTON—Baldwin Supply Co.
HUNTINGTON—West Virginia-Kentucky Hardware & Supply Co.
PARKERSBURG—Parkersburg Supply Co.
WISCONSIN: MILWAUKEE—A. F. Wagner Architectural Iron Works
IN CANADA: NIAGARA FALLS, ONTARIO—Dominion Chain Co., Limited

Products

CHAIN LINK FENCING for protection and ornamental purposes of every description.

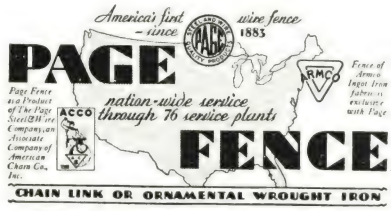
WROUGHT IRON FENCING for industrial, institutional and residential purposes.

INDUSTRIAL FENCING for factories, mills, refineries, railroads, power stations, mines, yards, etc.

FENCING for city, state and national institutions, including schools, parks, playgrounds, prisons, hospitals, etc.

ENCLOSURES for athletic fields, tennis courts, baseball grounds, amusement parks, aviation fields, automobile parking enclosures, etc.

Also manufacturers of Page "Hi-Way" Guard; Panel Partitions made of Page Chain Link fabric, for factories, offices, warehouses, stockrooms, etc.; Fencing and Entrance Gates of copper-bearing steel for residences, estates, country clubs, etc.



The first wire fence ever made was designed by J. Wallace Page in 1883. For 48 years Page Fences have been standards of good fence design.

Page Offers These Four Metals to Suit Your Requirements

Page Fence is available in four different metals, selection being made according to local atmospheric conditions. Our fencing experts in your territory will be glad to advise you as to the kind of Page Fence that will give the longest service.

(1) Page Aluminum Fabric—The ultimate achievement of the Page organization. It is highly resistant to corrosion and will retain its rich medium gray color without the need of surface protection. Discriminating buyers will investigate Page Aluminum Fabric where beauty, permanent protection and ultimate economy are desired.

(2) Page-Armco Ingot Iron Fabric—(Exclusive with Page.) Made of the purest and most uniform of ferrous metals. Wherever elements exist that would be harmful to even the finest copper-bearing steel protected by galvanizing, Page-Armco Fence has proved to give exceptional service.

(3) Page Copper-bearing Steel Fabric—Made of copper-bearing steel of analysis conforming to specifications of the American Society of Testing Materials. The framework supporting Page Fence Fabrics is made of basic open hearth or copper-bearing steel. For the heavier and more durable types of construction, Page H-Section Line Posts complete a structure that will withstand every ordinary form of use and abuse.

(4) Page Wrought Iron Fence—Made under Page supervision and in accordance with the high standards of Page craftsmanship. Wrought iron is "the most enduring of all metals" which results in Page Ornamental Wrought Iron Fence—desirable wherever dignified protection is needed. The iron in this fence is in accordance with A.S.T.M. Specification Serial Designations: A-41-18.

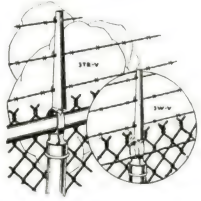
76 Service Plants

In each district of the United States and Canada there is a responsible firm of fence engineers that carries complete stocks of Page products and specializes in fence construction. This assures expert performance of the work all the way through, and gives the advantage of consultation with men of long experience in the erection of fences.

Estimates are gladly furnished on receipt of rough sketches of proposed work, or complete detailed design will be drawn up, if desired, and estimates supplied. Get in touch with the distributor nearest you, as listed above, or write direct to Association headquarters for interesting literature.



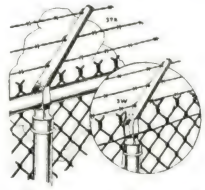
Standard Fence Post Top Where No Barbed Wire Is Used
With top rail OTR; without top rail OW



Vertical Type Arm with 3 Barbed Wires
With top rail 3TR-V; without top rail 3W-V



Standard Barbed Wire Arm for 3 Wires with Special Arm for Lighting Fixtures
With top rail 3TRLF; without top rail 3WLF



Standard Barbed Wire Arm for 3 Wires
With top rail 3TR; without top rail 3W

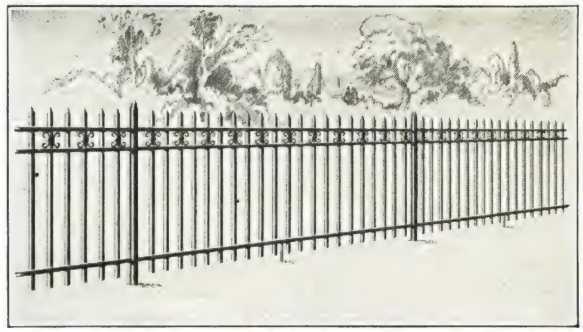


Standard Barbed Wire Arm for 5 Barbed Wires
With top rail 5TR; without top rail 5W

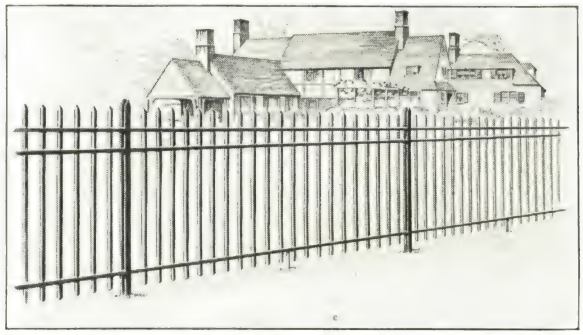
Page Wrought Iron (Not Steel) Fence



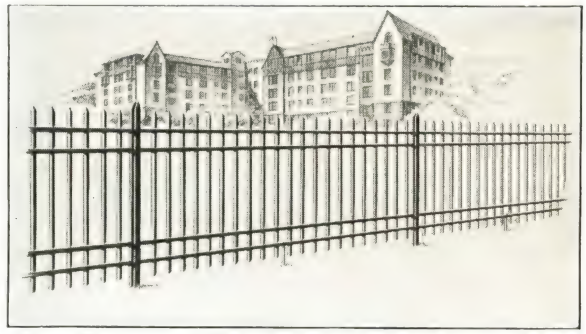
Page Ornamental Wrought Iron Fence Design 1000
Its simplicity led to its use for institutional and private property



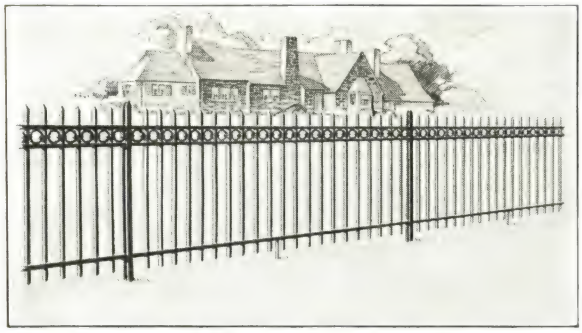
Page Ornamental Wrought Iron Fence Design 5000
The scroll is employed to obtain this rich looking enclosure



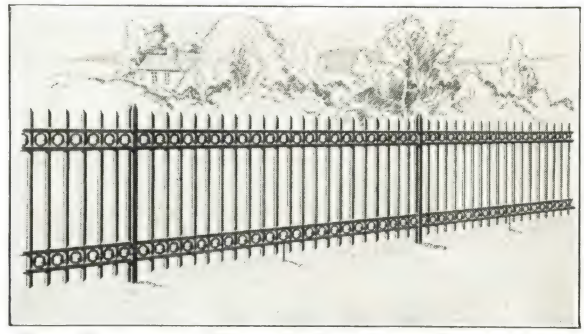
Page Ornamental Wrought Iron Fence Design 2000
Added strength is given through an additional top rail member



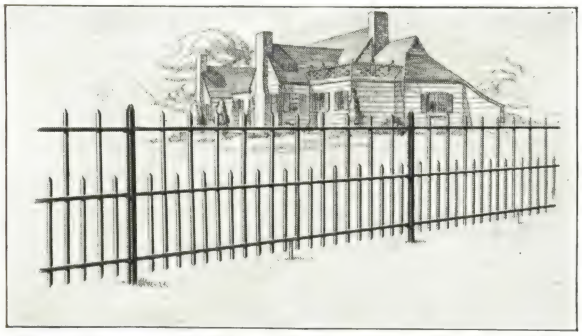
Page Ornamental Wrought Iron Fence Design 6000
Two rails, top and bottom, give an unusually rugged appearance



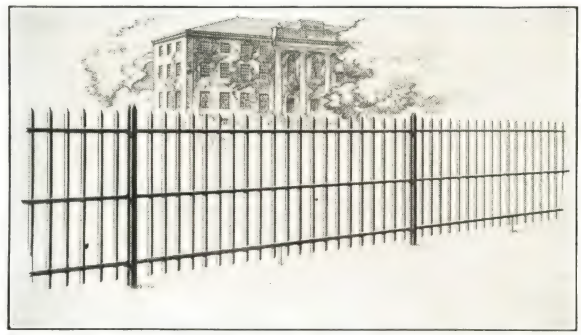
Page Ornamental Wrought Iron Fence Design 3000
An attractive setting for the most beautiful property. Oval rings, Design 3000-D, can be furnished



Page Ornamental Wrought Iron Fence Design 7000
Artistry and strength. Oval rings, Design 7000-D, furnished



Page Ornamental Wrought Iron Fence Design 4000
Alternate short and long pickets emphasize the privacy of grounds



Page Ornamental Wrought Iron Fence Design 8000
A design that always appeals through the beautiful simplicity of the three-rail construction

Page Wrought Iron (not steel) Fence harmonizes with the beauty of lawns and gardens while it enforces a rigid "keep out." It represents a definite boundary and insures privacy at all times—privacy to the very limits of property. Children can play in peace and safety away from malicious characters and fast moving traffic. For schools, athletic fields and institutions, Page Wrought Iron Fence insures a double barrier. Crowds are always under control—paid admissions are increased and you are assured of an artistic fence that will harmonize with the natural beauty of your grounds.

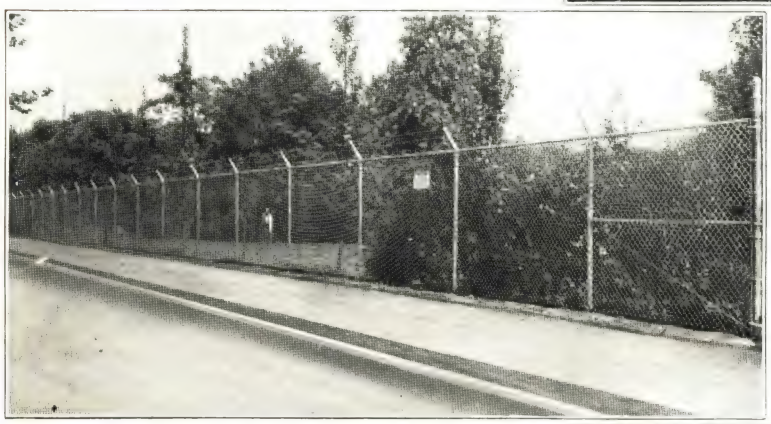
Either walk or drive gates can be furnished to match all designs of Page Wrought Iron (not steel) Fence.



Page Wrought Iron (Not Steel) Fence and Gate, Style 2000
Made in many styles



This Beautiful Enclosure Keeps Balls Within Bounds—10-ft. Tennis Court Construction



Added Protection Secured with the Aid of 3 Strands of Barbed Wire—7-ft. 3TR Fence



Protection to the Very Limits of Your Property—4-ft. Reliable Fence Without Top Rail

Page Fabric

To guard against corrosion and rust, Page Fabric is heavily galvanized after weaving with a uniform coat of zinc—approximately five times heavier than ordinary galvanizing. This is applied by a hot dip process perfected by Page and assures uniformity.

Page Fabric galvanized in this manner has proved its claim for superiority by giving many years of satisfactory service under the most adverse conditions in all parts of the country.

WHEELING METAL & MFG. CO.

Manufacturers of "Leadclad" Protective and Ornamental Fences

Factories
WHEELING, W. VA.

Products

LEADCLAD CHAIN LINK FENCES and GATES for all purposes: estates, factories, playgrounds, parks, railroads, power stations, yards, airports, reservoirs, etc.

Leadclad Lawn Fence; Leadclad Farm Fence; Leadclad Fur Farm Fence.

Leadclad Wire in all gauges from No. 4 to 18.

For "Leadclad" Roofing Materials and Accessories, see Manufacturers' Index.

Construction

Leadclad Chain Link Fence is woven in 2-in. mesh of No. 6, No. 9 or No. 11 gauge Leadclad Wire, and 1¾-in. mesh in No. 11-gauge only. All wire is U. S. standard gauge copper-steel (containing .20% to .25% copper) coated with *pure lead*. The average coating weighs 1.70 oz. per sq. ft. of wire surface area with a guaranteed minimum of 1.50 oz. at any point. Weaving is performed on a loom especially designed for weaving Leadclad Wire.

Specifications

Standard heights 2 to 6 ft., in even foot heights; 6½ to 10 ft., in 6-in. multiples. Furnished with top rail, with ⅜-in. stranded cable top, or 6-gauge wire top and bottom.

Leadclad Wire will successfully withstand any one of the following tests:

Seven one-minute immersions in a standard copper sulphate testing solution.

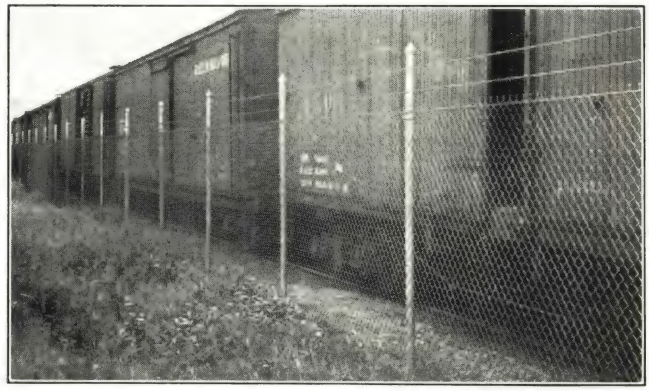
Seven one-minute immersions in copper acetate testing solution.

Seven one-minute immersions in a 17% solution of hydrochloric acid at 150° F.

Seven one-minute immersions in 10% solution of sulphuric acid at 150° F.

We suggest that any other chain link fence be subjected to any of these tests for purpose of comparison. Specifications embodying any one of the above tests will insure the use of Leadclad Chain Link Fence.





The Leadclad Process

The discovery in 1912 of the process of fusing, known as Leadclad, actually provided the only known method whereby steel and *pure lead* are joined without the use of alloys. In this exclusive process, all electrolitic activity between the two metals is neutralized. The result leaves a dense, smooth, impervious coating of *pure lead* exposed to the weather.

Advantages

Involving the use of no alloys, the resultant surface on Leadclad Chain Link Fence insures every weather resisting advantage of solid lead. The salt-laden air of our seaboards, the smoky or sulphurous atmosphere of our industrial sections, have proven Leadclad's resistance to corrosion through nearly a generation of use.

Leadclad provides all the qualities essential in Chain Link Fence plus the added advantage of its longer lasting *pure lead* surface.

Posts and Fittings

All gate posts, line posts, rails, braces, caps, fittings and other accessories entering into the fence construction are coated with *pure lead*.

Service

Our plant is fully equipped to manufacture all types of Leadclad Wire Products. Experienced workmen, together with ideal shipping location and facilities, insure prompt and efficient execution of all orders.

The co-operation and assistance of our Engineering Department is available at all times to architects and engineers who have intricate fencing problems.

WM. F. WITTEL & COMPANY

MANUFACTURERS AND ERECTORS

Propertyguard Chain Link, Wrought Iron and Wooden Fences and Wire Work

GENERAL OFFICES AND FACTORY

588-596 Lyons Avenue, IRVINGTON, N. J.

Propertyguard Chain Link Fence Gates

PROPERTYGUARD FENCE
Reg. U. S. Pat. Off.

"Unclimable" Fence—For factories, foundries, railroads, transformer stations, oil stations, lumber yards, schools playgrounds, athletic fields, etc.

"Barrier" Fence—For schools, parks, cemeteries, country clubs, estates, hospitals, institutions and municipal property.

"Protection" Fence—For estates, private homes, front and rear yards and residential property.

"Enclosures"—For tennis courts, kennels, playgrounds, swimming pools, amusement parks, airports, and parking stations.

"Backstops"—For baseball diamonds, tennis courts, etc., also window guards and wire partitions.

Propertyguard Wrought Iron Fence and Gates

"Iron Picket" Fence—For schools, parks, cemeteries, estates, institutions and all kinds of industrial plants.

"Ornamental Iron" Fence—For estates, parks, cemeteries and public and private institutions.

Propertyguard Wood Fence and Gates

"French Woven Wood" and "French Cleft" Fence—For estates, residences, gardens and private property. Also "English Hurdle" and "American Post and Rail" Fence.

Service

Propertyguard Fence and Service is available in any locality. A wide network of facilities properly coordinated make possible prompt and efficient delivery and erection. Field trained erection crews under the direct supervision of Propertyguard Engineers are maintained at all times. As no part of the erection is sublet an absolute warranty of quality, workmanship and service is assured. If, however, personal installation is desired, complete details for the proper erection of Propertyguard Fence will be furnished or a superintendent will supervise the work.

Catalogue and Advisory Service

"Propertyguard Fence" our revised general catalogue S51 is now available. Write for it for complete details and specifications on Propertyguard Fence for any purpose.

Propertyguard's staff of construction engineers are also at your service. They will be glad to assist in your fence problems, whether they are of an engineering or artistic nature, and will cheerfully furnish quotations which are necessarily governed by individual requirements.

PROPERTYGUARD COPPER-BEARING STEEL CHAIN LINK FENCE

Propertyguard *Copper-Bearing Steel* Chain Link Fence provides the most efficient and economical form of property protection. Constructed of copper-bearing steel fabric and tubular framework all *hot-dip galvanized after fabrication* by the hot-dip spelter process. It is readily adaptable to industrial, municipal and residential property, demanding permanent protection.

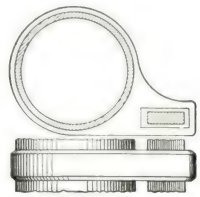
Durability of Copper-Bearing Steel Chain Link Fabric

The Fabric is made of the best grade open hearth steel alloyed with copper—minimum content 0.20 per cent by ladle analysis. It is galvanized or heavily zinc coated *after weaving* by being dipped in pure zinc of virgin spelter conforming to the specifications of the A. S. T. M. The fabric is available in No. 9 and No. 6 gauge wire woven into a 2 in. diamond mesh with either a barbed or knuckled finish.

Uniformity of Full Weight Tubular Construction

The Framework is *standard full weight tubular* hot-dip galvanized after fabrication inside and outside by the hot-dip spelter process. Terminal, intermediate posts, top rail and brace rail are all welded longitudinally, free from open seams straight and true as to section. All posts are set in concrete footings. The proper size and weight of posts and concrete footings for varying conditions are determined by our Engineering Department. *Uniformity of strength* and appearance is provided for from *all angles* throughout the entire fence, instead of at one point or direction as is customary with ordinary fence construction.

Rust-Resisting Fittings



Boltless Band
For fastening fabric to terminal posts

The Fittings are specially designed by us to meet the most exacting requirements. Extension arms and ornamental ball tops are one piece malleable iron and skirt and cap post against moisture. Extension arms have special locktight slot for barbed wire. Boltless tension bands of beveled edge malleable iron prevent climbing and removing. Aluminum bolts and nuts, rivets and fabric bands insure uniformity of appearance and much longer life than those of the ordinary hot-dip galvanized variety. All large parts are hot-dip galvanized in accordance with the N. E. L. A. specifications.

PROPERTYGUARD IRON FENCE

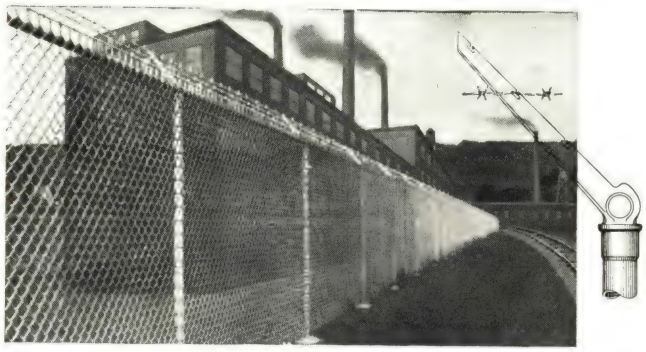
"Iron Picket" Fence and "Ornamental Iron" Fence and Gates are made up in standard designs or from architectural drawings to meet individual requirements. Pickets, either round or square, vary in size depending upon conditions from ⅜ in. to ¾ in. and are permanently fastened to either flat or heavy channel rails by Propertyguard Special Caulking Process. Vital parts such as bolts and nuts are rust resisting. Line posts are 3 in. I beams with or without caps. Terminal posts are square tubular. Complete information and details available upon request.

PROPERTYGUARD WOOD FENCE AND GATES



Left:
Propertyguard "French Woven Wood" Fence

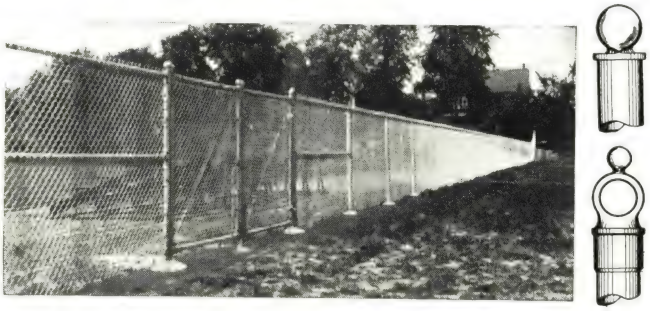
Propertyguard Wood Fence is made in a variety of designs for innumerable estate and residential purposes. "French Woven Wood" and "French Cleft" Fence made in France of *live chestnut* saplings in heights from 4 to 10 ft. and is particularly adaptable where privacy and permanent protection as well as pleasing appearance is desired. Complete details on all types of Propertyguard Wood Fence furnished upon request.



Propertyguard "Unclimable" Chain Link Fence
Also Furnished Without Top Rail and With Vertical Extension Arms or Those Carrying Five Strands of Barbed Wire

"Unclimable" Fence Specification

Height:	6 to 11 ft. including barbed wire. Standard, 7 ft.
Fabric:	Hot-dip galv. *after weaving;* No. 9 or No. 6 gauge; 2 in. mesh, barbed finish.
Line posts:	Hot-dip galv.; 2½ in. o.d.; spaced 10 ft. C.
End-cor. posts:	Hot-dip galv.; 3 in. o.d.
Gate posts:	Hot-dip galv.; size depends on width gate.
Post setting:	All posts set in concrete footing 3 ft. deep.
Top rail-brace:	Hot-dip galv.; 1⅝ in. o.d.
Extension arms:	Hot-dip galv.; one piece malleable iron.
Barbed wire:	Hot-dip galv. *after fabrication;* 4 pt.; 12½ gauge.
Fabric bands:	Aluminum.
Fittings:	Hot-dip galv.; mal. iron, or pressed steel.
Gates:	Hot-dip galv.; 2 in. frame; matched fabric.



Propertyguard "Barrier" Chain Link Fence
Also Furnished Without Top Rail

"Barrier" Fence Specification

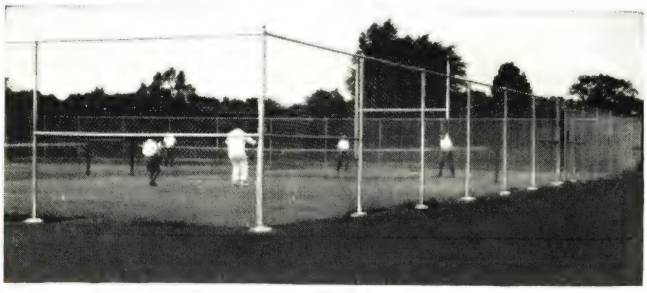
Height:	4 ft. to 10 ft. Standard, 6 ft.
Fabric:	Hot-dip galv. *after weaving;* No. 9 or No. 6 gauge; 2 in. mesh, barbed finish.
Line posts:	Hot-dip galv.; 2 in. o.d. under 6 ft., 2½ in. o.d. over 6 ft. spaced on 10 ft. C.
End-cor. posts:	Hot-dip galv.; 2½ in. o.d. under 6 ft. 3 in. o.d. over 6 ft.
Gate posts:	Hot-dip galv.; size depends on width gate.
Post setting:	All posts set in concrete footing 3 ft. deep.
Top rail-brace.:	Hot-dip galv.; 1⅝ in. o.d.
Post tops:	Hot-dip galv.; mal. iron; ornamental ball.
Fabric bands:	Aluminum.
Fittings:	Hot-dip galv.; mal. iron or pressed steel.
Gates:	Hot-dip galv.; 2 in. frame; matched fabric.



Propertyguard "Protection" Chain Link Fence
Also Furnished With Wire Gate to Match Fence. Fabric Barbed Finish (left) or Knuckled Finish (right)

"Protection" Fence Specification

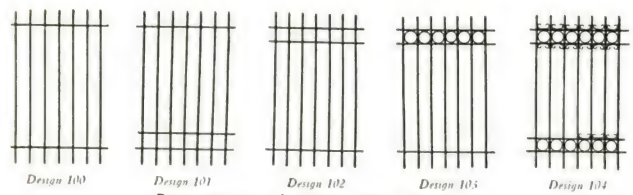
Height:	3, 3½, and 4 ft. Standard, 4 ft.
Fabric:	Hot-dip galv. *after weaving;* No. 9 or No. 6 gauge; 2 in. mesh, barbed or knuckled finish.
Line posts:	Hot-dip galv.; 1⅝ in. o.d. or 2 in. o.d. spaced on 10 ft. C.
End-cor. posts:	Hot-dip galv.; 2 in. o.d. or 2½ in. o.d.
Gate posts:	Hot-dip galv.; size depends on width gate.
Post setting:	All posts set in concrete footing 2½ ft. deep.
Top rail:	Hot-dip galv.; 1⅜ in. o.d.
Post tops:	Hot-dip galv.; mal. iron; ornamental ball.
Fabric bands:	Aluminum.
Fittings:	Hot-dip galv.; mal. iron or pressed steel.
Gates:	Hot-dip galv.; 1⅜ in. frame; matched fabric.



Propertyguard "Tennis Court Enclosure"

"Tennis Court Enclosure" Specification

Height:	8, 10, and 12 ft. Standard 10 ft.
Fabric:	Hot-dip galv. *after weaving;* No. 11 gauge 1¾ in. mesh, knuckled finish.
Line posts:	Hot-dip galv.; 2 in. o.d. or 2½ in. o.d., spaced on 10 ft. C.
End-cor. posts:	Hot-dip galv.; 2½ in. o.d. or 3 in. o.d.
Gate posts:	Hot-dip galv.; 2½ in. o.d. or 3 in. o.d.
Post setting:	All posts set in concrete footing 3 ft. deep.
Top rail-brace:	Hot-dip galv.; 1⅝ in. o.d.
Post tops:	Hot-dip galv.; mal. iron; ornamental ball.
Fabric bands:	Aluminum.
Fittings:	Hot-dip galv.; mal. iron or pressed steel.
Gates:	Hot-dip galv.; 2 in. frame; matched fabric.



Propertyguard "Iron Picket" Fence
"Iron Picket" and "Ornamental Iron" Fence and Gates Are Built in Standard Designs in Any Height and Material Specifications. Also Built in Special designs from Architects' Drawings

Wrought Iron Fence Specification

X	½ in. sq. pickets spaced 4 ins. on centers. 1½x½ in. heavy channel or flat rail. Heights, 36, 42 and 48 in.
Y	⅝ in. square pickets spaced 5 ins. on centers. 1½x½ in. heavy channel or flat rail. Built in heights from 36 in. up to and including 60 in.
Z	¾ in. square pickets spaced 5 ins. on centers. 2x⅝ in. heavy channel or flat rail. Built in heights up to and including 72 in.
NOTE:	Specifications X, Y and Z are applicable to all designs and are designated as 100X, 102Y, 104Z, etc.

WICKWIRE SPENCER STEEL COMPANY

Manufacturers of Wire and Iron Fences and Gates

GENERAL OFFICES
41 East 42nd Street
NEW YORK, N. Y.

OFFICES AND WAREHOUSES

WORCESTER, MASS., 80 Webster Street
CHICAGO, ILL., 208 So. La Salle Street
LOS ANGELES, CAL., 1070 No. Alameda Street
BUFFALO, N. Y., 1 River Road
CLEVELAND, OHIO, 1217 Guarantee Title Building
TULSA, OKLA., 314 East Archer Street
SAN FRANCISCO, CAL., 144 Townsend Street
SEATTLE, WASH., 1025 Sixth Avenue, So.
PORTLAND, ORE., 361 14th Street, No.

Products

CHAIN LINK FENCES and GATES.
Also Ornamental Iron Fences and Gates.
For our pages on Electrically Welded Wire Fabric for concrete reinforcement, Woven Wire Lath, and Metal Grilles, see Manufacturers' Index.

Advisory and Erection Service, Estimates, etc.

Engineers, architects and contractors are invited to write our service department for any assistance in helping to solve their fence problems. We will be glad to furnish estimates in accordance with all standard specifications, engineer's or architect's designs or any special design. Complete fence catalogue and specifications for standard designs will be gladly mailed on request.

Chain Link Wire Fences

The pioneer chain link wire fence, hot galvanized after weaving, woven from special drawn wire of extra high tensile strength. Framework made from standard full weight copper bearing galvanized steel pipe.

Specifications—

Types—300, 310 and 320.

Heights—Type 300—3, 3½, 4, 5 and 6 ft.; Type 310—3, 3½ and 4 ft.; Type 320—3, 3½, 4, 5 and 6 ft.

Fabric—Woven in 2-in. mesh of No. 9 or No. 6 (W&M) gauge special drawn copper bearing steel wire, heavily hot galvanized after weaving. Both selvages of fabric on fencing 5 ft. and higher, barbed finish. Fabric 4 ft. or less in height, one edge barbed finish and the other edge knuckled.

Line Posts—2-in. outside diameter pipe, weight 2.72 lb. per lineal ft. (For spacing 10 ft. apart.)

Top Rail—Type 300* none; Type 310 1⅜-in. outside diameter, weight 1.68 lb. per lineal ft.; Type 320 1⅝-in. outside diameter, weight 2.27 lb. per lineal ft.

End Posts—2½-in. outside diameter, weight 3.65 lb. per lineal ft.

Corner Posts—2½-in. outside diameter, weight 3.65 lb. per lineal ft.

Gate Posts—2½-in. outside diameter, weight 3.65 lb. per lineal ft.

Brace—Type 300* 1⅜-in. outside diameter, weight 1.68 lb. per lineal foot; Type 310 none; Type 320 1⅝-in. outside diameter, weight 2.27 lb. per lineal ft., on 5 and 6-ft. fence only.

Gates—Constructed of 1⅝-in. outside diameter welded pipe frames and so designed to give continued service under heavy duty, filled with fabric to match fence, strongly braced and equipped with strong fittings and ornamental scroll when specified. All parts heavily hot galvanized.



Friendly Fence—45 In. High Only

Type 310—

Fabric—Woven in 1½-in. mesh of No. 12 gauge (W&M) Special Drawn Copper Bearing Steel Wire, Heavily Hot Galvanized After Weaving.

Frame—Constructed throughout from full weight copper bearing steel pipe.

Line Posts—1⅝-in. outside diameter, weight 2.27 lb. per lineal ft.

Top Rail—1⅜-in. outside diameter, weight 1.68 lb. per lineal ft.

End, Corner and Gate Posts—2-in. outside diameter, weight 2.72 lb. per lineal ft.

Gates—Constructed of 1⅛-in. outside diameter pipe frame, filled with fabric to match fence and equipped with ornamental scroll on top. All parts heavily hot galvanized.

Type 210—

Same specifications as 310, excepting that 1⅝-in. outside diameter line posts are used in place of 2-in. End, corner and gate posts, also gate same as 310.

Other Types

We are prepared to furnish all types of industrial and institutional fences, as well as tennis court enclosures, and backstops, and will be glad to forward complete specifications on request.

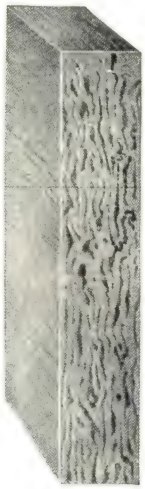
*On Type 300 Friendly Fence (no top rail) a No. 7 gage heavily galvanized coiled spring tension wire is furnished in place of top rail.

SERVICISED PRODUCTS CORPORATION

Manufacturers and Jobbers of Construction Materials
6051 West 65th Street, CHICAGO, ILL.

Servicised Expansion Joints

Servicised Expansion Joints in several types are especially adapted for use in highway paving, bridges, viaducts, buildings, sewage disposal plants, swimming pools, reservoirs, and in any monolithic construction where provision must be made for expansion and contraction of the main structure. They can be supplied in thicknesses from ¼ to 2 ins. and any widths up to 30 ins.

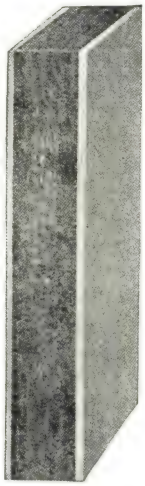


Type B Joint



Sponge Rubber Joint

Type "B" Joint—Is suitable wherever premoulded filler is specified or advantageous. It is essentially a bitumen impregnated with an irregularly overlapping mat of saturated felt fiber which, rolled into parallel strata, acts as a strengthening web throughout the entire bituminous mass. This process permits the use of asphalt of considerable hardness at ordinary temperatures and still affords plasticity at low ones, providing unusual expansion and contraction properties.



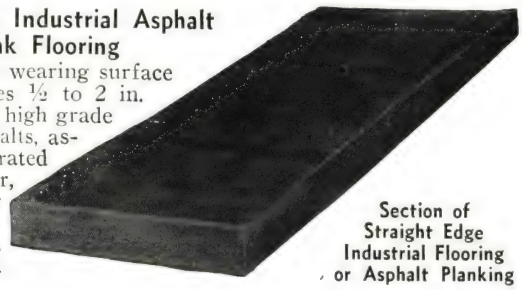
Reinforced Web Joint

Felt-Reinforced Expansion Joint—Is recommended for use where extra rigidity and strength are desirable, as where ¼ and ⅜-in. fillers are installed. Increased rigidity is obtained by thin strips of saturated felt cemented to both sides of the core, which consists of a fibrated asphalt mixture designed to control oozing to the greatest degree.

Servicised Sponge Rubber Expansion Joint—This product has been developed to meet the demand for a dry, non-oozing super-elastic joint material which will suffer extreme compression without elongation. It is particularly adapted to construction which does not permit of any displacement of the joint material itself, as in floors, walls, and roofs of modern monolithic buildings. It is especially adapted to function through extreme ranges of expansion and temperature.

Servicised Industrial Asphalt Plank Flooring

For use as wearing surface in thicknesses ½ to 2 in. composed of high grade blended asphalts, asphalt saturated rag felt fiber, asbestos fiber and a mineral filler. Provides an extremely durable, resilient, waterproof and non-skid flooring for all industrial purposes. Absorbs shocks, withstands trucking and deadens sound. Furnished in any length and widths up to 12 in. Used extensively as wearing surface in armories, stables and ships.



Section of Straight Edge Industrial Flooring or Asphalt Planking

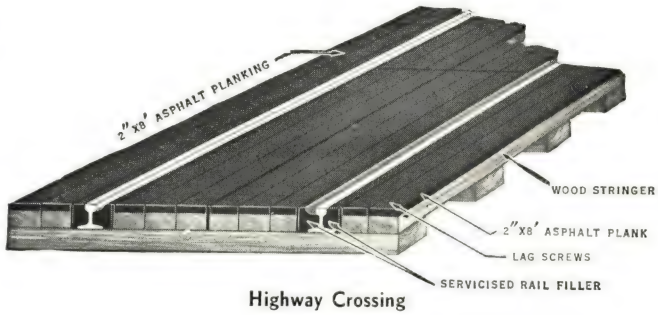
Servicised Asphalt Bridge Planking

Similar to Industrial Flooring, but of a composition enabling it to resist excessive wear and impact of vehicular and pedestrian traffic; also impervious to extremes of temperature and weather conditions. This Planking has had years of service on important bridges and viaducts carrying tremendous traffic, is self healing under continued use. Bridge Planking in connection with Servicised Rail Filler, provides a splendid crossing on streets and highways. Is also used as wearing surface for depot and station platforms, and for waterproofing construction.



Servicised Planking on Clark Street Bridge, Chicago, Ill.

Asphalt Planking for use as wearing surface is installed over wood sub-floor either by nailing or mopping down. Over concrete it is mopped in place with either hot or cold asphalt. In either application straight edge, shiplap or tongue and groove material is specified, and all joints can be sealed with asphalt when laid; thereby providing absolute water-tight seal.



Highway Crossing

Duo-Type Rubber Flooring

This is a special type of rubber tile wearing surface section with an interlocking base, especially recommended for warehouses, bridges, viaducts and floors where it is necessary to combine good appearance with heavy duty and low cost.

Servicised Rubber Tile

Sanitary, tough, durable, quiet, resilient and a comfortable wearing surface. Used in office and industrial buildings, banks, churches, schools, shops and professional offices on areas subjected to heavy foot traffic and where colorful beauty and charm are desired. This material is waterproof, non-absorbent, unaffected by alkali and most acids. May be supplied in a wide range of permanent colors in standard tile sizes.

COLAS ROADS INC.

NEW YORK, N. Y.

BOSTON, MASS. CINCINNATI, OHIO CHICAGO, ILL. ATLANTA, GA. NEW ORLEANS, LA. DALLAS, TEX.

COLAS—AN IDEAL EMULSIFIED ASPHALT BINDER

For Drives, Roads, Yards, Paths, Parking Areas, Airport Runways, Playgrounds, Tennis Courts, etc.

The Colas Method is an improved method of applying pure asphalt. Colas is an emulsion of asphalt which, when applied cold as a binder to crushed stone, forms a hard-wearing surface capable of withstanding the heaviest traffic. It has many advantages over hot bituminous binders, including economy in use, simplicity of application and remarkable wearing qualities.

Weatherproof

A Colas-built surface is essentially a trouble-free surface. It is hard wearing and it will last for a long time without maintenance. It is proof from frost. There is no danger of the surface picking up in hot weather, as a summer sun will not affect it. Application is clean and quick. Being applied cold, Colas eliminates smoking boilers and expensive equipment. The work is done with the minimum of inconvenience and the surface can be used immediately after the application is completed.

New Surfaces for Old

Colas is suitable for all types of construction. It will build a roadway capable of carrying the heaviest traffic and it will equally well preserve and beautify the ordinary gravel path. It is particularly suitable for inexpensively renewing worn concrete or bituminous surfaces.

A Surface of Beauty

Not the least of the advantages of Colas is its ability to provide an attractive surface that harmonizes with its surroundings. The colas process binds a maximum of stone with a minimum of asphalt. The finished surface retains the natural color of the gravel or crushed rock covering. The blue-gray of granite or trap rock chips, the gray of limestone, or the informal beauty of gravel can be obtained as desired.

Popularity

The popularity of Colas is proof of its unique advantages. The widespread demand for Colas is met by over sixty factories in all the principal countries of the world. Colas is proving equally successful in the extreme cold of Scandinavia and in the tropic heat of India and the Far East. Colas is extensively used on State, County, and City roads because it provides a surface that is *inexpensive* and *durable*.

Colas has achieved great popularity for the treatment of driveways and paths because of the *attractive appearance* of the finished work. Colas is being used on many of the well-known estates in the country because it combines the quality of beauty with those of *long life* and *economy*.



Colas Road Near Aldershot Barracks in England Has Borne Tanks and Heavy Artillery Traffic for Over Seven Years Without Appreciable Wear

Colas Service

Our services are freely available for consultation and recommendation of suitable methods of treatment.

Methods of Colas Construction

General—The method to be used in the construction of a driveway is dependent upon the nature of the existing surface and subsoil, and the amount of traffic that the surface will carry. The following briefly outlines the methods of construction but to insure the best results the advice of the local Colas representative should be sought whenever possible.

New Construction—Where no foundation or driveway exists a base must be installed of sufficient depth to carry the loads to which it will be subjected. This may be done with large sized rock or with successive layers of consolidated macadam rock, gravel or hard cinders laid to a depth of not less than 6 inches. Drainage adequate to prevent standing water in the foundation is necessary.

Wearing Surface—Upon this prepared base is spread a 2-in. thickness of rock, none of which is larger than 1½ in. nor smaller than ⅜ in. This layer is then rolled until tightly compacted, any large interstices between the stones being filled with ⅜-in. chips. If the driveway is to carry heavy traffic the thickness of macadam should be increased to from 3 to 4 in. The consolidated surface is then drenched with Colas, which is applied from pouring pots or from a mechanical spraying machine, in sufficient quantity to coat each particle of rock with a film of asphalt. The amount of Colas required for the penetration of the surface is equivalent to approximately 1 gal. per sq. yd. per in. thickness of macadam. A light covering of ⅜ in. chips is immediately spread on the surface and rolled. The work is finished by a seal coat of Colas, using 1 gal. to two or three sq. yds., and a liberal covering of fine rock chips or pea gravel well rolled in.

Reconditioning Existing Surfaces—When resurfacing an existing driveway, the depth of new surface

is dependent upon the strength of the existing surface and the amount of traffic carried. If the foundation is sound, all pot-holes and depressions are first filled with new stone or gravel of suitable size, rolled, penetrated with Colas and again rolled. The surface thus prepared may be treated in either of two ways.

If the base is sufficiently sound, two sucessive applications of Colas and fine stone chips will suffice. After the surface has been prepared and swept perfectly clean, Colas is applied 1 gal. to three sq. yds. and covered with clean 3/8-in. chips or pea gravel. The work is then rolled and the application of Colas and chips is then repeated.



Alternatively, the prepared surface is covered with a 1-in. consolidated thickness of 3/4-in. rock which is then penetrated with 3/4 of a gal. of Colas. After this has been covered with 3/8-in. chips and rolled, a seal coat of Colas and further 3/8-in. chips can be applied.

Note: Before undertaking any Colas work for the first time it is recommended that the advice of the nearest COLAS ROADS Office be requested.

Left:
Stable and Garage Driveway Built with Colas in Brookline, Mass.

Lower Left:
Colas Used as Received Direct from the Drum

Lower Center:
Colas Applied with Hand Spray Equipment

Lower Right:
A Perfect Wearing Surface That Harmonizes with Its Surroundings



Colas Tennis Courts

A Better Surface Needing No Attention

The Colas tennis court overcomes every disadvantage usually associated with hard tennis courts. The Colas court has a firm surface, requiring no attention; is easy on the feet by reason of its resilience; easy on the eyes, because of its pleasing green color; easy on the purse, for its cost is moderate and the expense of constant care is eliminated.

The popularity of the Colas court among private owners, Clubs, and Public Park Departments is readily understood when the following advantages are considered:

(1) Resilience—A Colas court possesses remarkable resilience for a surface constructed so solidly. The spring and cushioning of the surface relieves the strain and fatigue usually associated with hard courts.

(2) Fast Play—A Colas surface is essentially fast and the ball bounds with absolute accuracy.

Many well-known players have commented most favorably on this feature.

(3) Foothold—The surface gives the player a perfect foothold, preventing slipping and sliding.

(4) Weatherproof—The surface being porous, dries quickly and can be played upon almost immediately after a shower. Freezing will not affect it nor does a hot sun soften it.

(5) Color—A special green stone granule is used for the top surface of the court. It provides a permanent color of exactly the right shade to insure visibility without eyestrain. Other colors may be used if preferred.

(6) Moderate Cost—The construction of a Colas court is not expensive considering its long carefree life and the saving in time and money usually expended on maintaining other types.

A Colas court permits more play-hours per annum. No time is lost in dragging, watering and rolling; no waiting for hours for it to dry; no softening in spring and fall weather.

The development of the Colas court marks an important advance in hard tennis court construction. Numerous contractors are specializing in their construction.

The address of the nearest contractor will be supplied on request.



Colas Tennis Courts, Bronxville, N. Y.

AMERICAN CURB-GUTTER BLOCK CO., INC.

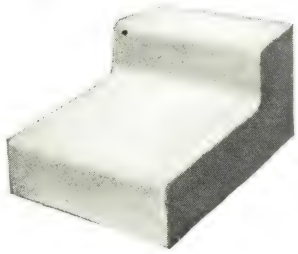
499 Seventh Avenue
NEW YORK, N. Y.

AMERICAN CURB-GUTTER BLOCKS

For the Economical and Permanent Construction of Driveways, Roadways and Sidewalks

Description

A portable concrete curb-gutter block made in a one-piece section on a patented machine under very high pressure. Each block is 1 ft. long and forms a gutter 1 ft. wide with a 5-in. curb, and weighs approximately 70 lbs.



Uses

For rapid assembly in continuous curb-gutters in the construction of driveways, roadways, sidewalks, park and garden walks, lawns and other landscape purposes for the private home owner, municipal improvements, real estate developments, etc.

Meet Every Angle Requirement

Blocks are made in straight, curved and end sections to conform with any curve or angle necessity.



Method of Laying American Curb-Gutter Blocks

Advantages

Automatically take up expansion and contraction.
Form perfect borders for all types of paving.
Prevent roadbed from raveling.
Improve property appearance at low cost.
Eliminate further labor and upkeep expense.

Low Installation Cost

Installation of American Curb-Gutter Blocks can be made at approximately one-third of the cost of old-fashioned method of pouring.

Where Obtained

Blocks are made under our supervision by licensed manufacturers and can be obtained locally.

Our Guarantee

We guarantee all installations to remain in original alignment and to be permanently perfect and frost-proof. We will replace any block which may crack or become displaced.

How Blocks Are Laid

American Curb-Gutter Blocks being a top-frost construction require only a 1-in. bed of cement mortar. This is merely a cushion to insure the laying of blocks in perfect alignment. One man can complete a driveway in less time than it would take to build the forms for the old-fashioned method of pouring.



Driveway Before Installation



Same Driveway After Installation